Tech Learning Consumption Trends:
A Skillsoft® Signals Research Report

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EXECUTIVE SUMMARY

This report explores learning consumption data patterns across a user base of nearly 12 million technology professionals, representing thousands of the world’s leading organizations, including 65 percent of the Fortune 500. Our learning consumption data, which captures over 25 million hours of interactions, provides insight for technology leaders on what is happening in the technology market in general, and how technology professionals are using continuous learning to cope with today’s fast-changing environment. The analysis represents what is hot, what is not, and compelling patterns about these areas.

1 This represents non-unique users of Skillsoft’s Technology & Developer content. Some learners may consume content from multiple topics.
WHAT’S TRENDING IN TECHNOLOGY?

The following pages feature actual usage data showing what technology peers from leading organizations are using to educate themselves. With a dataset in the millions, it may also provide insight into technology usage among those peers.

We use this data to inform our content choices, curation of resources and decisions to add new learning channels. Take a look at Skillsoft’s Aspire learning journeys and you will notice the journeys map to the areas where we see high consumption. Our data provides the rationale and informs our build plans and ensures that we are responding to what organizations, teams and learners in technology need to adapt, learn, perform and succeed.

THE DATA

The data was collected from Skillsoft’s fiscal year 19: February 1, 2018 through January 31, 2019.² It includes all modalities (videos, courses, books) however books are represented with a very conservative 2-minute proxy per access to a title. All assets measure English language usage and do not factor in translated or localized content.

The areas we have defined are standard groupings (taxonomy) used by many organizations and publicly facing retail outlets such as Amazon (fed from BISAC codes) that carry technology-related content. In some views, we have omitted details on productivity, tech & society and emerging tech because of sparse data.

KEY INSIGHTS

CAC TO AGILE
Usage patterns reveal that our users are educating themselves in topics that fit the modern-day narrative of transforming an organization from a classic, command-and-control management style of a company with quarterly product/services releases, to a lean/agile organization continuously deploying their product/services securely at scale.

SECURITY IS KEY
Security is vital for most enterprises. We delivered nearly 5 million hours of training to security pros around the world and it is our customers’ second largest area of focus after networking & operating systems at 6.3 million.

IT’S ALL CONNECTED
Most of our areas are closely related to one another. How could an organization move to the cloud without having, reliable security measures in place? Likewise, how could a company make data more part of their

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² The date range of February 1, 2018 through January 31, 2019 is known as FY19.
business without governance, security measures and infrastructure to support it? How can a company fully benefit from their data efforts without having real-time pipelines built for their programmers to leverage in intelligent apps?

FUTURE SKILLS

It is clear that most organizations are thinking about technology adaptation for current tech stacks, future tech stacks and business models. This is evident in the strong showing of CI/CD, DevOps, data, cloud and security topics.

WHAT ARE TECHNOLOGY & DEVELOPER LEARNERS DOING?

The average user on our platform spends approximately **2.25 hours** consuming content.

Network & operating systems learners (where we have well-utilized certification content coverage) spend an average of **5 hours** training on relevant content.

Security users spend an average of **3.55 hours** consuming content.

Engagement is influenced by quality content and the critical nature of a subject.

Learners prefer courses supplemented by books. The modular options encourage microlearning experiences.

Learners are completing content in fewer hours. Three scenarios come to mind when considering this:

- Microlearning is contributing to fewer hours being consumed.
- Learners are seeking to advance their careers—for example technology professionals preparing for certification exams.
- Improvements in search, browse, as well as a trend toward learners consuming more structured learning paths with the content.
MOST UTILIZED CONTENT TOPICS

- Data
- Security
- Microsoft (Windows, Azure, Server, etc.)
- Server (Windows, Linux, CompTIA, etc.)
- Manage (Devices, Services, Deployments, Performance, etc.)
- Service (Microservice, SOA)
- Create (Networks, Applications, Instances)
- Configure (Routers, Servers, OS, etc.)
- SQL
- Web

MOST POPULAR TOPICS (BY HOURS) SERVED

- Networking & Operating Systems
- Security
- Programming
- Data
- DevOps
- Software Development
- Cloud
- Tech and Society

MOST POPULAR CERTIFICATIONS OVERALL

- CompTIA A+
- CompTIA Network+
- Certified Ethical Hacker
- CompTIA Security+
- Certified Information Systems Security Professional (CISSP)
YOY MONTHLY VIEW – COURSE COMPLETIONS

Course completions each month and completion rate compared to number of accesses 02/01/2018 - 1/31/2019.

This represents the number of hours served out to consumers on a monthly basis. Course consumption between 02/01/2018 - 1/31/2019. Our running total is 25+ million hours or ~4.1 million classroom days served (6-hour training days) in the fiscal year.

Each month we serve roughly 2.1 million hours of content or ~69k hours each day.

COMPLETIONS

• The seasonality starts off the year consistently but takes a steep change upwards in December and January. The spike upwards could be due to several factors, including:
  
  ◦ Annual training requirements—common with many technical service firms.
  
  ◦ Assigned training in conjunction with a performance review that needs to be completed by year end—often compulsory for all employees.
  
  ◦ Seasonal downtime among our technology service industry learners in correlation to visiting client sites.
  
  ◦ New content into Skillsoft platforms, including our ITProTV content that featured new Cisco certification content.
  
  ◦ The addition of new Cisco content. Learners wanted to finish what they started; the new content kept them engaged.
WHAT TOPICS ARE IMPORTANT FOR TRAINING?

OVERALL VIEW OF OUR TOPICS BY HOURS SERVED

Network/opsys was the most popular topic consumed, with security taking a close second. Certifications are spread throughout the areas, although networking and operating systems have more due to the nature of the subjects for certifications. The programming areas lead in both the number of assets available and the number of users engaged with our content yet is third in this view. Use of our data content is growing quickly.

TOPICS BY ASSETS AVAILABLE

TOPICS BY USERS
OVERALL VIEW OF TOPICS BY EXPERTISE LEVEL

- Security and networking & operating systems featured the highest usage of beginner books, but also as a percentage, the most expert-level content too.

- As a percentage, data had the smallest usage of expert-level content assets, but one of the highest percentages of intermediate assets. This is largely reflected in learners moving up the proficiency curve.

- As a percentage, DevOps has the least usage of beginner-level content.

![Graph showing overall view of topics by expertise level]

IN SUMMARY

Today's rapidly changing environment requires that technology professionals and developers be well-versed in many topics as is evident by our user data.

Security is critical for most enterprises. We delivered nearly 5 million hours of training to security pros around the world and is our second largest area of focus after networking & operating systems at 6.3 million.

Compared to their strength in hours served, security and network/opsys have fewer assets served as a percentage. The programming areas lead in both the number of assets available and the number of users engaged with our content. Productivity and collaboration tools also gain in the number of assets available.

The programming areas leads in the number of users engaged with our content and software development gained the largest percentage growth compared to hours served.
There were nearly 8 million accesses to our software development content. Network/opsys, where the majority of content exists, is by far the most popular topic of our areas.

**ALL CONTENT TITLES**

*Word clouds are based on raw data from all titles for a given area. We have omitted stop-words and numbers.*

DevOps had the largest increase in share compared to hours served for all areas and programming and software development had the most significant decreases for all areas.

The DevOps area had the highest percentage of completions while representing the fifth largest area of content consumption. Programming and software development had a significant decrease in completion rate. Productivity and emerging tech had a large increase in completions.

On average, learners spent more time, 5 hours, training on network and operating systems content, largely due to the higher amounts of certification content, while security users spent an average of 3.55 of content.

Usage patterns reveal that our learners are educating themselves in topics that fit the modern-day narrative of transforming an organization from the classic command-and-control management style of company with quarterly product/services releases, to a lean/agile organization, continuously deploying their product/services at scale and in a secure fashion.
Compared to the previous fiscal year,

- We saw more **users** assessing content.
- We saw more **accesses** to content (~5m more).
- We made more security-related **assets** (~540 more).
- In FY19 more users **completed content** than in FY18 (an approximately 18% increase).

**WHAT DOES THIS MEAN?**

- As we move more people onto our platform, Percipio, users are finding their content more quickly and are not having to consume as much material to become **literate** in their topic.
- Our higher completion rate also indicates that users are finding what they need more **efficiently**.
- With more users accessing content, we observe that users are demonstrating **adjacency learning** by accessing content in multiple topics.

**SKILLSOFT ASPIRE LEARNING JOURNEYS**

Inspired by our data, Skillsoft Aspire is a series of job, task, or function-oriented journeys for individuals, teams, and organizations working in technology and related areas. Journeys include sequenced instruction that methodically progresses on prescribed tasks, functional responsibilities, application of knowledge so an entity can move towards an aspirational goal. [Visit this page to learn more.](#)

**ABOUT SIGNALS**

Signals are, in essence, the directional findings that point to something you may not have been aware of, but reveal a new correlation or connection. At Skillsoft we have plenty of data, yet most of our data is not for public consumption. We've chosen to take our non-identifying data to provide our stakeholders with insight into what is happening in learning. Skillsoft aims to deliver insights from our 45 million users who are currently training with us. In particular, this report is a result of analyzing our data and sifting out the noise to find the signals that have a bearing on technologists consuming learning content.

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APPENDIX

DISCIPLINE DEEP DIVES

1. Networking & Operating Systems
2. Security
3. Programming Languages
4. Data
5. DevOps
6. Software Development
7. Cloud
NETWORKING & OPERATING SYSTEMS

LARGEST AREA FOR HOURS DELIVERED

Approximately 16,219 networking & operating systems assets were measured. Some compliance and business skills content may be related, but not included in these results.

Networking & operating systems had the third most accesses and completion percentage for all our areas. It had the most hours of consumption, likely because of the number of certification preps. Certification preps keep learners actively engaged because there is a clear goal of passing an exam. Even when certification content is in play, company maturity with eLearning and corporate culture are key influences on what gets completed.

Network and operating systems topics represent ~25% of our total number of hours served out yet only 12% of our total users and 15% of our total assets, indicating this area has a high attach-rate as there are fewer users and fewer assets, but the hours of usage are higher than all other areas.

CompTIA content remains very popular. Windows and Linux also stand out of the pack in this area.

Top Five Assets:

1. TestPrep 220-901 CompTIA A+
2. Windows Server Administration Fundamentals
4. CompTIA Network+ N10-007: Routing, Switching, & IP Addressing
5. CompTIA Network+ N10-007: Ports and Protocols and the OSI Model
NETOPSYS BY NUMBER OF CONTENT ACCESSES

Network: 1,228,201
Windows: 1,068,763
A+: 1,068,763
Unix/Linux: 642,224
Config/Monitor: 397,905
Mobile/Wireless: 237,931
Sharepoint: 65,023

NETOPSYS BY NUMBER OF HOURS CONSUMED

Network: 2,132,056
Windows: 1,813,357
A+: 1,918,642
Unix/Linux: 601,673
Mobile/Wireless: 207,352
Config/Monitor: 805,988
Sharepoint: 57,304

NETOPSYS TOPICS BY NUMBER OF ASSETS AVAILABLE

Windows: 2,526
Unix/Linux: 1,316
Mobile/Wireless: 975
Config/Monitor: 1,097
Sharepoint: 848
A+: 559

NETOPSYS BY NUMBER OF USERS BY TOPIC AREA

Sharepoint: 342,709
A+: 321,061
Windows: 306,460
Unix/Linux: 141,245
Config/Monitor: 158,716
Mobile/Wireless: 15,995

NETOPSYS BY NUMBER OF AVG HOURS PER USER

Network: 6.96
Windows: 5.65
A+: 5.40
Unix/Linux: 4.63
Config/Monitor: 5.10
Mobile/Wireless: 3.01
Sharepoint: 2.25
SECURITY

A KEY PRIORITY FOR ORGANIZATIONS

We have roughly 6,737 security-related assets that were measured. Some compliance and business skills content may be related, but not included in these results.

Security has the highest completion rate likely because of its critical importance. Security and security-related topics represent ~21% of our total number of hours served out yet only 14% of our total users and 8.66% of our total assets.

There is a healthy amount of certifications in this area and plenty of tool-level content for security professionals. CompTIA certification training, which represents 4 out of the top 5 assets, had the highest number of hours and average number of hours per area.

Data is crucial in most secure organizations both as a tool and as an asset to keep the organization safe. Risk analysis and mitigation are top-of-mind as well.

The signals show that quality content and the critical nature of the subject drive engagement. CompTIA continues to dominate in security learning training. Certified Ethical Hacker (CEH), although a relatively new certification, is certainly performing above the average for other certifications. CompTIA and CEH may benefit in average hours per asset because of fewer assets make people gravitate to what is available. Quality content keeps them engaged after search surfaces the content.

The average security asset serves out 482 hours of training, compared to an average of 198 for all Skillsoft Technology & Developer training assets. We see more courses and modalities when compared to all topics across the Skillsoft training corpus.

Top Five Assets:
1. TestPrep SY0-401
   CompTIA Security+
2. CompTIA Security+
   SY0-501: The Present Threat Landscape
3. CompTIA Security+
   SY0-501: Cryptography
4. TestPrep Certified Information Systems Security Professional (CISSP)
5. CompTIA Network+
   N10-006: Network Security

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PROGRAMMING

FEATURING JAVA IN OUR TOP FIVE

We have roughly 17,634 programming assets that were measured. Some compliance and business skills content may be related, but not included in these results.

Programming topics represent 18% of our total number of hours served out, 19% of our total users and 20% of our assets served.

Java dominates in the number of assets and total hours, but Python leads in average hours consumed. JavaScript is a distant third in all measures.

Program, Java and Web are distinct terms belonging in a programming view, with Python, JavaScript, HTML, API, Develop and .Net being healthy secondary topics.

Top Five Assets:

1. Python: The Basics
2. Java SE 8 Fundamentals: Introduction to Java
3. Java Spring: Spring Application Basics
4. Java SE 8 Fundamentals: Classes and Objects
5. Introduction to R Programming

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DATA

SQL IS TOP OF MIND

Data and related data technology and topics represent 12% of our total number of hours served and 15% of our total assets and 13% of our total users.

Database topics, especially SQL, still remain top of mind for learners in this area.

Top Five Assets:
1. Introduction to SQL
2. The Big Data Technology Wave
3. Data Visualization: Essentials
4. Big Data Opportunities and Challenges
5. Fundamental Methods for Data Science in R

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DATA BY NUMBER OF ACCESES

SQL
1,017,260
Microsoft 232,742
Table 176,161
Visual Analytics 557,521
Hadoop 308,296

DATA BY NUMBER OF HOURS CONSUMED

SQL
1,141,256
Microsoft 267,261
Table 198,219
Visual Analytics 140,256
Hadoop 163,164

DATA BY NUMBER OF USERS

SQL
246,537
Microsoft 71,440
Table 77,882
Visual Analytics 110,231
Hadoop 142,814

DATA BY NUMBER OF ASSETS AVAILABLE

SQL
2,668
Microsoft 1,024
Table 159
Visual Analytics 837
Hadoop 678
Spark 53,919
Mining 2,401
DEVOPS

CI/CD IS FUNDAMENTAL

DevOps topics represent 9% of our total number of hours served out and 13% of our total assets served.

DevOps is a relatively new area, and there is overlap with programming, software development, network/opsys, cloud and security.

CI/CD (Continuous Integration/Continuous Delivery) is important in most organizations as a fundamental activity for DevOps.

Top Five Assets:

1. DevOps Fundamentals: Tools, Technologies, & Infrastructures
2. Deploy Windows 10 with New and Traditional Tools
3. Red Hat Certified System Administrator: The Environment
4. Red Hat Certified System Administrator: The Command Line
5. Software Defined Networking Fundamentals

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DEVOPS BY NUMBER OF ACCESSES

- **Admin**: 196,006
- **Storage**: 177,435
- **Windows**: 106,046
- **Installation**: 83,688
- **Monitor**: 28,136
- **Performance**: 19,801
- **Virtualization**: 37,315
- **Deploy**: 18,044
- **Integration**: 12,854

DEVOPS BY NUMBER OF HOURS CONSUMED

- **Admin**: 478,594
- **Storage**: 341,039
- **Windows**: 106,046
- **Installation**: 110,800
- **Monitor**: 15,707
- **Performance**: 14,557
- **Virtualization**: 52,015
- **Deploy**: 184,660
- **Integration**: 16,165

DEVOPS BY NUMBER OF USERS

- **Deploy**: 72,786
- **Virtualization**: 16,193
- **Monitor**: 11,943
- **Windows**: 39,970
- **Installation**: 24,415
- **Admin**: 62,493
- **Storage**: 59,496
- **Performance**: 15,526
- **Integration**: 5,247

DEVOPS BY NUMBER OF ASSETS AVAILABLE

- **Integration**: 410
- **Storage**: 555
- **Monitor**: 204
- **Virtualization**: 481
- **Windows**: 169
- **Deployment**: 313
- **Performance**: 14,5
- **Admin**: 83
SOFTWARE DEVELOPMENT

TESTING AND DEVELOPING WEB APPS ARE LEADING THE WAY

We have roughly 8,545 software development assets that were measured. Some compliance and business skills content may be related, but not included in these results.

Software development topics represent 6.4% of our total number of hours served out, 16% of our total users and 10% of our total assets.

Software testing, quality and developing web apps lead the way in this area.

Software design and architecture are areas that have a good number of assets with weak consumption.

Test, Develop, Model, Design, Agile stand out and Microservice, Web, Architecture, Scrum and Service are secondary words visible.

Top Five Assets:
1. Software Practices (SCRUM): SCRUM Roles
2. Introducing Agile Software Development
5. Software Practices (SCRUM): SCRUM Meetings

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DOUBLE DIGIT LEARNER ACTIVITY

Cloud topics represent about 7% of total hours served, and 10% of total users and about 7% of total assets served.

Virtualization, Azure, AWS and other cloud platforms are dominant.

Top Five Assets:

1. Cloud Computing Fundamentals: Overview
2. Microsoft Azure: Introduction
4. Getting Started with Amazon Web Services
5. Architecting on Amazon Web Services: IAM and Object Storage

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ABOUT THE AUTHOR

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Mike is a technology strategist with extensive experience establishing, building and maximizing relationships with industry leaders, companies, and partners. Throughout his career, Mike has demonstrated success leading, directing and managing the development, sales and delivery of thought-provoking content.

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ABOUT SKILLSOFT

Skillsoft is a front-runner in corporate learning, delivering beautiful technology and engaging content that drives business impact for modern enterprises. Skillsoft comprises three award-winning systems that support learning, performance and success: Skillsoft learning content, the Percipio intelligent learning experience platform and the SumTotal suite for Human Capital Management.


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