TechWorld

May 2018

About TechWorld

PwC's Technology practice is pleased to share its monthly newsletter—TechWorld. This newsletter aims to share with its readers exciting new developments in the following sub-segments within the technology sector: a) IT&ITeS, b) hardware and electronics, and c) eCommerce and Internet businesses. Every month, we will be highlighting key market indices that will provide readers with a real understanding of the sector's performance. The second part of the newsletter will underline the key trends shaping the sector, along with our insights into how leading global technology companies are envisioning transformation in their businesses in the near future. At PwC, we are constantly on the lookout for new innovations and opportunities arising for our technology clients, especially since they are at the forefront of the ongoing technological revolution. Our objective is to bring to the fore important performance metrics, sector performance, 'value drivers' shaping the technology sector today, key challenges ahead of technology sector companies, future growth drivers and PwC's global thought leadership on these and more issues.

For suggestions or feedback, do write to us at sandeep.ladda@pwc.com

From the Technology Leader's desk

This month, in the first section, we have analysed how top-tier Indian IT/ITeS companies, like their global counterparts, are investing heavily to acquire digital capabilities. While the industry is optimistic about reviving growth through digital, high customer concentration, especially at mid-tier IT/ITeS companies, could challenge the sustainability of this growth going forward. Our 'Spotlight' section talks about how India is on the cusp of a digital revolution driven by the mobile phone, and its role in shaping India's eCommerce industry. We have also highlighted how new entrants are disrupting the competitive landscape by leveraging modern technologies to revolutionise the shopping experience across customer touchpoints. While technology holds great promise, we acknowledge the need for robust data privacy and protection frameworks in order to counter the rising threats of data vulnerabilities that could slow or even derail the progress of businesses in the digital era. We have attempted to offer both fact-based analysis and experience-based perspectives, originating from active collaboration among our professionals across various lines of service working in the technology sector.

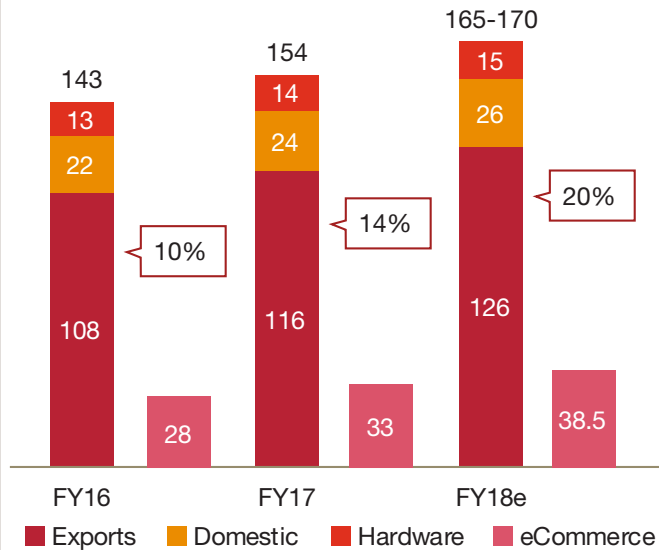I hope you find this edition interesting and welcome your feedback.

Sandeep Ladda
Partner, Global TMT Tax Leader | India Technology Sector Leader
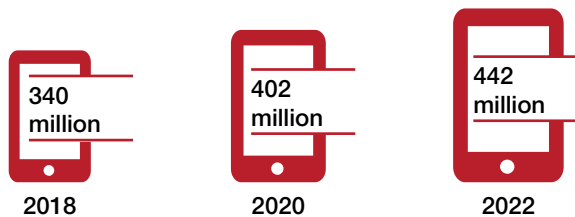
IT-BPM industry revenue (billion USD)

165-170

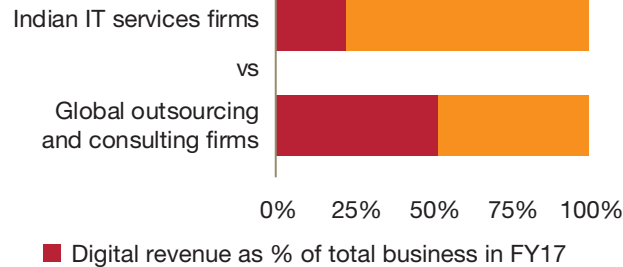| FY16	FY17	FY18e
143	154	165-170
13	14	15
22	24	26
108	116	126
28	33	38.5

10%
14%
20%

■ Exports ■ Domestic ■ Hardware ■ eCommerce

Percentage contribution by digital

Source: NASSCOM

India's smartphone user base

340 million — 2018

402 million — 2020

442 million — 2022

1 out of 3 mobile phone consumers is willing to spend about 100–200 USD on buying a new smartphone.

Source: IDC, 'Smartphone Consumer PULSE study' (Feb 2018); news articles; Statista

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Indian IT services firms

vs

Global outsourcing and consulting firms

0% 25% 50% 75% 100%

■ Digital revenue as % of total business in FY17

Top-tier Indian IT /ITeS companies, like their global peers, are betting big on digital technologies.
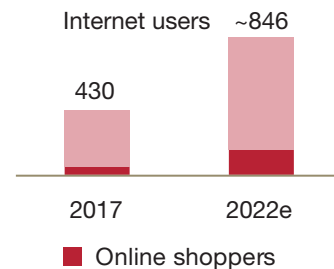
63% *acquisition and investments* in the past 3 years, with* **90%** *of them in* **digital**.

*Note: Includes only Indian IT companies

Source: News articles, company fact sheet, press releases

Online shoppers to grow 2.5x by 2022, drive eCommerce growth

Internet users

430 — 2017
~846 — 2022e

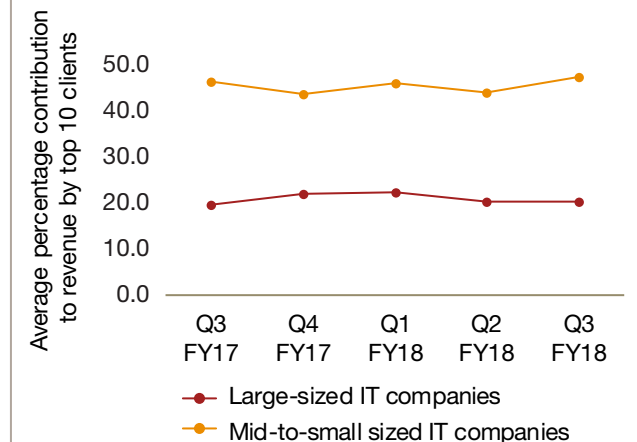**100+ billion USD market by 2022**

■ Online shoppers

Source: TRAI; PwC analysis; secondary research

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1 out of 3 feature phone users in India intends to purchase a data-enabled phone in the next one year, yet challenges exist...

	Mobile Connectivity Index	Infrastructure	Affordability	Consumer readiness	Content	Mobile Internet penetration	Unconnected population (m)
Asia Pacific	56	48	66	69	50	50%	2,029
China	61	43	69	72	65	67%	453
Indonesia	54	40	69	69	44	40%	156
Bangladesh	41	33	56	52	30	33%	109
India	38	25	58	43	33	35%	871
Pakistan	34	23	55	25	41	31%	134

Source: GSMA - Global Mobile Trends 2017; IDC

Unlike large-sized players, mid-sized IT companies generate ~40–50% of their revenues from top 10 clients. This overdependence highlights the need for midcaps to diversify client portfolio in order to sustain growth.

Average percentage contribution to revenue by top 10 clients

50.0
40.0
30.0
20.0
10.0
0.0

Q3 FY17 | Q4 FY17 | Q1 FY18 | Q2 FY18 | Q3 FY18

—●— Large-sized IT companies
—●— Mid-to-small sized IT companies

Source: Analyst reports; Screener.in; secondary research

Balancing superior customer experience and data protection: The next challenge for Indian eCommerce

With an emerging middle-class population of more than 500 million and approximately 65% of the population aged 35 or below,[1] the country represents a highly aspirational consumer market for retailers across the globe. This demographic dividend, coupled with an increasing smartphone user base (around 340 million),[2] improved data access and affordability, and the booming digital payment ecosystem supported by the Indian government's ambitious Digital India project, is giving fresh impetus to the adoption of eCommerce across the country.
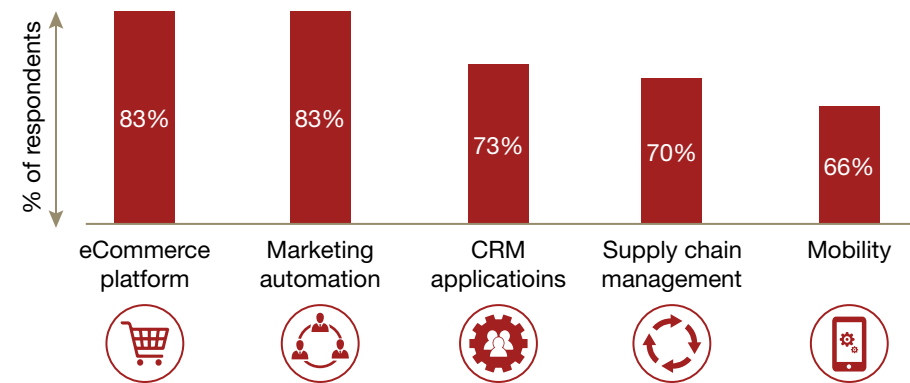
Today, in the second largest smartphone market in the world, there is literally a shopping mall in every Indian's pocket. With Internet penetration expected to almost double to 60% by 2022, the number of online shoppers is also expected to rapidly grow to 150–200 million during the same period.[3] This could see India becoming an Internet retailing hotbed for domestic and global brands in the next few years.

Customer behaviour has undergone a rapid and possibly permanent shift, with most customer journeys starting digital-first and eCommerce becoming the new 'traditional' channel. As the world of the 'connected consumer' grows, winning in this digital age would require brands to go beyond the usual channels of engagement.

In this hypercompetitive landscape, traditional retailers are increasingly concerned about their 'path to relevancy' and are competing with online players for the consumer's time and money spent online. According to a report, the Indian digital advertising industry is currently worth approximately 8,202 crore INR, with eCommerce being the biggest spender on digital media, contributing 19% of all digital spends.[4]

Key new technologies that Indian retailers are planning to invest in the next two years
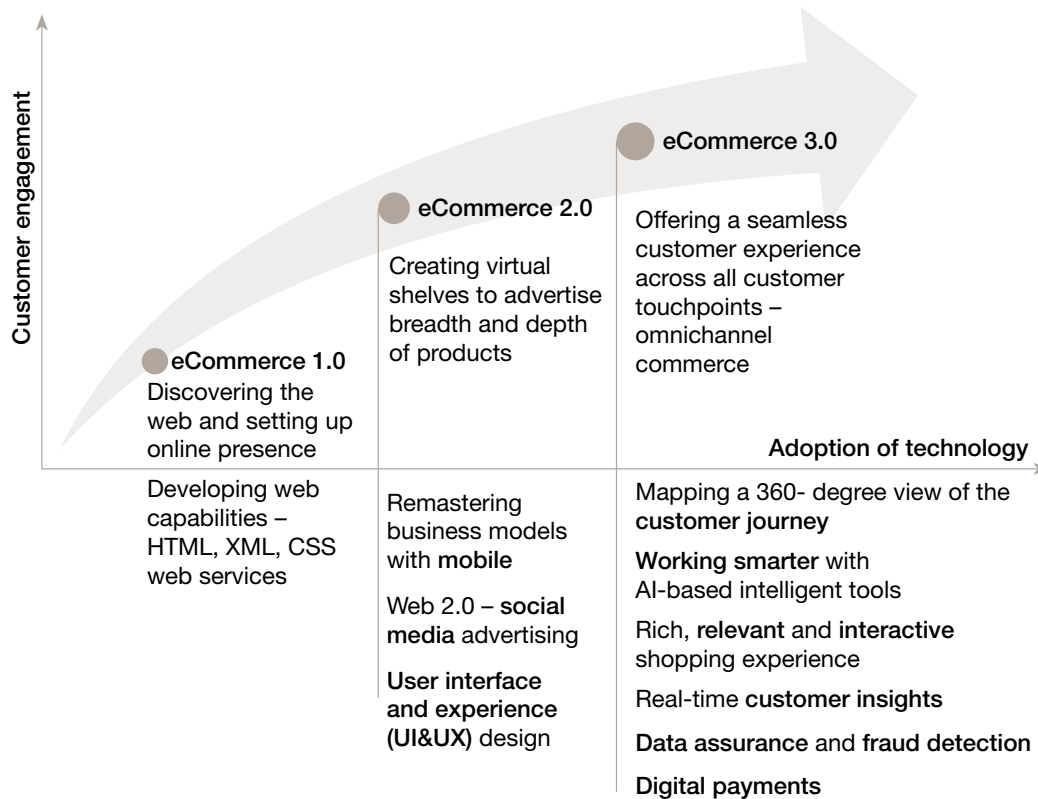

% of respondents

eCommerce platform	Marketing automation	CRM applicatioins	Supply chain management	Mobility
83%	83%	73%	70%	66%

Note: India sample size (n) – 30
Source: IDC – India Retail Barometer 2017

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1 PwC. (2017). The world in 2050: The long view. Retrieved from https://www.pwc.com/gx/en/issues/economy/the-world-in-2050.html (last accessed on 15 March 2018)
2 TRAI, secondary research, PwC analysis
3 Ibid.
4 Dentsu Aegis Network. (2018). Digital advertising in India. Retrieved from http://www.mxmindia.com/wp-content/uploads/2018/01/DAN-Report-Design_13.01.18.pdf (last accessed on 4 April 2018)

Additionally, our analysis suggests that eCommerce players are revamping their technology strategies to maintain their competitive edge. Most eCommerce platforms are upping their investments in areas such as conversational commerce, artificial intelligence (AI), virtual reality (VR)/augmented reality (AR) and analytics technologies.

Customer engagement (vertical axis)

Adoption of technology (horizontal axis)

eCommerce 3.0
Offering a seamless customer experience across all customer touchpoints – omnichannel commerce

eCommerce 2.0
Creating virtual shelves to advertise breadth and depth of products

eCommerce 1.0
Discovering the web and setting up online presence

Developing web capabilities – HTML, XML, CSS web services

Remastering business models with **mobile**

Web 2.0 – **social media** advertising

User interface and experience (UI&UX) design

Mapping a 360- degree view of the **customer journey**

Working smarter with AI-based intelligent tools

Rich, **relevant** and **interactive** shopping experience

Real-time **customer insights**

Data assurance and **fraud detection**

Digital payments

Source: PwC analysis; secondary research

Note: eCommerce includes e-travel, e-tail, online financial services (FS), consumer services and digital content.

Examples:

Robotics and AI
- To identify fraudulent orders, reduce return rate and also cut down on logistics cost.
- AI-based voice-based shopping in vernacular language to enable deeper customer engagement and smoothen transition from offline to online by overcoming the language barrier (especially in the case of the 40+ age group and rural consumers).

Advanced analytics
- To optimise stock management and achieve greater efficiency – high availability but low inventory of products.
- To tailor content based on data-driven understanding of consumers' online behaviour and preferences. Also, to target the right customer, thereby leading to better a conversion rate.

VR
- To translate a digital relationship into an equally interactive and seamless offline experience in-store.

Blockchain
- To improve fraud detection, thereby enabling companies to offer a secure and transparent online medium.
- With the rise of FinTech and a vast amount of private data being hosted online, blockchain and AI are helping companies determine authenticity in multi-party transactions and expedite payment settlement.

One core enabler for the digital ecosystem to become more viable, feasible and desirable for both the digital consumer and the ecosystem itself is the use of data to customise every transaction or interaction. This brings to the fore an important question on how and where to draw the line and remain non-intrusive by maintaining a desirable degree of consumer data privacy while continuing to enhance transactions and the consumer experience. Industry-level deliberation is necessary to ensure consumers 'digitally' trust online platforms.

Since almost all customer interaction for online retailers occurs via phone or email and involves banking information or personal data, e-commerce sites are particularly vulnerable to cyberattacks. Given the recent episodes of data breaches and alleged misuse of customer information, the need for adopting appropriate security measures has escalated significantly. As per PwC's 21st CEO Survey, Asia-Pacific chief executives have cited cyberthreats as one of their greatest concerns.[5]

Below are some of the common vulnerabilities that eCommerce systems across the globe face today

SQL injection: It is used to steal and alter data in a website's database that mainly stores customer and payment information.

Price manipulation: eCommerce sites have vulnerabilities that allow hackers to modify prices in the URLs.

Cross-site scripting: Hackers can add scripts to alter or steal website data that allow them to impersonate a verified user.
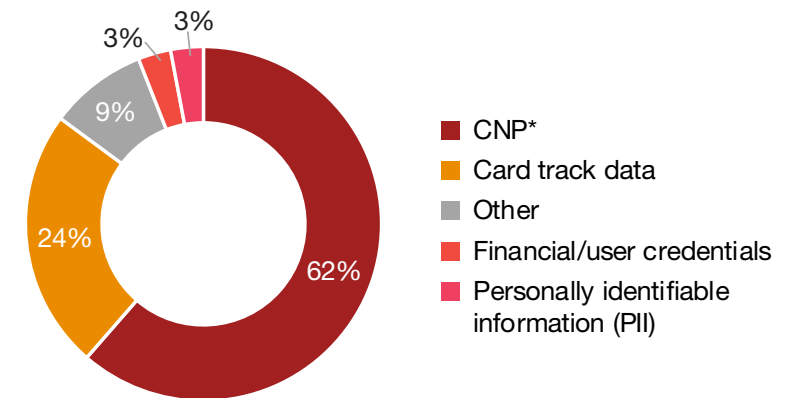
Distributed denial-of-service attack (DDOS) attack: This is a common attack where a specific website is flooded with lots of fake traffic to harm the system.

These frauds or data thefts are expected to result in not only financial loss but also reputation damage and potential loss of business, which can be detrimental in today's global digital economy. According to research from the Ponemon Institute, in 2017, India recorded the largest average number of breached records at 33,167 (global average = 24,089), with the average data breach being worth 110 million INR (1.7 million INR).[6]

Types of data compromised in eCommerce – 2017

- CNP* — 90%
- Financial/user credentials — 5%
- Other — 5%

Types of data compromised in eCommerce – 2018

- CNP* — 62%
- Card track data — 24%
- Other — 9%
- Financial/user credentials — 3%
- Personally identifiable information (PII) — 3%
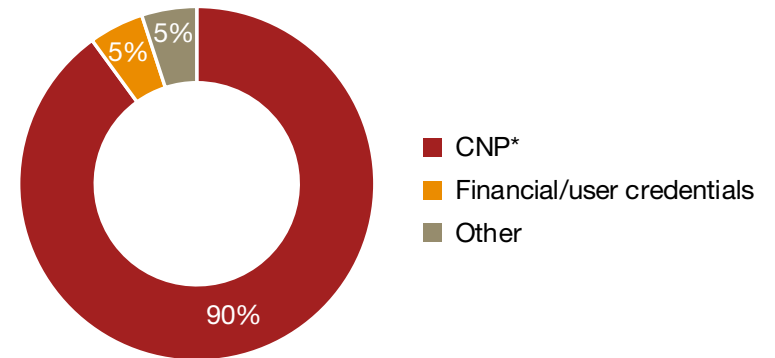
*Note: Card-not-present (CNP) fraud refers to the unauthorised use of a payment card when the cardholder does not physically present the card at the time of the transaction.

Source: 2018 Trustwave Global Security Report

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5 PwC 21st CEO Survey 2018. Retrieved from https://www.pwc.com/gx/en/ceo-survey/2018/pwc-ceo-survey-report-2018.pdf (last accessed on 12 April 2018)
6 Ponemon Institute. (2017). 2017 Cost of Data Breach Study: Global overview. Retrieved from https://info.resilientsystems.com/hubfs/IBM_Resilient_Branded_Content/White_Papers/2017_Global_CODB_Report_Final.pdf (last accessed on 13 April 2018)

For companies to effectively balance opportunity and risk, they need to build a superior data protection framework:

1

Accountability:
In addition to policies, procedures and processes, a well-configured and comprehensive technology stack can help to demonstrate how businesses protect and safeguard personal data.

2

Data lifecycle management:
Need to assess existing/ new technical systems to effectively manage the lifecycle of personal data processed, starting from data discovery to storage, transfer, retention and finally disposal. These systems can provide end-to-end visibility of the personal data received from multiple channels along with control over it.

3

Case management:
Evaluate and implement technical systems for managing data subject requests, complaints and communications surrounding emergencies, including personal data breaches.

4

Data protection by design or default (PbD): Protection of personal data will now have to be designed into the very fabric of data processing systems. Organisations need to re-examine how they approach the use of technology within their business (data minimisation, data validation, pseudonymisation, encryption, etc.).

5

Assessment of technology risks: Need to understand the risk posed by data processing activities and the wider operating environment. This would require the deployment of technical systems, specifically around network security, application security, and IT infrastructure, in order ensure personal data is collected, stored and handled in a secure manner.

6

Active monitoring:
Evaluate existing/ new technologies with respect to data leakage detection/ prevention, audit logging/ monitoring, etc., in order to analyse how personal data is being accessed and used, by whom, and how value can be derived from it.

7

Breach management:
Evaluate existing/ new technologies which will detect, manage and resolve breaches in real time (e.g. identify breached data, identify impacted users and notify all relevant parties).

In a hypercompetitive industry such as eCommerce, where the barriers to entry are low, lack of trust can result in high customer switching. Going forward, with increasing regulatory pressure and severe strain on the bottom line, businesses that offer a secure and robust online shopping experience will have a competitive edge over others. As the government considers introducing a national eCommerce policy and is in the process of updating the cyber security policy (last update in 2013), eCommerce companies will need to take a hard look at their business models, internal safeguards and processes to ensure customer data privacy, and assess their susceptibility to risks to ensure scalable growth in the future.

Source: PwC's report on 'An overview of the changing data privacy landscape in India'
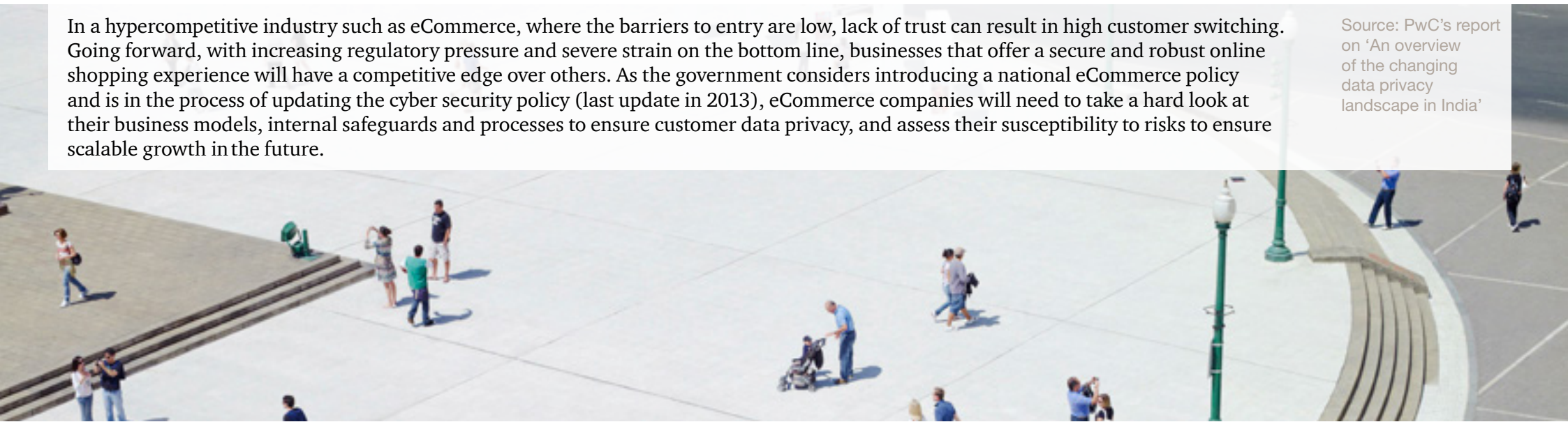
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The following are some of our key thought leadership publications released the world over:

An overview of the changing data privacy landscape in India

Click for more details

Securing the nation's cyberspace

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Securing the cashless economy

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India Online: Emerging Business Models and Taxation

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Strengthening digital society against cyber shocks

Key findings from The Global State of Information Security® Survey 2016

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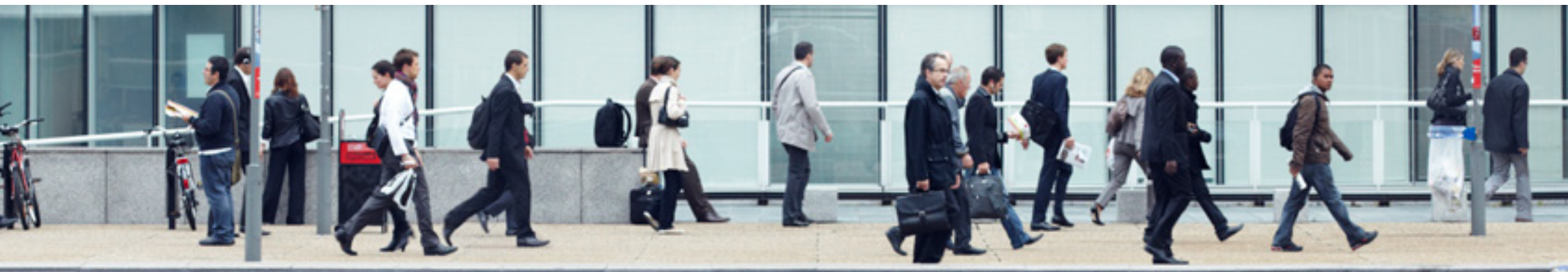
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