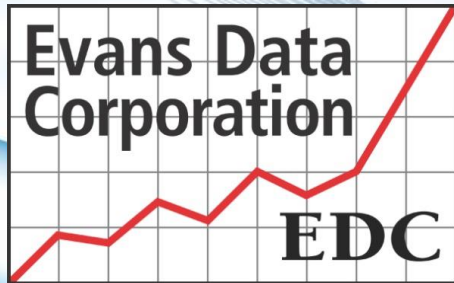# Evans Data Corporation

Executive Overview of the Developer Landscape

Evans Data Corporation
340 Soquel Ave.
Santa Cruz, Calif.
www.evansdata.com
@evansdatacorp

Evans Data Corp. – Who We Are

Market Intelligence Exclusively Focused on Software Development since 1998

Syndicated Surveys – Global Development, AI, ML & Big Data, Cloud, Mobile & Internet of Things, DevOps, Developer Marketing and Developer program surveys

Global Developer Population and Demographics Study- secondary and primary research

Custom Research projects – Developer program benchmarking, Feature testing, Segmentation and Personas, Message Testing, Recurring NPS, Developer Journey, pricing, and more

Conferences, DevRelate and DevMetric – new online developer program certification site

Ongoing surveys conducted every month for FRESH and focused data
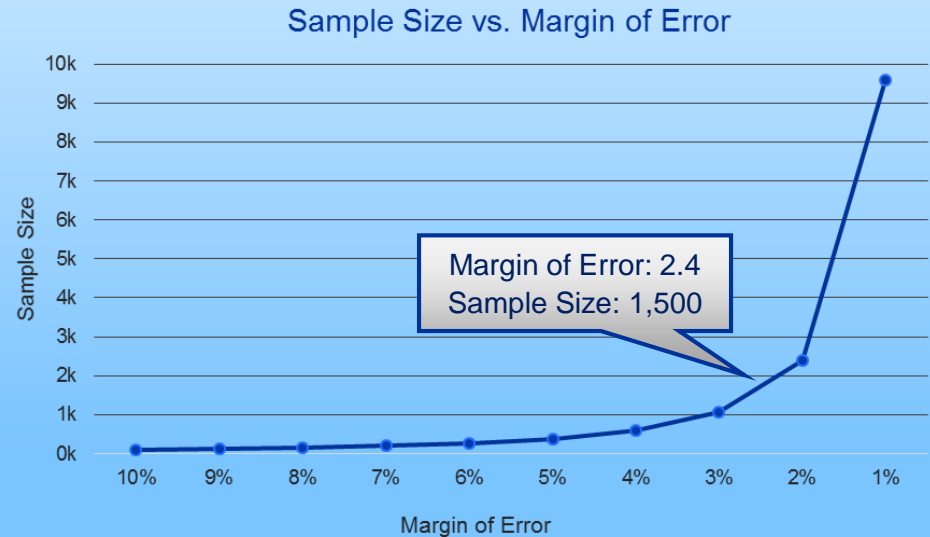
Over 14 unique syndicated surveys per year
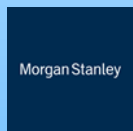
Survey Basics: Margin of Error

- Global Development Survey Margin of Error at Aggregate (1,500) = 2.5% extremely credible and reliable

- Focused surveys such as Cloud, Mobile, Big Data, etc. have industry standard margin of error of +/- 4.5% or better

- After about 1500 respondents – diminishing returns. Difference between 2000 and 100,000 is less than 2%
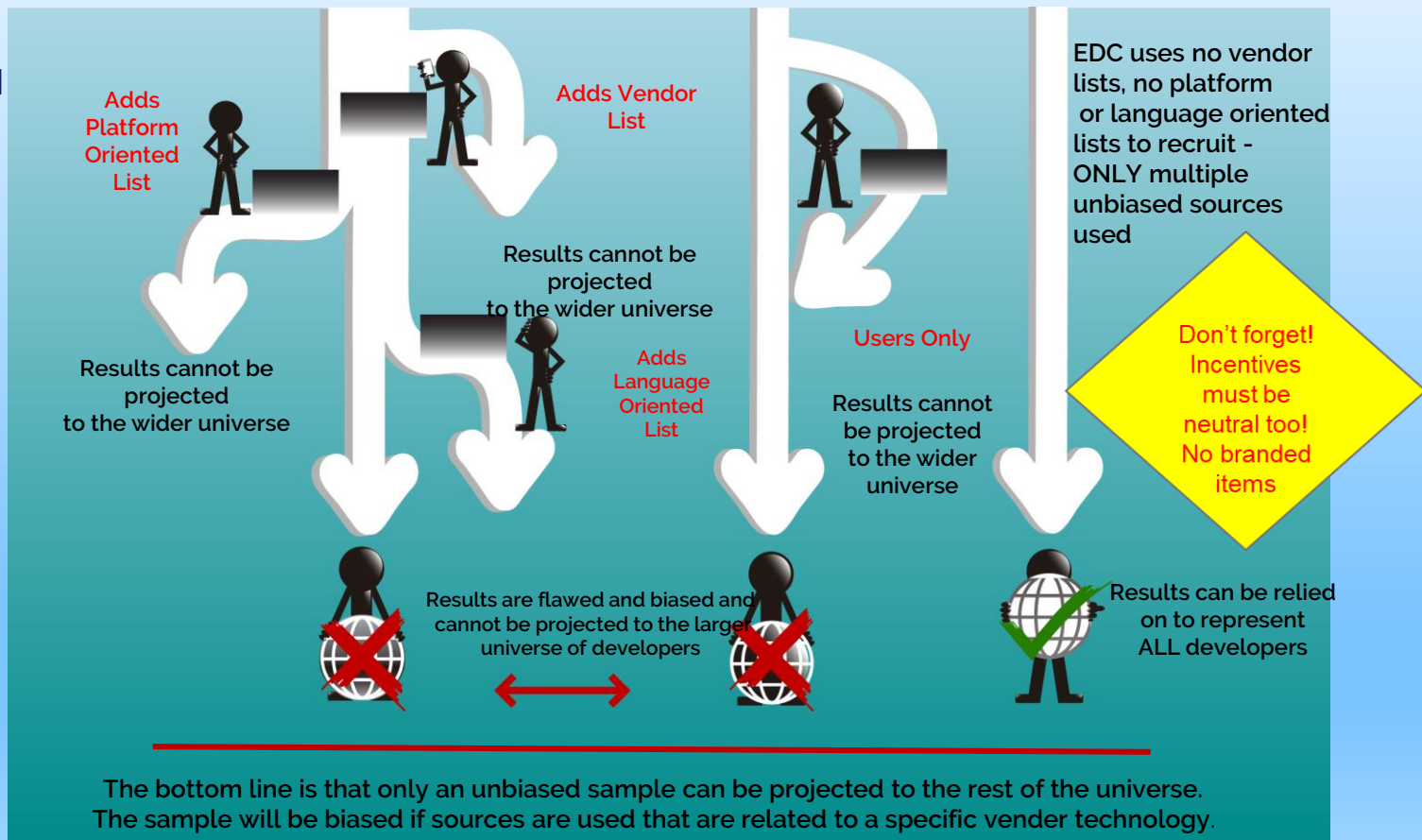
Sample Size vs. Margin of Error

Margin of Error: 2.4
Sample Size: 1,500

Sample Size (y-axis): 0k, 1k, 2k, 3k, 4k, 5k, 6k, 7k, 8k, 9k, 10k

Margin of Error (x-axis): 10%, 9%, 8%, 7%, 6%, 5%, 4%, 3%, 2%, 1%

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EDC

Survey Basics: Sample MUST be Unbiased and Random

Sample must be from unbiased sources and PURE – no weighting

Only an unbiased sample can be projected to the rest of the universe. The sample will be biased if sources are used that are related to a specific vendor, or technology.

User surveys are not a random sample and cannot be projected.

Adds Platform Oriented List

Adds Vendor List

EDC uses no vendor lists, no platform or language oriented lists to recruit - ONLY multiple unbiased sources used

Results cannot be projected to the wider universe

Results cannot be projected to the wider universe

Don't forget! Incentives must be neutral too! No branded items

Adds Language Oriented List

Users Only

Results cannot be projected to the wider universe

Results are flawed and biased and cannot be projected to the larger universe of developers

Results can be relied on to represent ALL developers

The bottom line is that only an unbiased sample can be projected to the rest of the universe. The sample will be biased if sources are used that are related to a specific vender technology.

User Surveys: Explore Your Users' Tendencies

- Shines a light on your users' demographics, tech use and satisfaction

Should be BLIND – Users will be more honest and objective with a third party

--Private vendors: satisfaction
--Media and Communities: profiling their audience for advertisers

User surveys ONLY show tendencies of your users – they can't be projected onto the rest of the developer universe
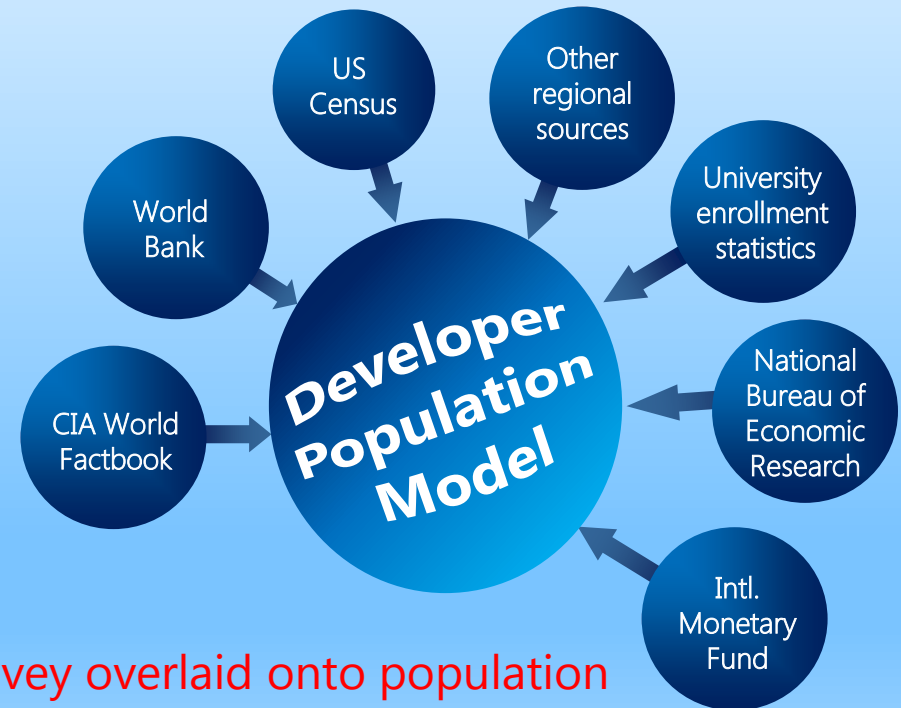
Evans Data
Corporation
EDC
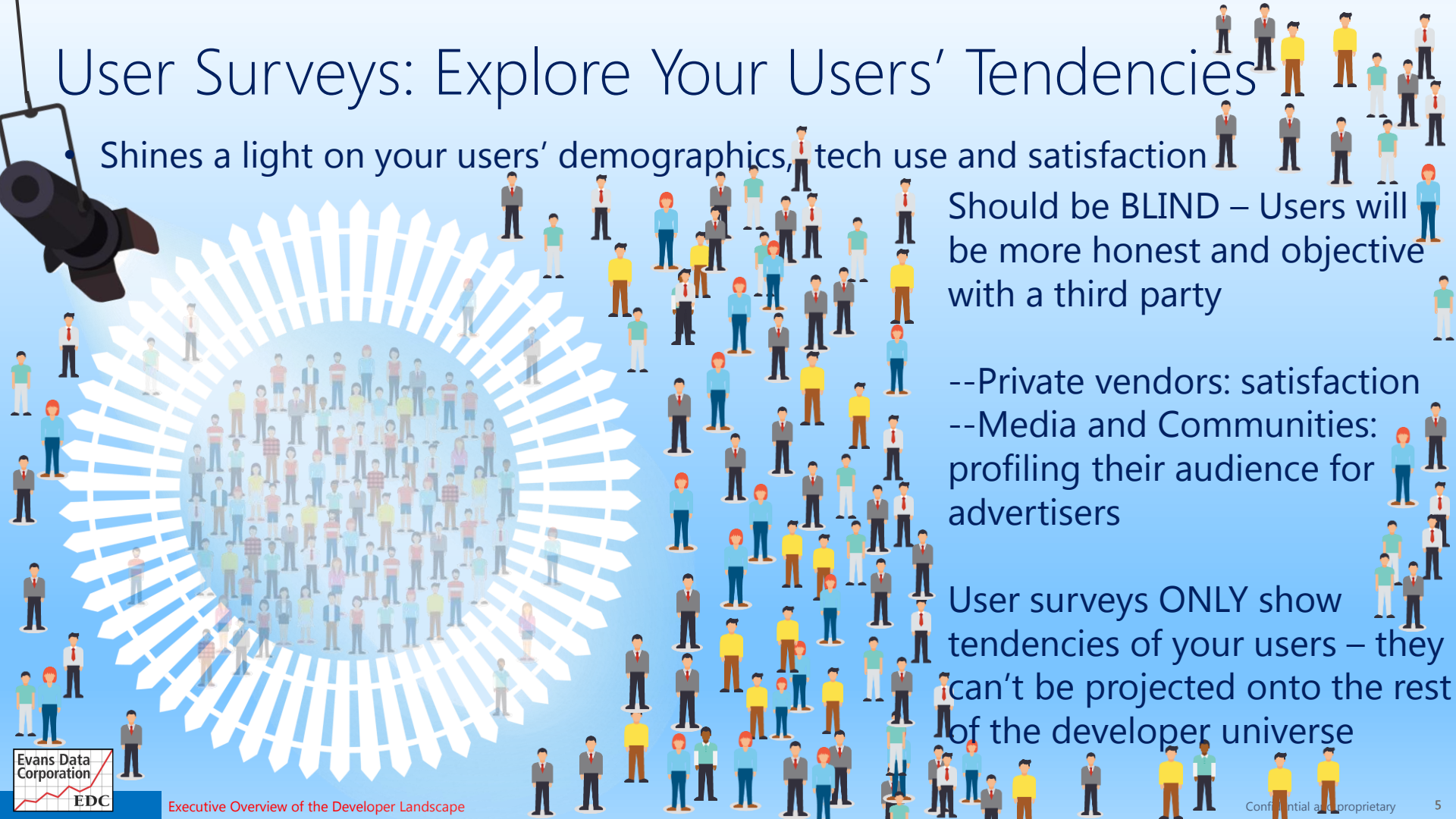
Developer Population and Demographics Methodology

Population estimates updated every year since 2006

A few of the facts checked

- Growth in tertiary education
- Number of internet hosts per 1000 people
- Population growth
- Number of PCs per 1000 people
- Number of smartphones per 1000 people
- Growth in secondary Education
- Growth in GDP per capita
- Computer science degrees
- 10 to 18 others depending on country

US Census

Other regional sources

World Bank

University enrollment statistics

CIA World Factbook

Developer Population Model

National Bureau of Economic Research

Intl. Monetary Fund

Global Development Survey overlaid onto population numbers to get tech adoption numbers and TAMs

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Global Developer Population 2019

North America
4,865,062

APAC
8,900,610

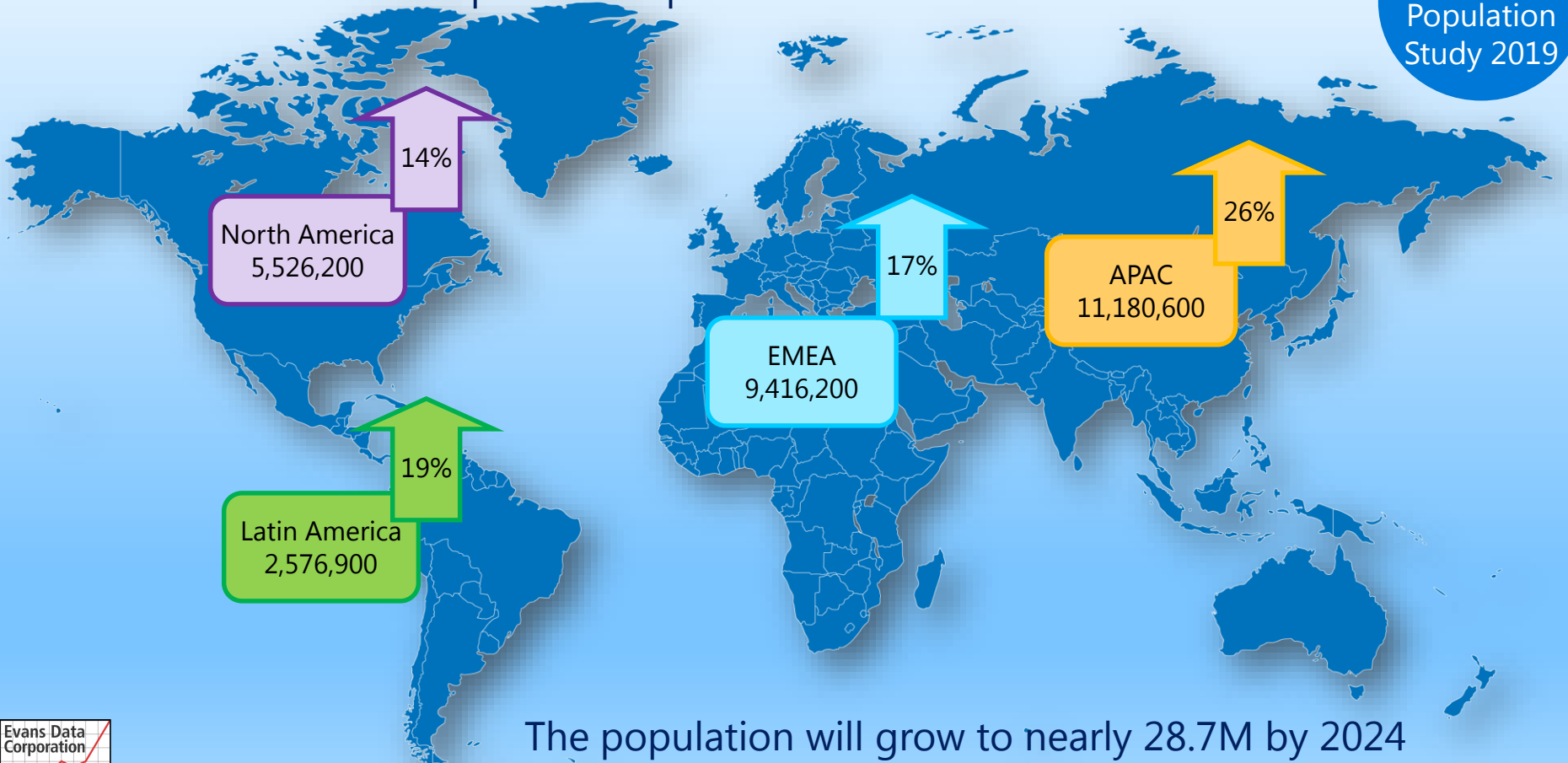EMEA
8,041,635

Latin America
2,162,461

Nearly 24 million professional developers were distributed around the globe in 2019
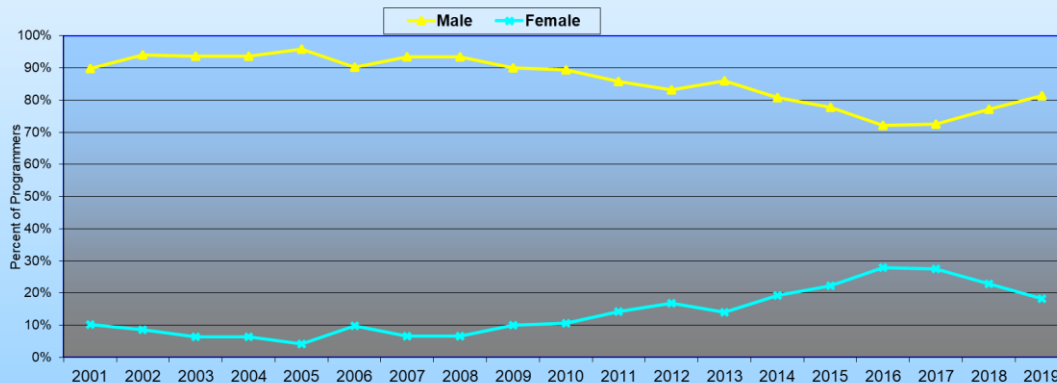
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Global Developer Population 2024

14%

North America
5,526,200

17%

EMEA
9,416,200

26%

APAC
11,180,600

19%

Latin America
2,576,900

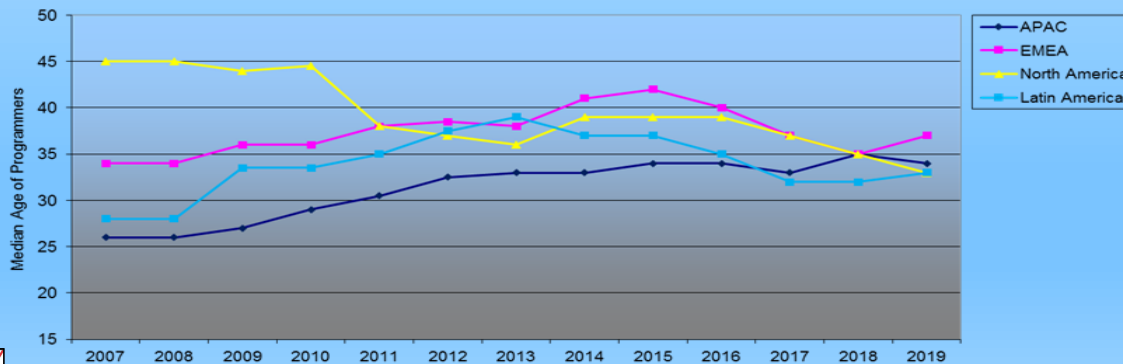The population will grow to nearly 28.7M by 2024

Developer Profile

Gender (Trend)

Developer Marketing 2019, © 2019 Evans Data Corp.

Median Age by Region (Trend)

Global Development Survey 2019: Volume 1, © 2019 Evans Data Corp.

Median age is 35

19% are women

31% learned on the job

79% are married

53% have advanced degrees

Developer Psychographics

Developer Career Motivation by Gender

◆ Male   ■ Female
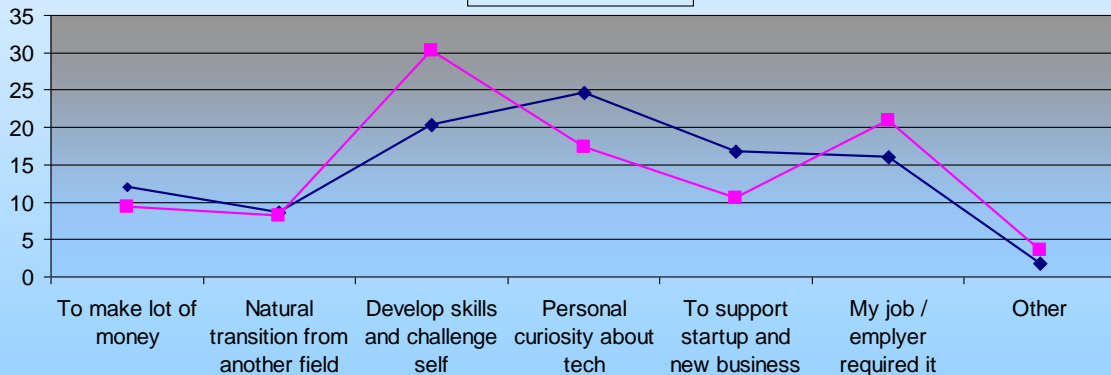
The motivation for becoming a programmer varies somewhat by gender

Most Exciting Technologies

☐ Now   ■ Future

The most exciting technologies today are not the ones developers think will be most exciting in the future

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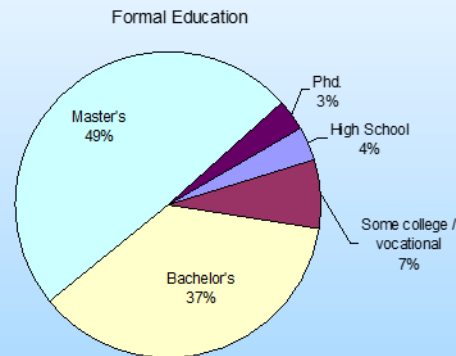
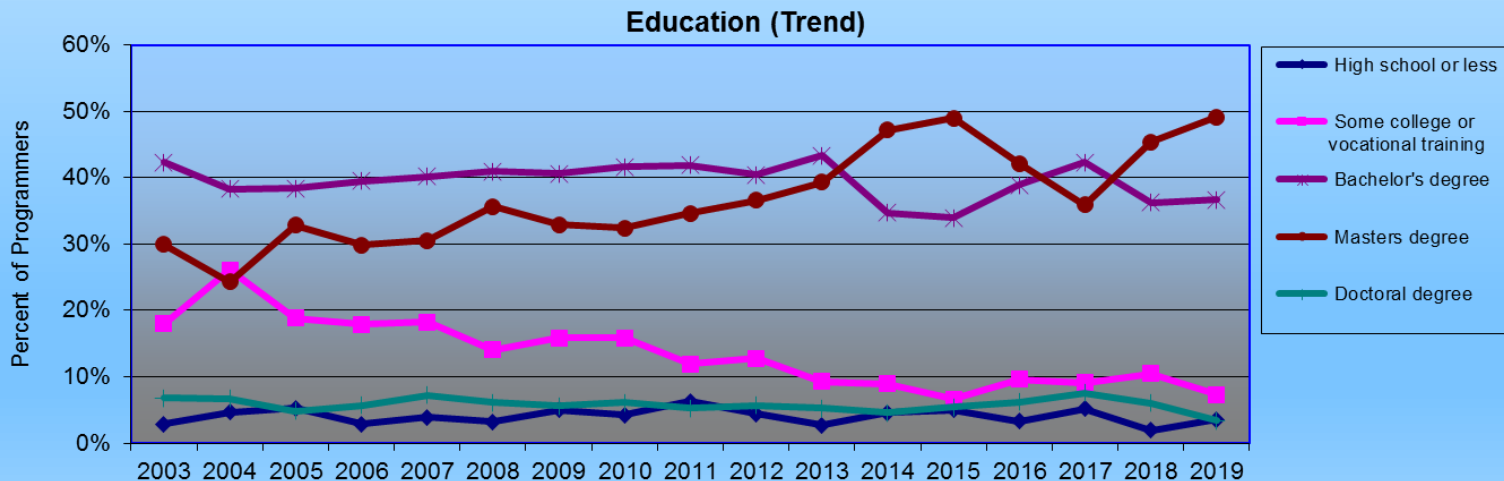Executive Overview of the Developer Landscape

Developer Marketing 2019 © Evans Data Corp
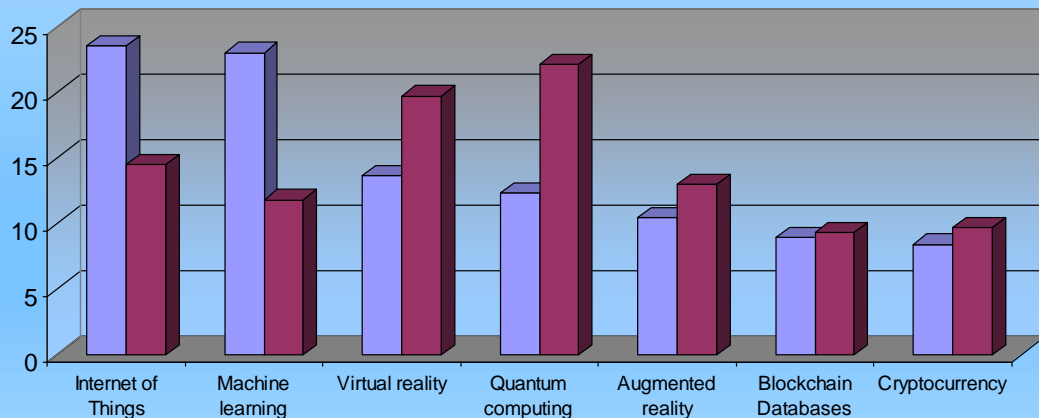
Education

Developers are highly educated professionals – 9 in 10 have a degree and over half are advanced degrees

Formal Education
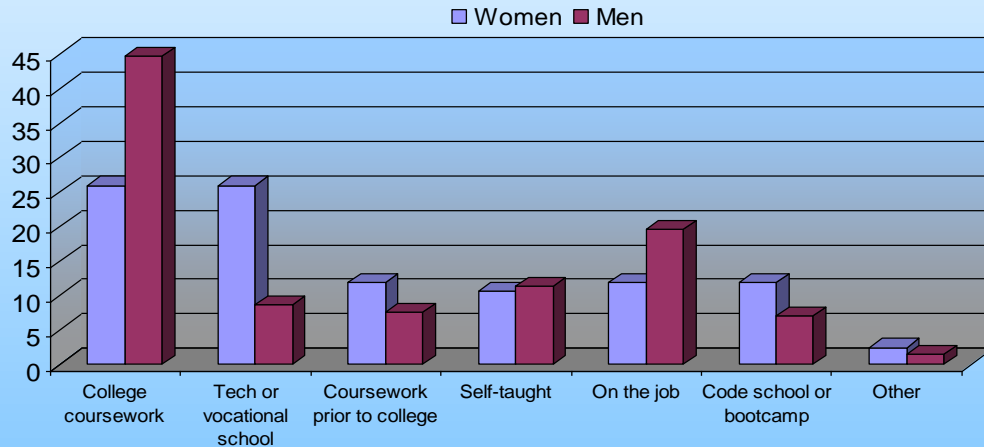
- Master's 49%
- Bachelor's 37%
- Some college / vocational 7%
- High School 4%
- Phd. 3%

Developer Marketing 2019 © 2019 Evans Data Corporation

Education (Trend)

Percent of Programmers

Legend:
- High school or less
- Some college or vocational training
- Bachelor's degree
- Masters degree
- Doctoral degree

Developer Marketing 2019, © 2019 Evans Data Corp.

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A Lifetime of Learning

Where did you first enter the software development field?

☐ Women ☐ Men

Developer Marketing 2019 © Evans Data Corp

Technology changes so rapidly that continual learning is required

To succeed in software development one has to continually evolve and change

Developer Marketing 2019, © 2019 Evans Data Corp.

Men and women enter the field through different routes
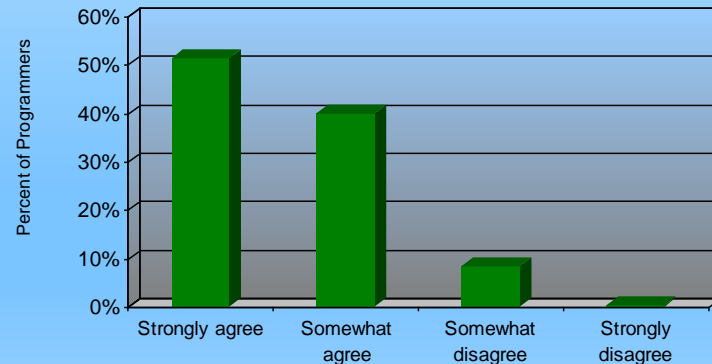
Host Operating System

Which operating system do you run on the computer you use to do MOST of your programming? (Global Aggregate)

Global Development Survey 2019: Vol. 1, © 2019 Evans Data Corp.
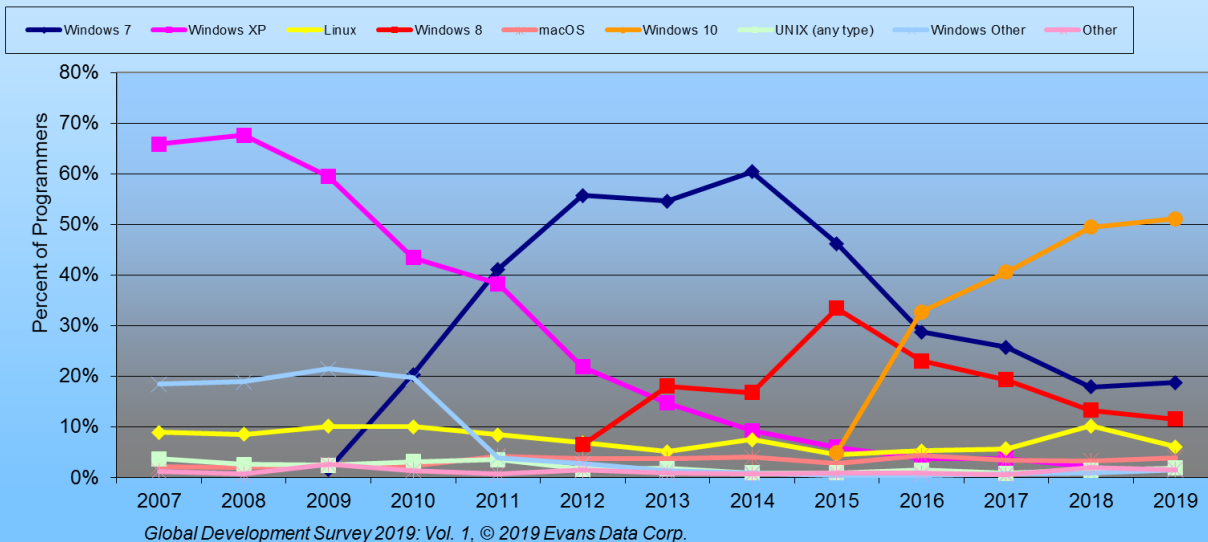
- Windows is still the primary OS used on the development desktop
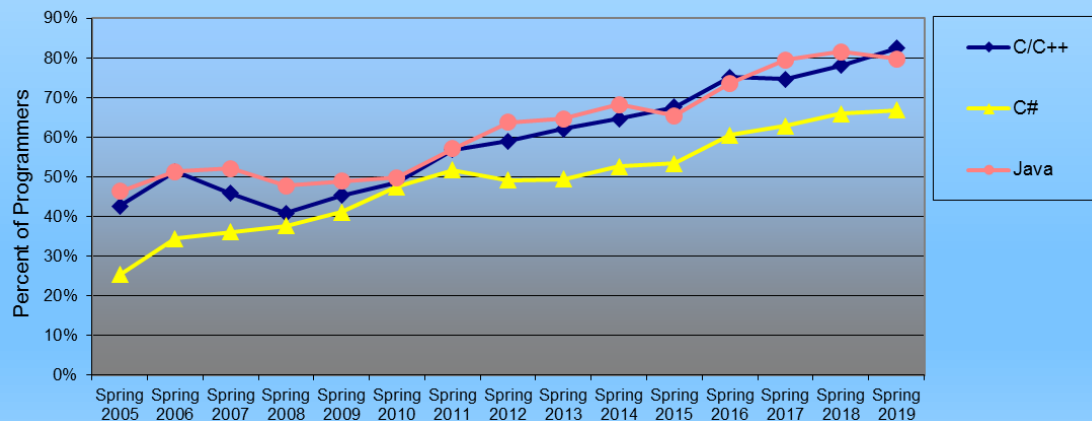- Most developers - 91% - also use a secondary OS

Languages

Java Use Today

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

Developers use multiple languages and very few use any one language more than 50% of the time
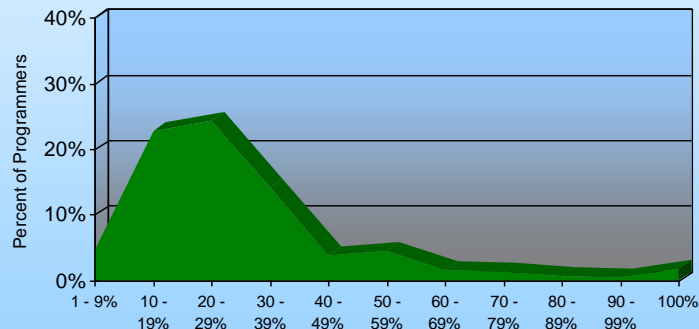
Increasing use of all three of these languages indicates increasing diversity in language use

Language Use (Trend)

C/C++
C#
Java

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

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Scripting Languages

Use of scripting languages continues to increase along with new form factors for targets.

Sixty-six percent use scripting languages at least some of the time

Scripting Language Use Today

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

Scripting Languages 2019

Global Development Survey: Vol. 1 © 2019 Evans Data Corp.
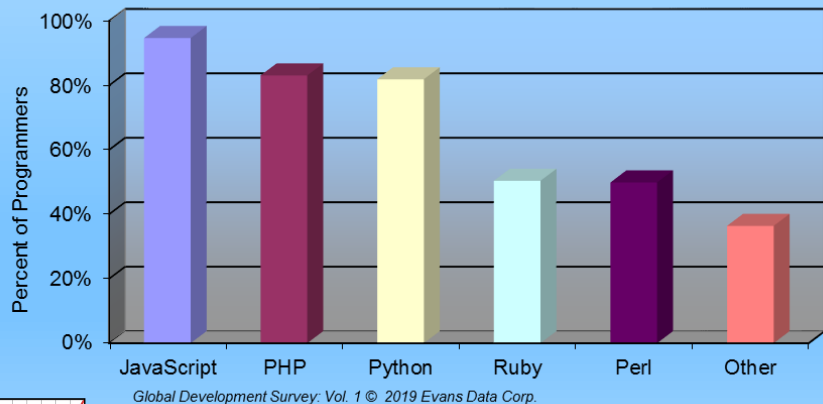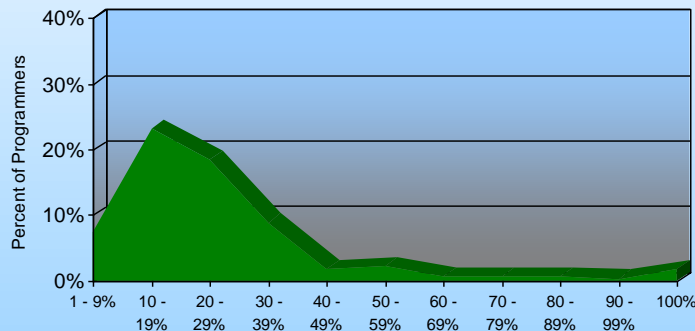
Ninety-five percent of developers who use scripting languages use JavaScript

Chart shows percent of scripting language users
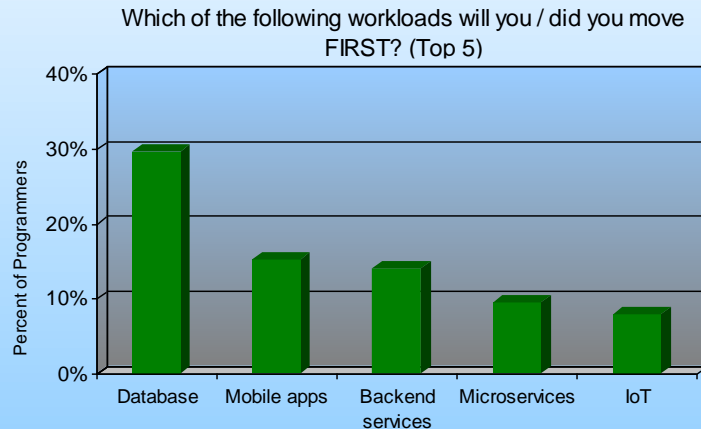
Development Tools

Science quadrant shows importance of generic tool types by satisfaction with same

This technique is often applied to program or product features in custom research projects

Importance of Tools vs. Satisfaction with Tools

Most important
Most satisfying

Application modeling

Real time event processing

Data access / Mgmt.

Unit testing

Design tools

Data modeling

Dynamic analysis

Performance tools

Configuration/ Version control

Static security analysis

Debugging tools

Refactoring

Requirements mgmt.

Development frameworks

GUI frameworks

Load & stress test

Least important
Least satisfying

Satisfaction

Importance

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

Developing in the Cloud

Which of the following workloads will you / did you move FIRST? (Top 5)

Cloud Development Survey, Vol. 2 ©2018 Evans Data Corp.

Databases are used in almost every app and were / are the first to migrate to Cloud

Top 3 reasons for choosing a particular Cloud platform are within margin of error

Cost isn't the primary motivation to move to Cloud, as it once was. Agility, time to value and BI support now dominate.

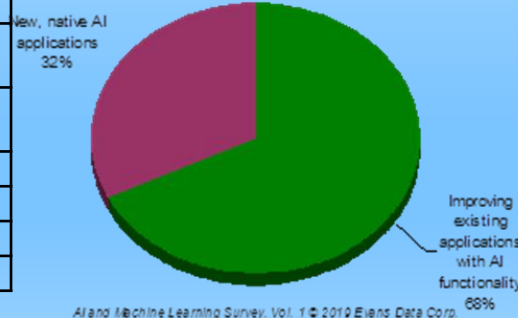| What are the top business motivations for choosing a particular cloud offering?	Percent of Cases
Improved agility	45.1
Time to value for analytical initiatives	43.5
Business intelligence support	41.7
Minimized hardware and infrastructure cost	32.6
Time to delivery of analytics	31.8
Reduced application implementation cost	30.5
Reduced administrative cost	17.4
Other	2.1
Cloud Development Survey, Vol. 2 ©2018 Evans Data Corp.	

Artificial Intelligence & Machine Learning

Which of the following are the top challenges when developing your AI application?	Count	Percent of Cases
Choosing the right AI framework	216	43.8
Coding the AI application	179	36.3
Developing AI applications that are portable across deployment environments	170	34.5
Optimizing the performance of AI workloads	166	33.7
Optimizing resource consumption of AI workloads	145	29.4
Monitoring performance of AI workloads	142	28.8
Complexity of managing operations	135	27.4
Choosing the deployment infrastructure	133	27.0
Other	8	1.6
	-----	-----
Total Responses	1,294	262.5
AI and Machine Learning Survey, Vol. 1 © 2019 Evans Data Corp.		

When do you expect to use artificial intelligence or machine learning in your development work?

Global Development Survey: Vol 1, © 2019 Evans Data Corp.

Are your artificial intelligence or machine learning technologies primarily:

New, native AI applications 32%

Improving existing applications with AI functionality 68%

AI and Machine Learning Survey, Vol. 1 © 2019 Evans Data Corp.

More than 25% of developers are working with AI or ML

AI is moving first into existing legacy apps

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Artificial Intelligence & Machine Learning

Artificial intelligence requires considerable hardware capability. Quantum computing may be the answer.
New skills are also required

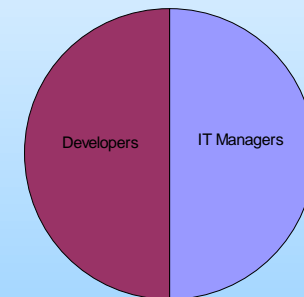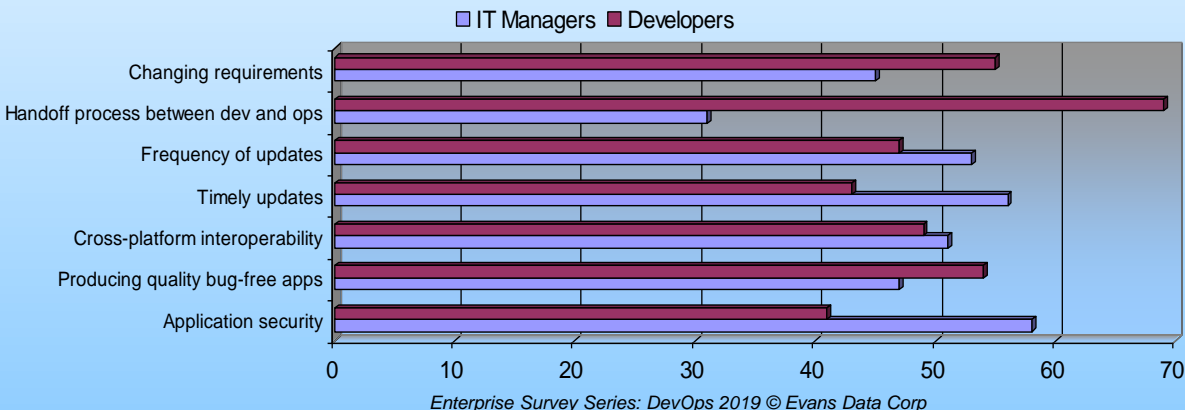What are your plans for using quantum computing with AI and/or ML applications?

AI and Machine Learning Survey, Vol. 1 © 2019 Evans Data Corp.
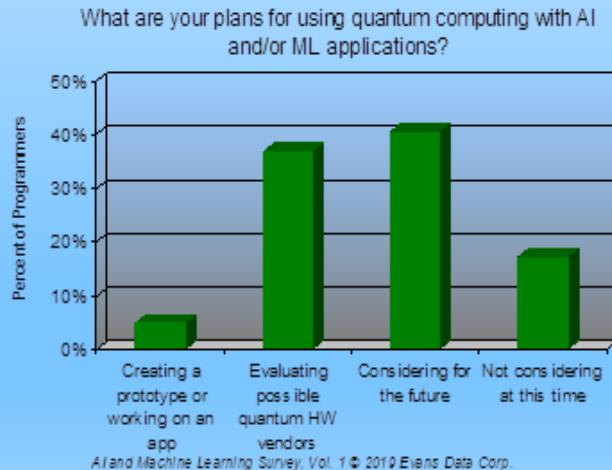
What skills do you need to improve THE MOST in order to become a better AI developer?	Count	Percent of Cases
Big Data methodologies	195	43.6
Advanced mathematics and statistics	191	42.7
Hardware optimization or acceleration (e.g., multi-threading, parallelization)	168	37.6
Familiarity with common machine learning libraries	162	36.2
Programming in specific languages	157	35.1
Specific domain knowledge/subject matter expertise (other than mathematics or programming; e.g., psychology)	144	32.2
Predictive model creation	132	29.5
Other	20	4.5
	-----	-----
Total Responses	1,169	261.4
AI and Machine Learning Survey, Vol. 1 © 2019 Evans Data Corp.		

Enterprise Survey Series – DevOps 2019

Biggest challenge in creating new applications

Legend: ☐ IT Managers ■ Developers

Categories (top to bottom):
- Changing requirements
- Handoff process between dev and ops
- Frequency of updates
- Timely updates
- Cross-platform interoperability
- Producing quality bug-free apps
- Application security

X-axis: 0, 10, 20, 30, 40, 50, 60, 70

Enterprise Survey Series: DevOps 2019 © Evans Data Corp

Pie chart: Developers | IT Managers

Who drives the DevOps initiatives in your organization?

Legend: ☐ IT Managers ■ Developers

Y-axis: 0, 10, 20, 30, 40, 50, 60, 70, 80

Categories: Development Mgt, IT or Ops Mgt, QA/Test Mgt, Performance engineer, Other
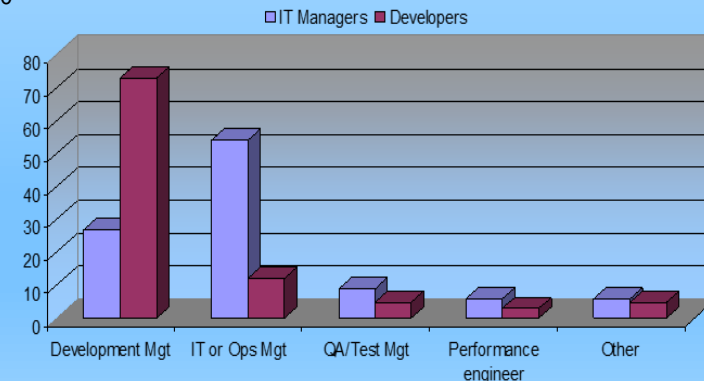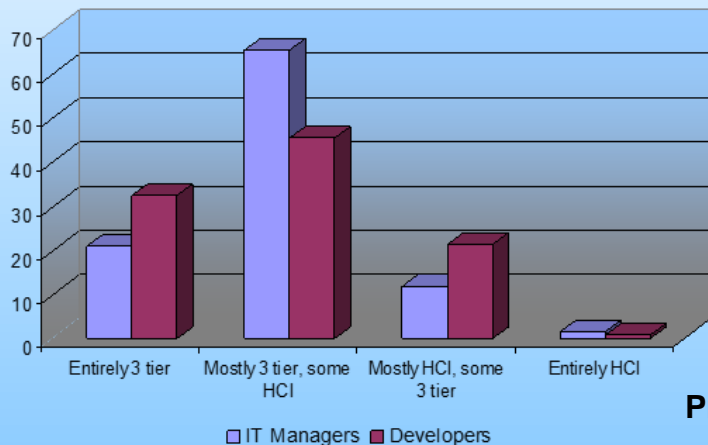
Enterprise Survey Series: DevOps 2019 © Evans Data Corp

New survey series features equal number of developers and IT managers: compares attitudes, perceptions, pain points between the two groups

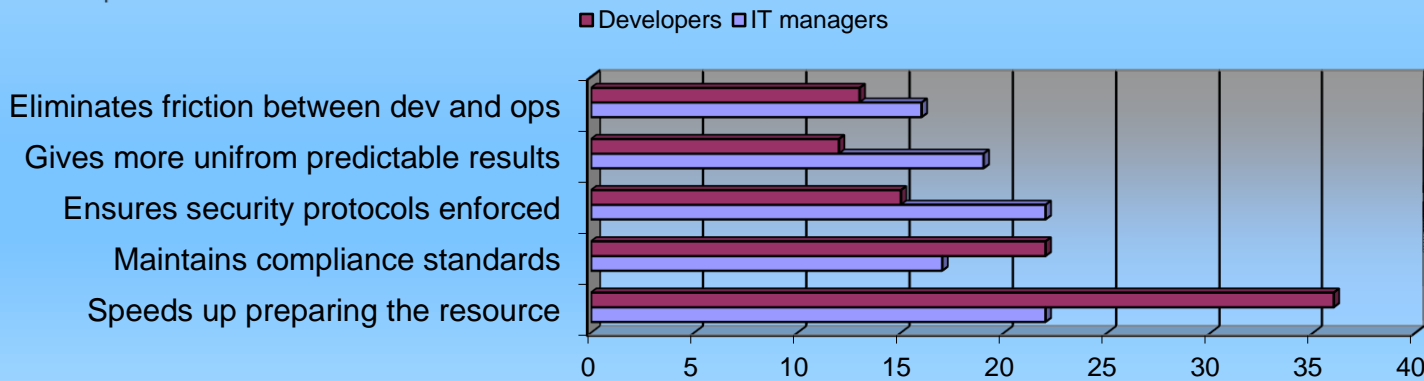Evans Data Corporation EDC

Enterprise Survey Series – DevOps 2019
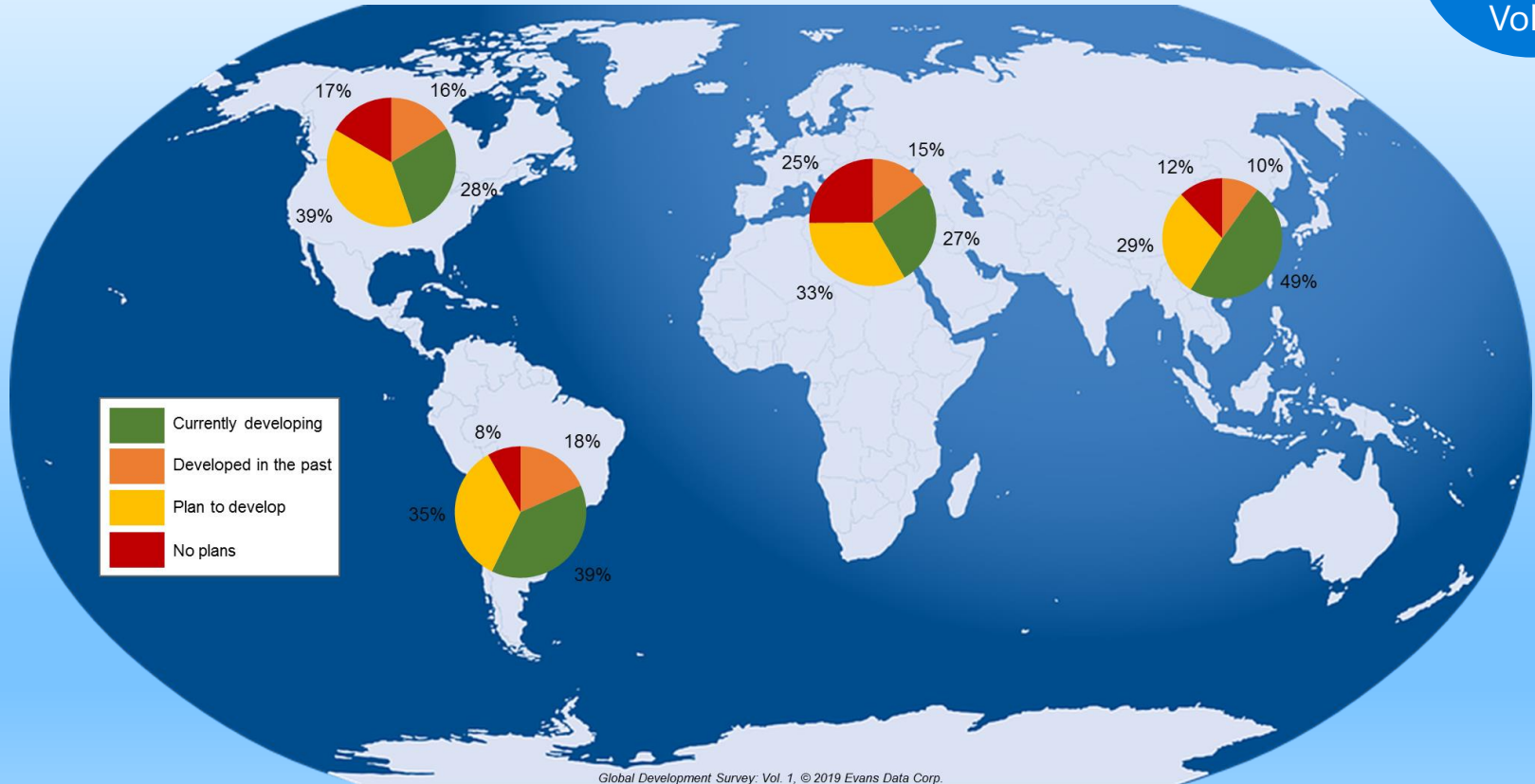
Use of Hyper Converged Infrastructure

Attitudes from each segment reflect their roles in development / deployment
Automated provisioning in the Cloud is liked by both groups – though for different reasons

Primary advantage of automated provisioning in the Cloud

Global Distribution of Internet of Things

Legend:
- Currently developing
- Developed in the past
- Plan to develop
- No plans

North America: 17% No plans, 16% Developed in the past, 28% Currently developing, 39% Plan to develop

Europe/Middle East: 25% No plans, 15% Developed in the past, 27% Currently developing, 33% Plan to develop

Asia: 12% No plans, 10% Developed in the past, 49% Currently developing, 29% Plan to develop

South America: 8% No plans, 18% Developed in the past, 39% Currently developing, 35% Plan to develop

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

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Industrial IoT

When do you expect to develop software for industrial IoT and sensors/sensor arrays?
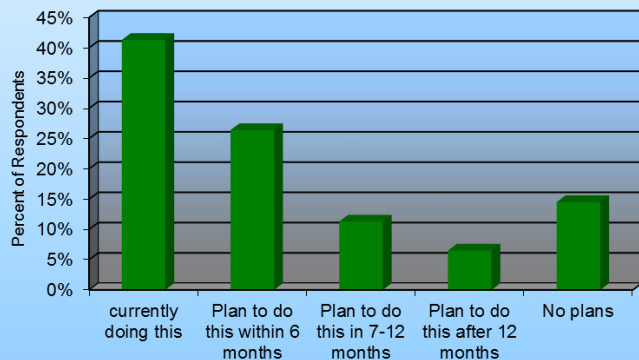
IoT and Mobile Development Survey: Vol 2 © 2018, Evans Data Corp.

Only developers working on IoT projects were asked these questions

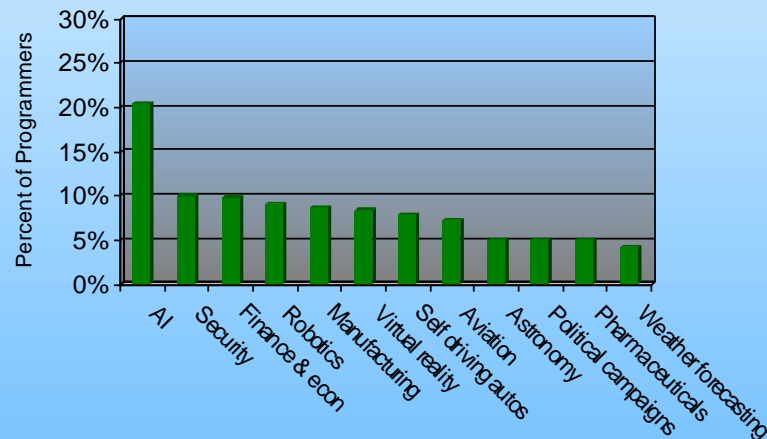| Which of the following have you or will you implement in your Industrial IoT projects?	Currently or have implemented	Plan to implement	No plans for implementation
Device management	55.2	34.8	10.0
Security & surveillance	51.6	36.3	12.2
Monitoring	51.0	38.9	10.1
Industrial machine controls	49.9	38.3	11.8
Public/workplace safety	45.6	42.0	12.4
Analytics for current operations	45.5	41.9	12.6
Predictive analytics on real-time data	44.8	43.0	12.1
Asset utilization and management	43.2	45.0	11.9
Resource automation	43.0	45.4	11.5
Field service management	42.9	44.2	12.9
Industrial controls	42.6	44.4	12.9
Predictive maintenance	42.1	45.7	12.2
Planning tool for future operations	41.3	47.5	11.2
Other	14.7	33.6	51.7
IoT and Mobile Development Survey: Vol. 2, © 2018, Evans Data Corp.			

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Quantum Computing

Do you believe quantum computing will eventually take over computing as we know it today?

Yes 70%
No 20%
Not sure 10%
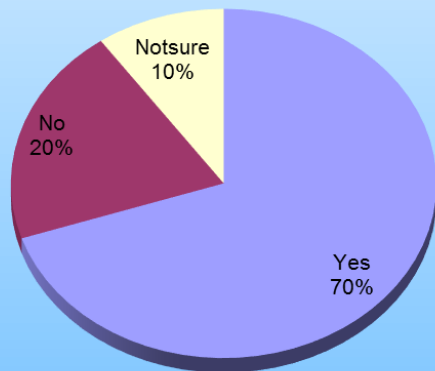
Global Development Survey: Vol 1 © 2019, Evans Data Corp.

Which do you think will be the FIRST application where quantum computing will be important?
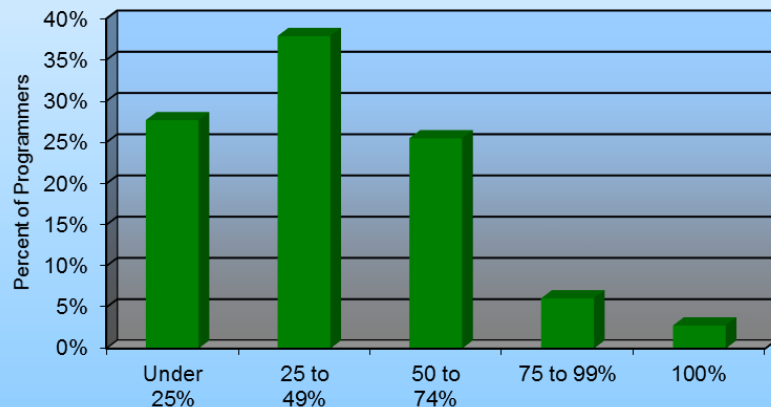

Percent of Programmers

AI, Security, Finance & econ, Robotics, Manufacturing, Virtual reality, Self driving autos, Aviation, Astronomy, Political campaigns, Pharmaceuticals, Weather forecasting

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

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Security

What percentage of your time is devoted to optimizing security?

Global Development Survey: Vol 1, © 2019 Evans Data Corp.

Which of the following Secure and Trust Based computing technologies are you familiar with?
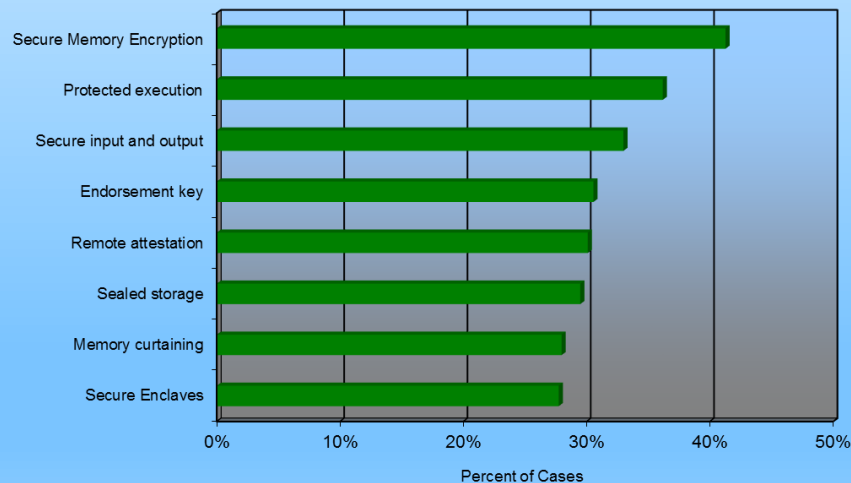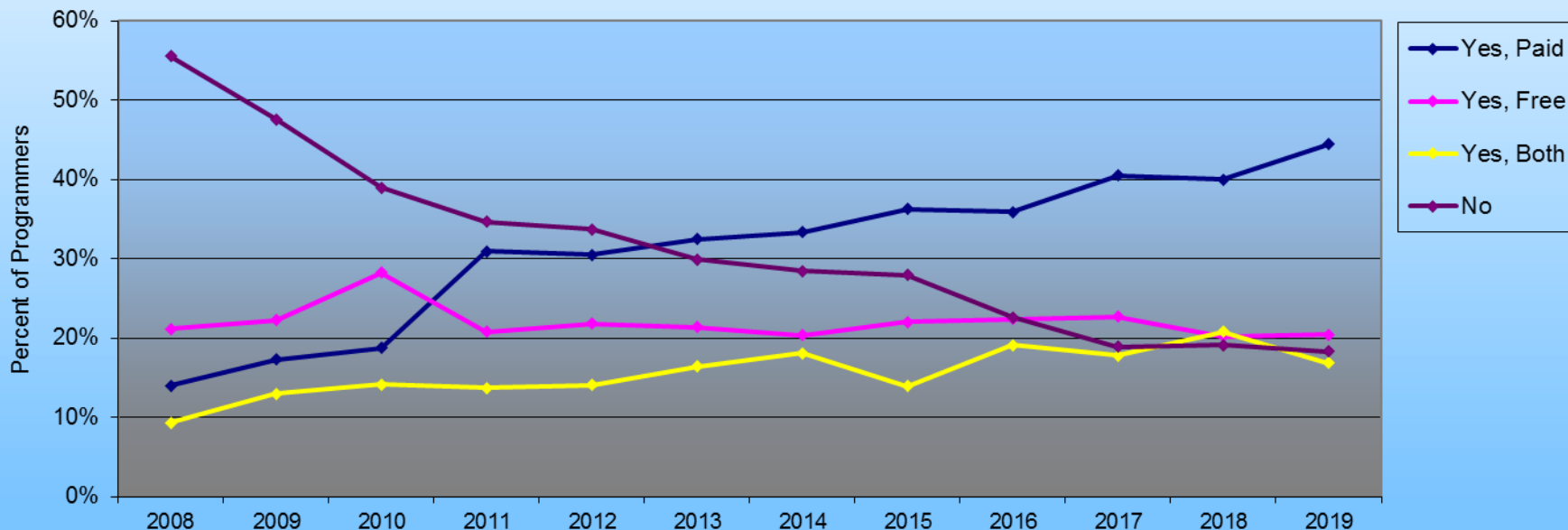

Global Development Survey: Vol. 1, © 2019 Evans Data Corp.

Security is a primary issue across many different development disciplines

Developer Program Membership

Developer Program Membership (Trend)

- Developer program membership has grown steadily over the years – currently more than three-quarters are in some type of program

Global Development Survey: Vol. 1, 2019 Evans Data Corp.

Top Reasons to Join a Program

What are the main reasons you would/did join a developer relations program?

Developer Relations 2019, © 2019 Evans Data Corp

Developer Relations 2019 © 2019 Evans Data Corp
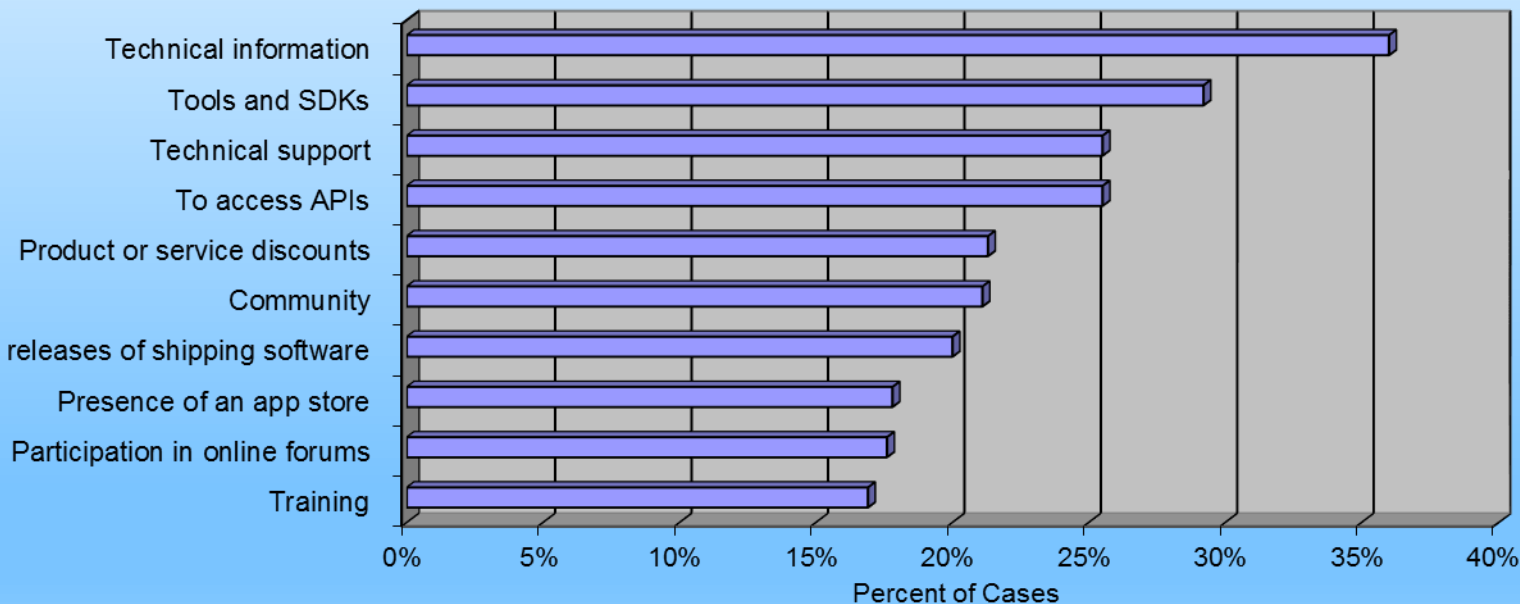
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Most Credible Sources of Information

Most Credible Source of Information on Emerging Technologies (Trend)


Developer Marketing 2019, © 2019 Evans Data Corp.

Legend:
- Colleagues
- Peer resources
- Tech./platform vendors
- Reporters / reviewers
- Conf. / trade shows
- Industry analysts
- Industry leaders
- Standards bodies
- Developer Evangelists
- Other
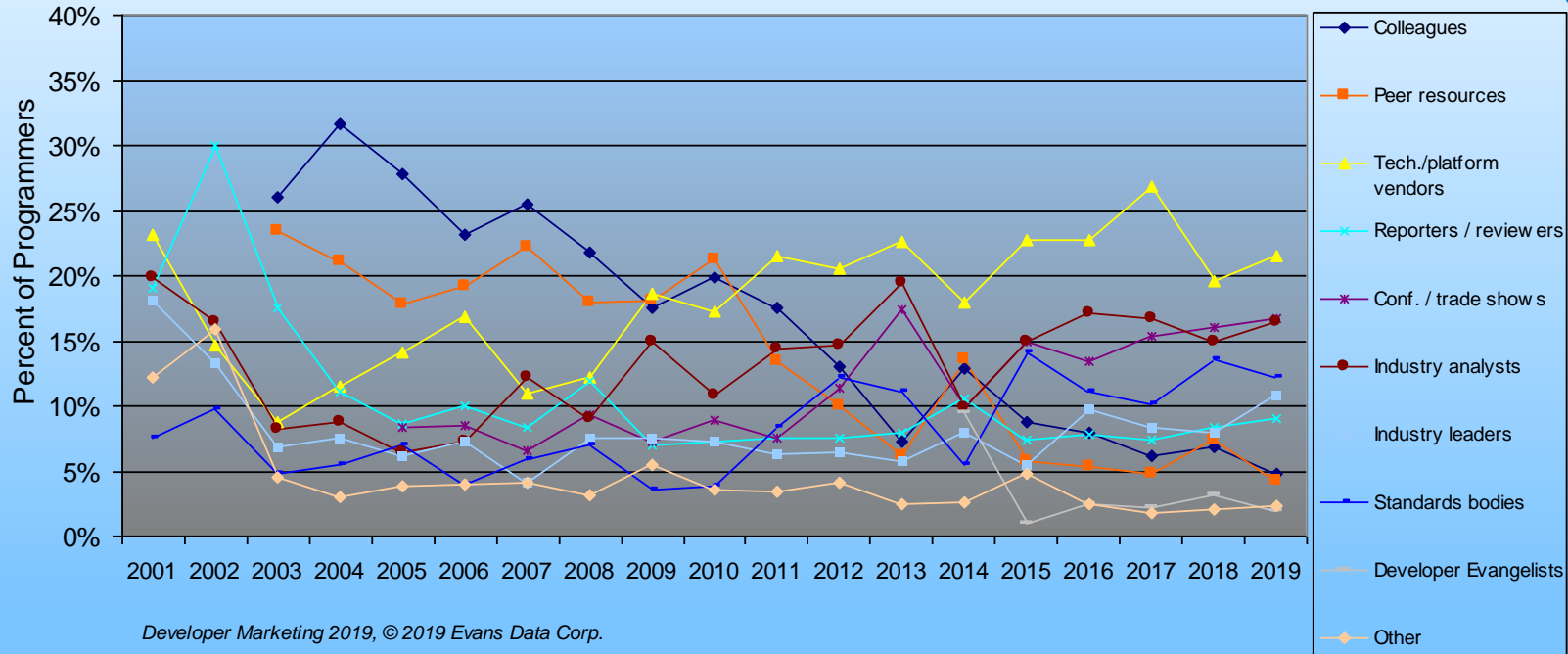
- Complexity, novelty and rapid change have made technology vendors themselves the most credible source for emerging technologies. Trade shows have gained ground

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DevRelate

- Online Community, Academy, and Advisory for Developer Relations professionals

- Self-paced classes leading to full certification

- Resources, Blog posts, Program Advisory

- Job Boards / Resume Cache

- Membership Directory

- Webinars, Interviews and Slideshares
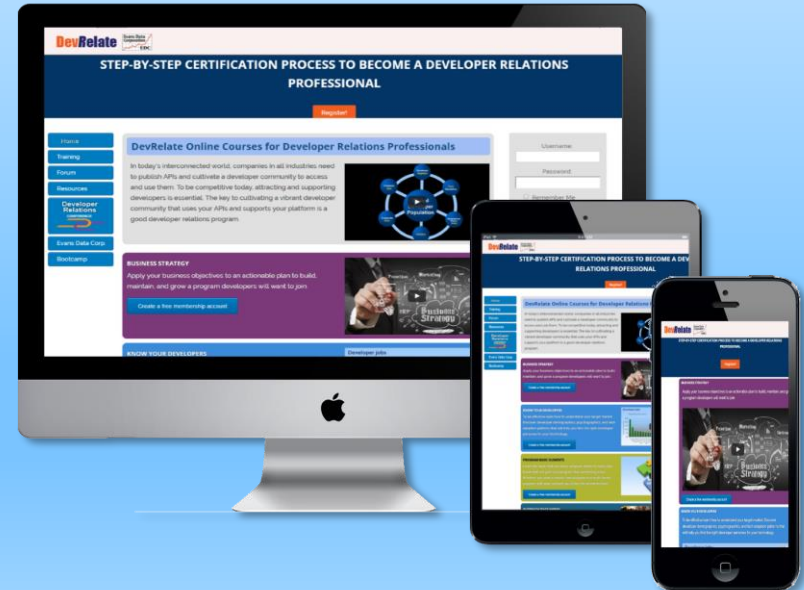
DevMetric.com

Rating and Review Site for Developer Tools

- List Your Product

- Read Your Product Reviews

- Review Your Favorite Tools

- Find Out Developers Think about Specific Tools
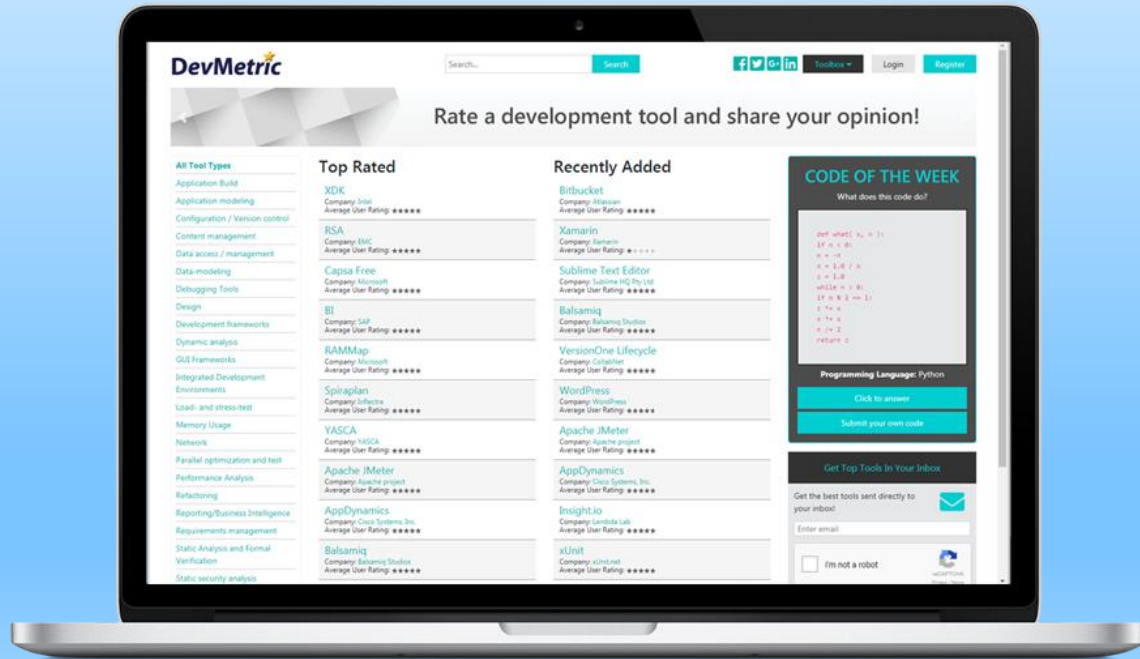
Developer Marketing Summit 2019

Sept 23-24 at the Westin in San Jose, CA

- Insightful keynotes from top developer marketing executives

- In-depth developer research data

- Hands-on interactive workshops

- Luncheons, breaks and cocktail reception to network with your colleagues

- Expert Marketing Panel filled with practical insight

- Q and A session to meet your specific needs

To register for Super Early Bird Passes and save $400 visit:

devmarketing.evansdata.com
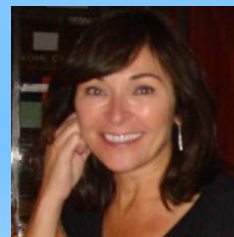
Our exceptional keynotes:

Janel Garvin
Evans Data

Cliff Simpkins
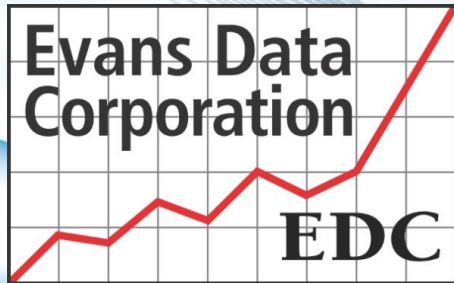**Microsoft**

Alisa Maclin
IBM

Belinda Adkisson
Intel

Desiree Motamedi
Facebook

Thank you!!

Questions? Email mrasalan@evansdata.com

Evans Data Corporation
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