DEVELOPER ECONOMICS

STATE OF THE DEVELOPER NATION Q1 2017

The latest trends
from a survey of 21,200+ developers

http://vmob.me/DE1Q17

vision
mobile

vision mobile

Trusted by the leading tech brands and media

Clients who benefit
from VisionMobile's research

Leading media channels
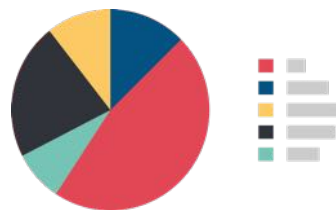quoting our research

![vision mobile]

We help the world understand developers

We survey 40,000+ developers annually – across mobile, IoT, cloud, and desktop – to help companies understand who developers are, what they buy and where they are going next.

Who developers are

Developer population sizing
Developer segmentation

What they buy

Why developers are adopting competitor products – and how you can fix that.

Where they are going

Emerging platforms – augmented reality, machine learning, messaging bots

The largest developer research, from mobile to cloud to ML

Geo distribution of respondents of the 12th Global Developer Economics Survey (Nov - Dec 2016)

21,200+ DEVELOPERS

160+ COUNTRIES

8 SECTORS

MOBILE   DESKTOP   CLOUD   WEB

IoT   GAMES   AR/VR   MACHINE LEARNING

FINLAND

RUSSIA

W. EUROPE & ISRAEL **23%**

CANADA

UK

NORTH AMERICA **24%**

E. EUROPE & RUSSIA **14%**

EAST ASIA **15%**

FRANCE

SPAIN

SOUTH ASIA **10%**

USA

GERMANY

ITALY

CHINA

MEXICO

AFRICA & MIDDLE EAST **7%**

INDIA

PAKISTAN

SOUTH AMERICA **5%**

BRASIL

S.AFRICA

OCEANIA **2%**

AUSTRALIA
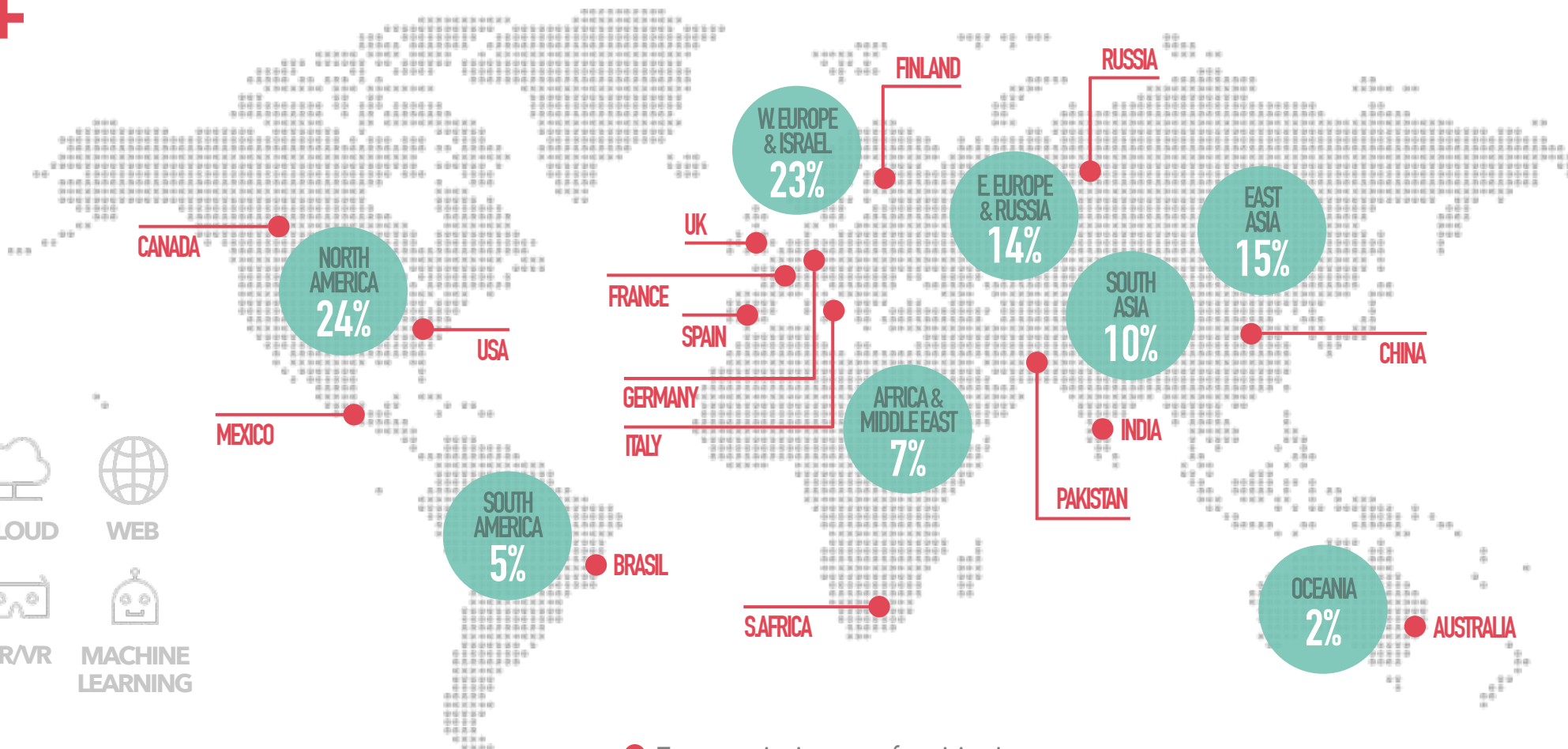
● *Top countries in terms of participation to our surveys*

vision mobile

1

Challengers chasing the cloud prize

Amazon can't reinvest their cloud profits fast enough.

Amazon leads at every company size although, for the smallest companies (1-5 employees) where Amazon has a very small lead over Microsoft and Google.

Microsoft's share of primary developer usage is consistent at 11-13% across company sizes.

51% of internal apps still self-hosted

% of cloud developers primarily using each cloud host, split by company size (n=5,383) and target audience (n=4,894)

Company Size

Target Audience

Legend:
- Others
- Heroku
- Digital Ocean
- Google Cloud Platform
- Microsoft Azure
- Amazon Web Services
- Self-hosted
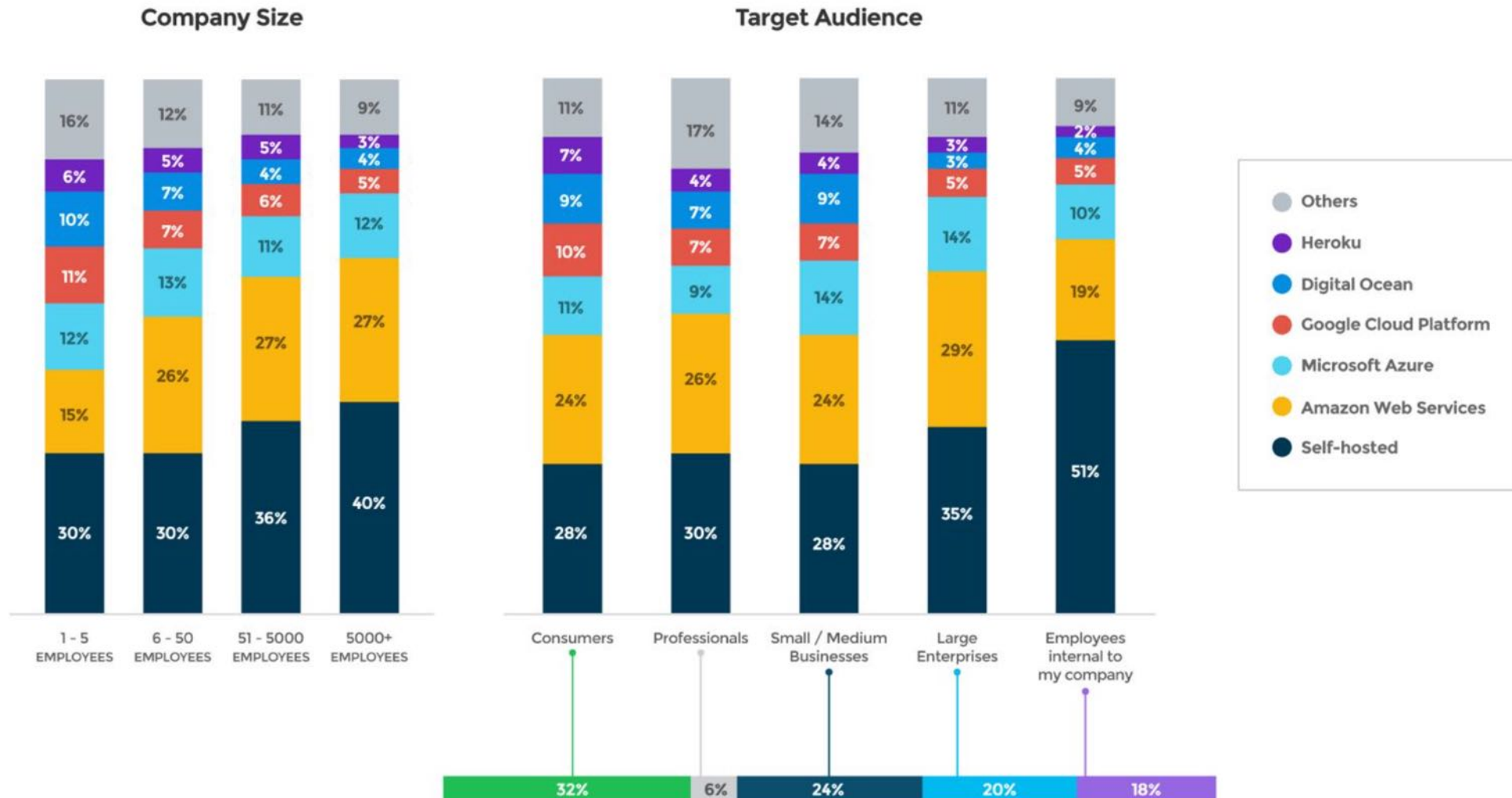
2

AR/VR: a popular hobbyists playground

AR and VR audiences have little overlap.

Out of AR/VR developers, 78% are AR hobbyists and 80% VR hobbyists.

C# is the most popular primary programming language, followed by C/C++ and Java.

Almost 90% of AR/VR developers would be considered juniors, having less than 2 years experience. Many are newcomers who will not be deeply invested in any tools, technologies or platforms.

AR and VR developer audiences have little overlap

% of AR/VR developers who are involved in AR only, VR only, or both, and the % involved as professionals or hobby / student in each group (n=1,318)

18% | 82%

35% | 65%

17% | 83%

47%   17%   36%

Professional   Hobby / Student   VR only   AR & VR   AR only

vision mobile
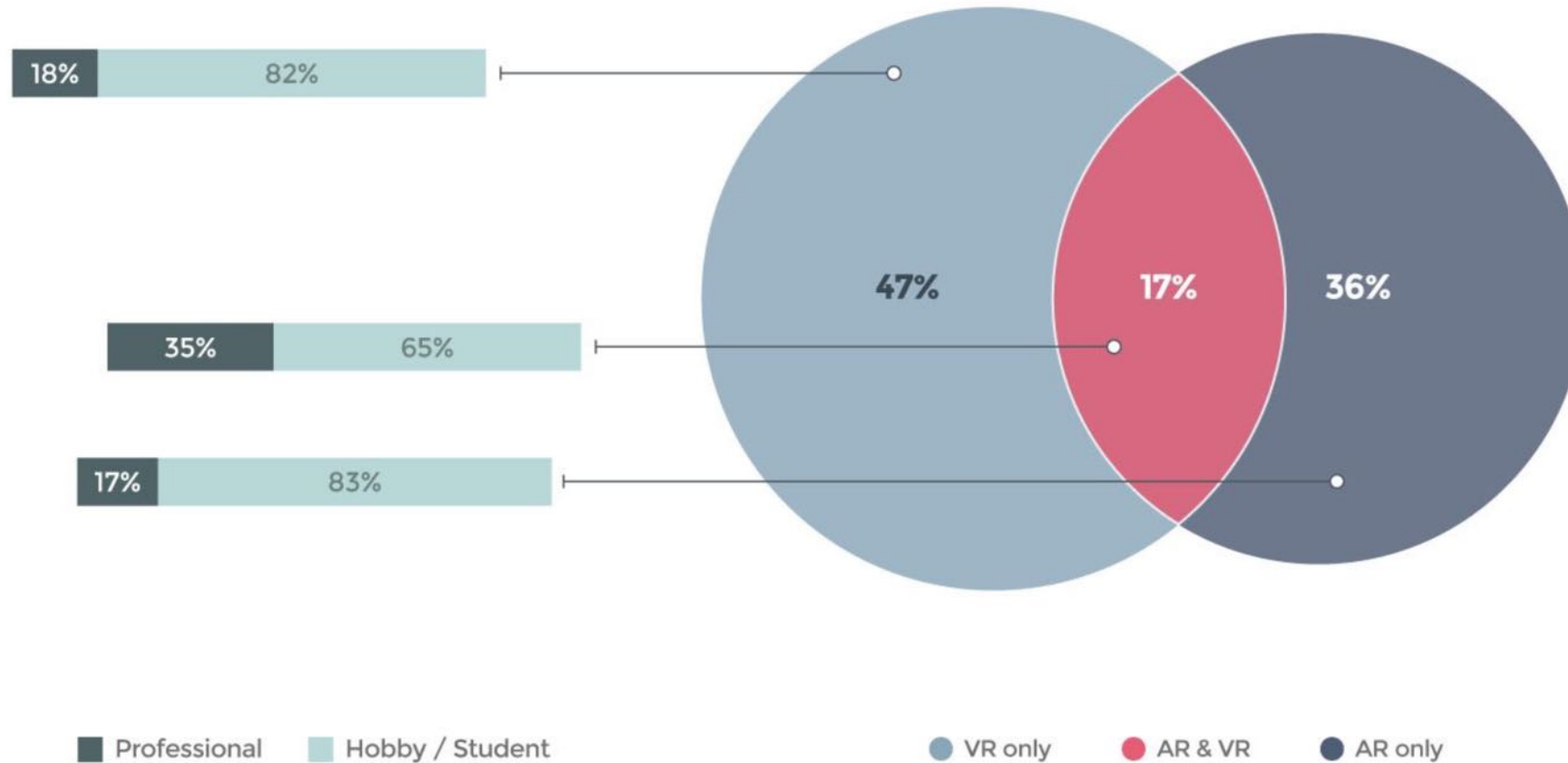
C# leads as a priority language for AR/VR development

% of Augmented / Virtual Reality (n = 1,838)

Programming languages prioritised for AR/VR development

Language	%
C#	30%
C/C++	16%
Java	15%
I use a visual development tool	11%
JavaScript (incl. TypeScript, CoffeScript)	9%
Python	6%
Objective C	4%
Swift	3%
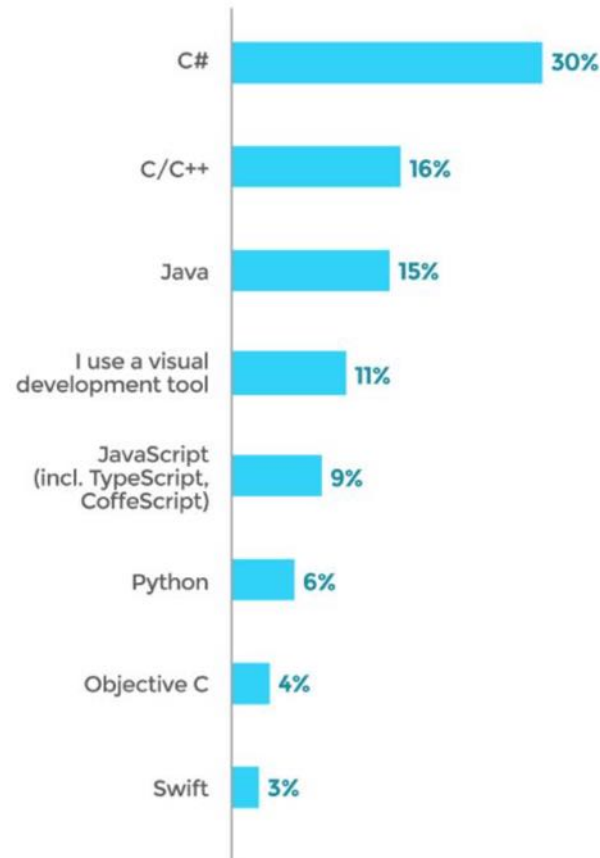
Augmented and Virtual Reality application areas targeted by professionals and hobbyists

PROFESSIONALS

Games & toys
Education, data visualisation & reference
Movies, animation & experiences
360 Photography & video
Retail, marketing & advertising
Real-estate, architecture & construction (e.g. virtual tours)
Industry & manufacturing
Technical service (e.g. product manuals, live guides)
Health & wellness
Productivity tools
Social storytelling & news
Navigation & location-based services
Lifestyle, food & drink
Sports (for spectators or teams)
Communication & social networking

HOBBYISTS / STUDENTS

Games & toys
Education, data visualisation & reference
360 Photography & video
Movies, animation & experiences
Productivity tools
Communication & social networking
Technical service (e.g. product manuals, live guides)
Retail, marketing & advertising
Navigation & location-based services
Real-estate, architecture & construction (e.g. virtual tours)
Health & wellness
Industry & manufacturing
Social storytelling & news
Adult entertainment
Lifestyle, food & drink

vision mobile

9

3

JavaScript: Angular has a surprising lead over React

Besides jQuery at 48% of web devs, Angular and React account for 30%. No other single library or framework accounts for more than 2% of primary usage.

Angular is the primary framework for twice as many developers as React, despite the online discussions and open source traction of React.

21% of web developers prioritise Angular vs 9% for React

% of web developers using each JavaScript library or framework, overall and split by primary language (n=5,883)

All web developers
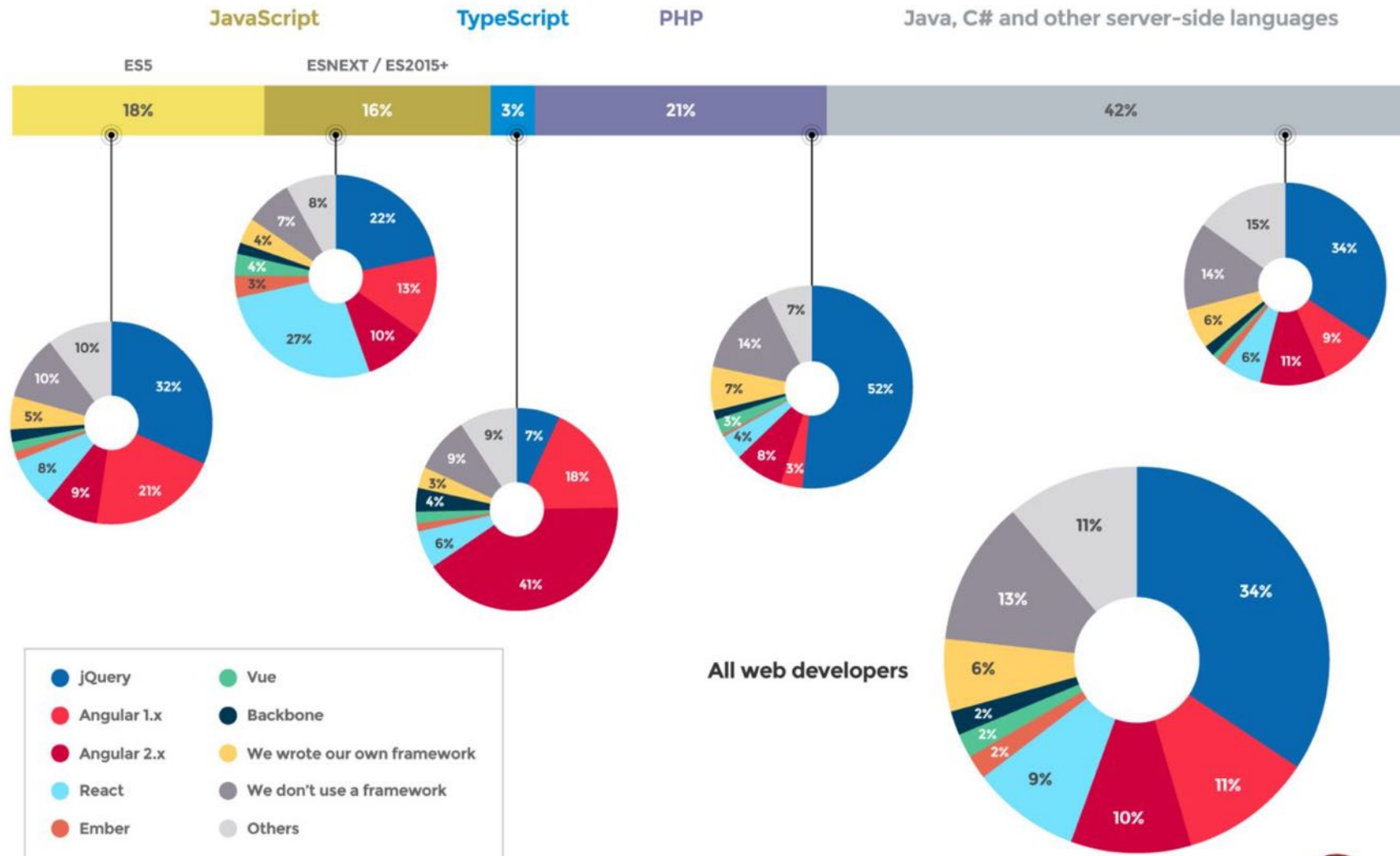
4

The fragmented IoT tool sector

Growth of IoT developers has stalled at around 4.3M.

Internet of Things is lacking the kind of platforms that connect developers to an addressable market. The IoT tool market is still underdeveloped and heavily fragmented.

38% of IoT pros use IoT Cloud Platforms.

Growth of IoT developers has stalled

Estimated number of individual IoT developers, in millions, at end of Q2 of each year

IoT DEVELOPER POPULATION FORECAST

2015	2016	2017
4.2 M	4.3 M	4.3 M
2.9 M	2.9 M	2.9 M
1.3 M	1.4 M	1.4 M

■ Professionals   ■ Amateurs

13
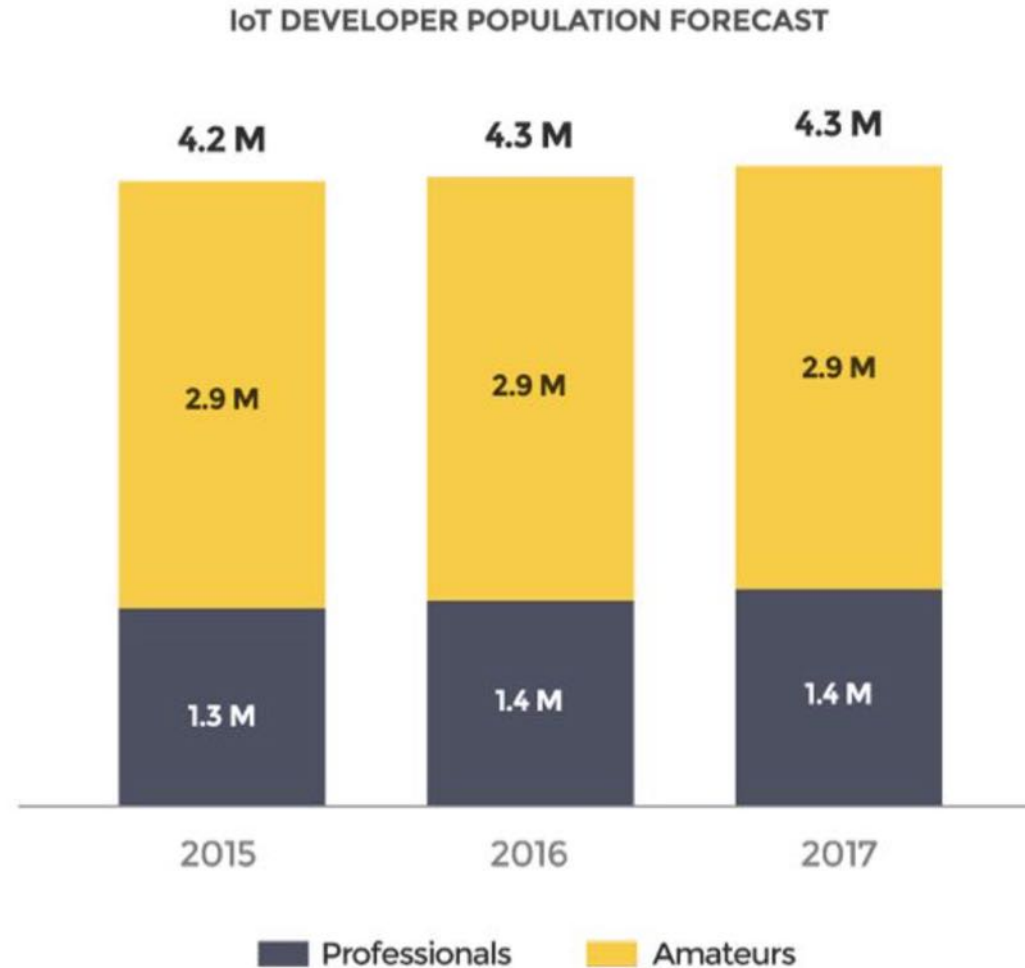
Components are for IoT pros; hardware and app platforms for all

% of IoT developers by involvement and vertical (n = 3,845)

Which of the following technologies have you used in the last 12 months?

33% SMART HOME DEVELOPERS / 12% OTHER IoT DEVELOPERS

29% WEARABLES DEVELOPERS / 8% OTHER IoT DEVELOPERS

27% HEALTH & WELLNESS DEVELOPERS / 4% OTHER IoT DEVELOPERS

29% WEARABLES DEVELOPERS / 11% OTHER IoT DEVELOPERS

20% RETAIL IoT DEVELOPERS / 11% OTHER IoT DEVELOPERS

Software deployment tools
Single-board computers
IoT Cloud platforms
Microprocessor-based prototyping boards
Embedded operating systems
Smart Home platforms
Machine learning platforms
IoT gateway middleware
Smartwatch platforms
Wearables toolkits and middleware
Voice platforms
Beacons
Health & wellness data platforms
MQTT/CoAP Brokers
Fog/edge computing

IoT PROFESSIONALS
IoT AMATEURS

0% 10% 20% 30% 40% 50%

14

vision mobile

5

The Machine Learning Languages war

Python is now recognised as the native language of machine learning, while R is in most cases a complementary language.

Language choice depends on what you want to build, where you're coming from and why you got involved in machine learning.

Machine Learning Languages shoot-out

% of machine learning developers / data scientists who use or prioritise each language (n = 2,022)

	Python	C/C++	Java	R	JavaScript
POPULARITY					
Used by	57%	43%	41%	31%	28%
Prioritised by	33%	19%	16%	5%	7%

■ Prioritised by   ■ Used by

APPLICATION AREA

Python	C/C++	Java	R	JavaScript
Sentiment analysis 44%	AI in games 29%	Customer support management 26%	Sentiment analysis 11%	Not sure / still exploring options 11%
Natural Language Processing / chatbots 42%	Robot locomotion 27%	Network security & cyber attack detection 23%	Bioengineering / bioinformatics 11%	Customer support management 10%
Web mining 37%	Network security & cyber attack detection 26%	Fraud detection 22%	Fraud detection 9%	Search engines 9%
AI in games 26%	Fraud detection 12%	Sentiment analysis 15%	Speech recognition 3%	Industrial maintenance diagnostics / predictive & preventive 2%
Fraud detection 26%	Recommendation systems 12%	Not sure / still exploring options 13%	AI in games 3%	Bioengineering / bioinformatics 2%
Network security & cyber attack detection 24%	Sentiment analysis 9%	Bioengineering / bioinformatics 13%	Robot locomotion 1%	Sentiment analysis 2%

PROFESSIONAL BACKGROUND

Python	C/C++	Java	R	JavaScript
None – Data Science is my first profession / field of study 38%	Embedded compuing hardware / electronics engineer 32%	Frontend desktop application developer 21%	Data analyst / statistician 14%	Frontend web developer 16%
Mechanical engineer 27%	Frontend web developer 8%	Embedded compuing hardware / electronics engineer 13%	Embedded compuing hardware / electronics engineer 3%	Embedded compuing hardware / electronics engineer 3%

REASONS TO GET INTO MACHINE LEARNING

Python	C/C++	Java	R	JavaScript
Curious what all the fuss about machine learning was about 38%	To add machine learning to my existng apps 20%	My boss/company asked me to 27%	Data science is/was part of my university degree 7%	Increases my chances of securing highly profitable projects as a contractor 8%
Data science is/was part of my university degree 26%	To build highly competitive apps / chatbots 14%	Curious what all the fuss about machine learning was about 14%	Curious what all the fuss about machine learning was about 5%	Data science is/was part of my university degree 5%

■ Area/background/reason where each language is prioritised the most   ■ Area/background/reason where each language is prioritised the least

vision mobile

TALK TO US

WORK WITH US

our research
helps the world understand developers.
and developers understand the world.
If you could speak to 40,000+ developers what would you ask them?

vision mobile

VisionMobile Ltd
90 Long Acre, Covent Garden
London, WC2E 9RZ
United Kingdom
+44 845 003 8742
hello@visionmobile.com