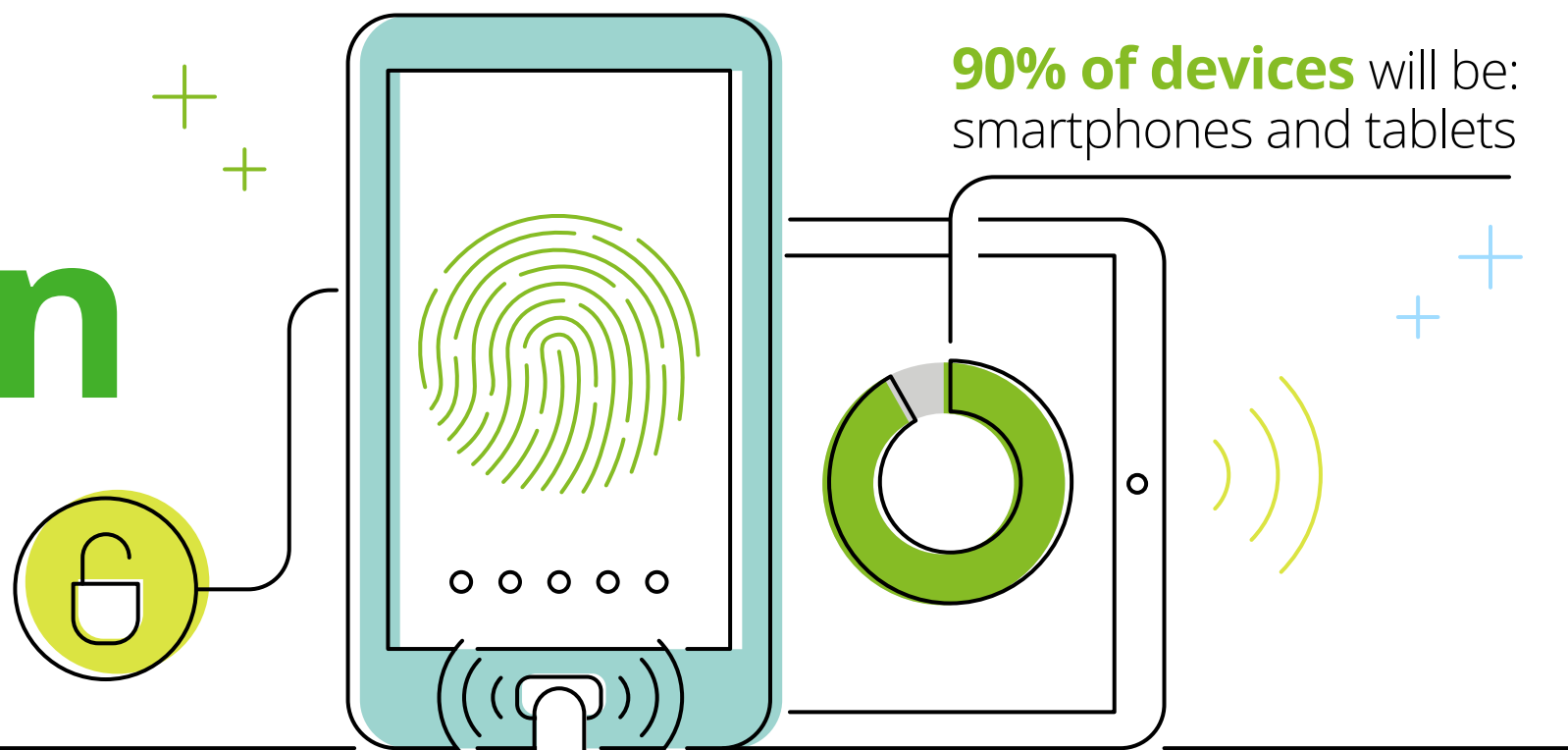


Prints charming: biometric security reaches the billions

Deloitte Global predicts that the active base of fingerprint reader-equipped devices will top

1 billion
for the first time
in early 2017



90% of devices will be: smartphones and tablets

Each active sensor will be used an average of

30 times a day

over **10** trillion times a year

Catalyst for the deployment of biometric sensors in other environments and across multiple industries including:



retail



financial institutions



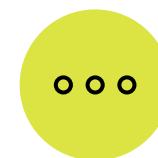
government



schools



media companies



many more

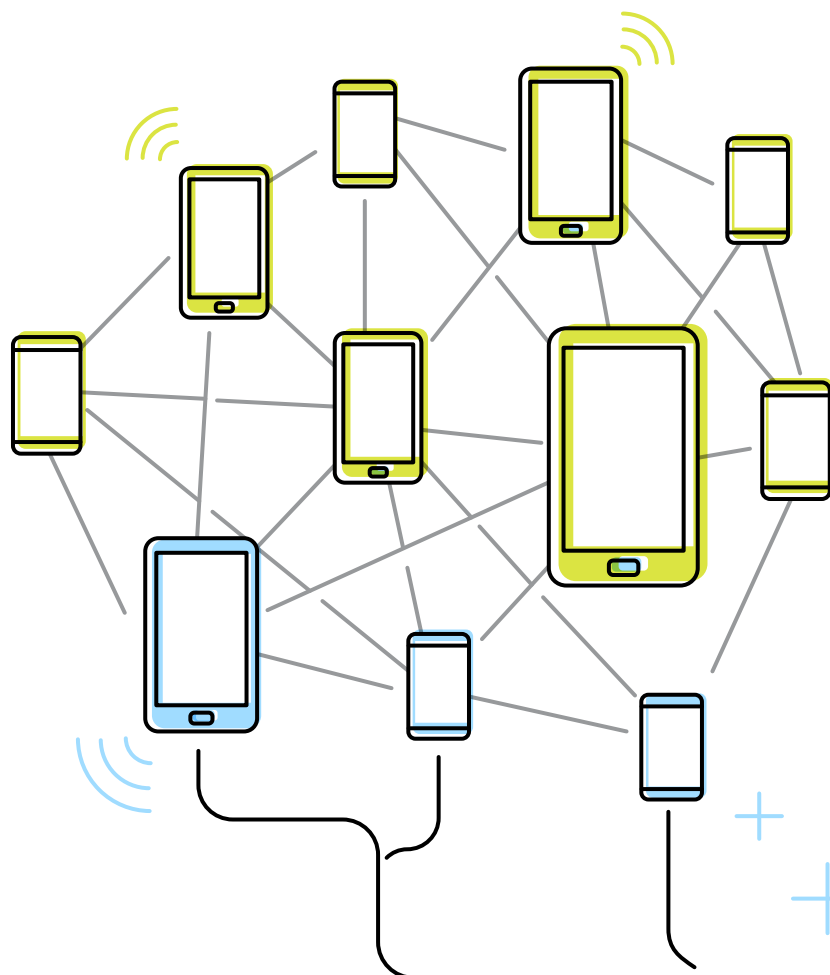
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Brains at the edge: machine learning goes mobile



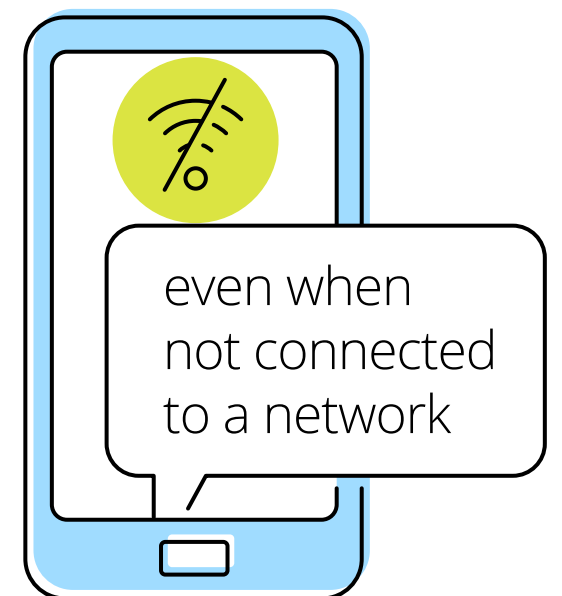
Deloitte Global predicts that in 2017 over

300 million smartphones

(more than **a fifth of units sold**)

will have on-board neural network machine-learning capabilities

This will allow smartphones to perform machine-learning tasks



This functionality will enhance applications including:



indoor navigation



augmented reality



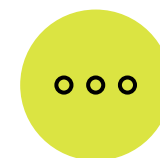
language translation



image classification



speech recognition



and many more currently unknown applications

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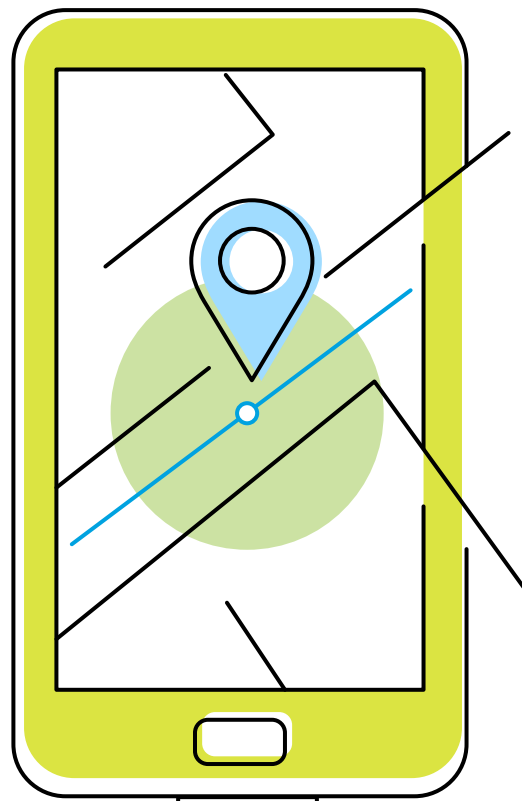
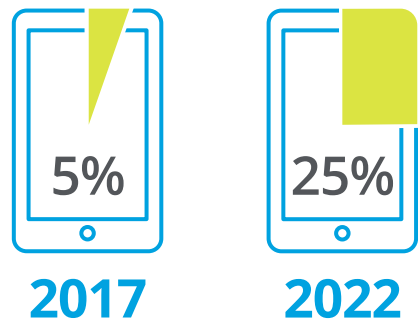
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The great indoors: the final frontier for digital navigation

Deloitte Global predicts that by 2022,

at least **a quarter**

of human and machine uses of digital navigation will include or exclusively be indoors



Enabled by growing availability of:

- Wi-Fi hotspots
- dense cellular networks
- beacons
- LED lighting
- ultra-wideband (UWB)
- magnetic positioning

It should have

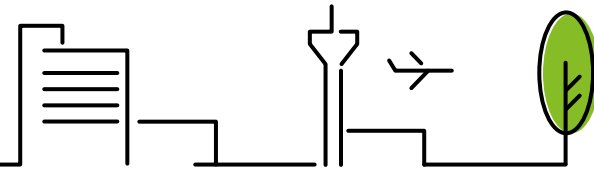
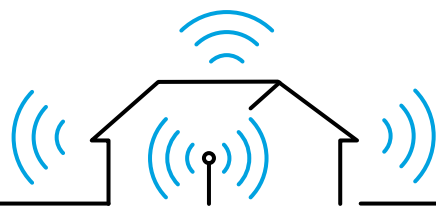
the same disruptive impact

as outdoor navigation

It will enable:

new business models

improved existing ones



over the next decade

Deloitte.

#DeloittePredicts

www.deloitte.com/predictions

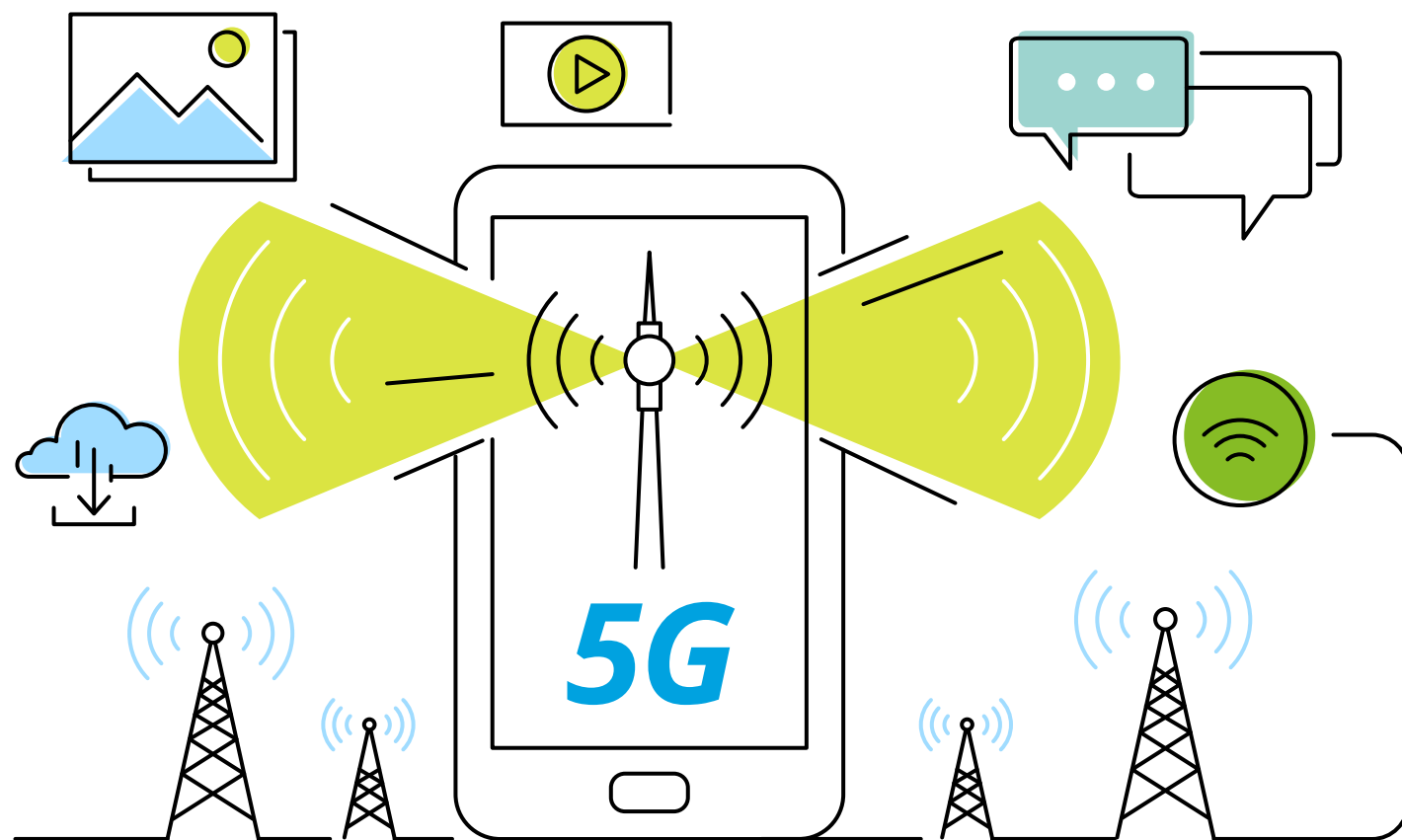
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5G: A revolution in evolution, even in 2017

Deloitte Global predicts that over

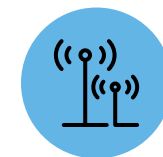
200 mobile networks

will include elements of 5G network architecture in 2017



These will be found among upgraded **4G (LTE-A and LTE-A Pro) networks**, which will provide a steady progression to the full launch of 5G in 2020

Advanced 4G networks introduce network components including:



Carrier aggregation



Licensed Assisted Access



MIMO



QAM



Beamforming

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