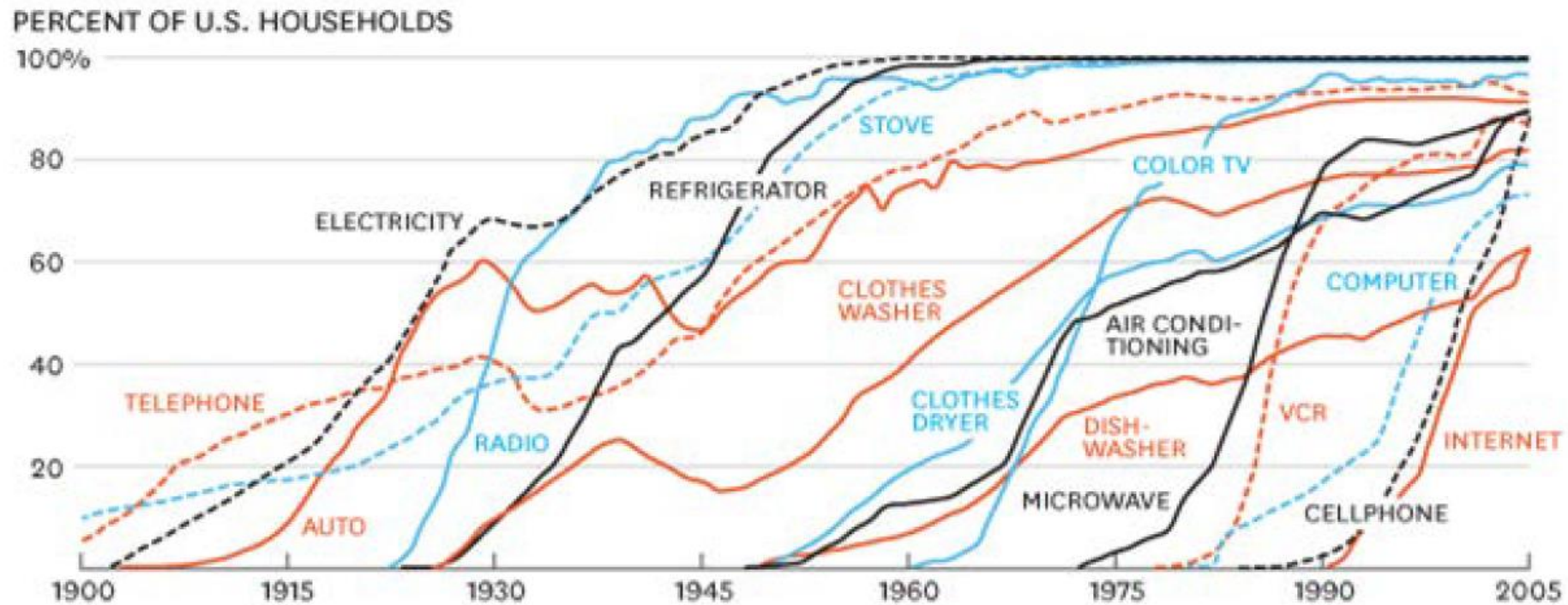
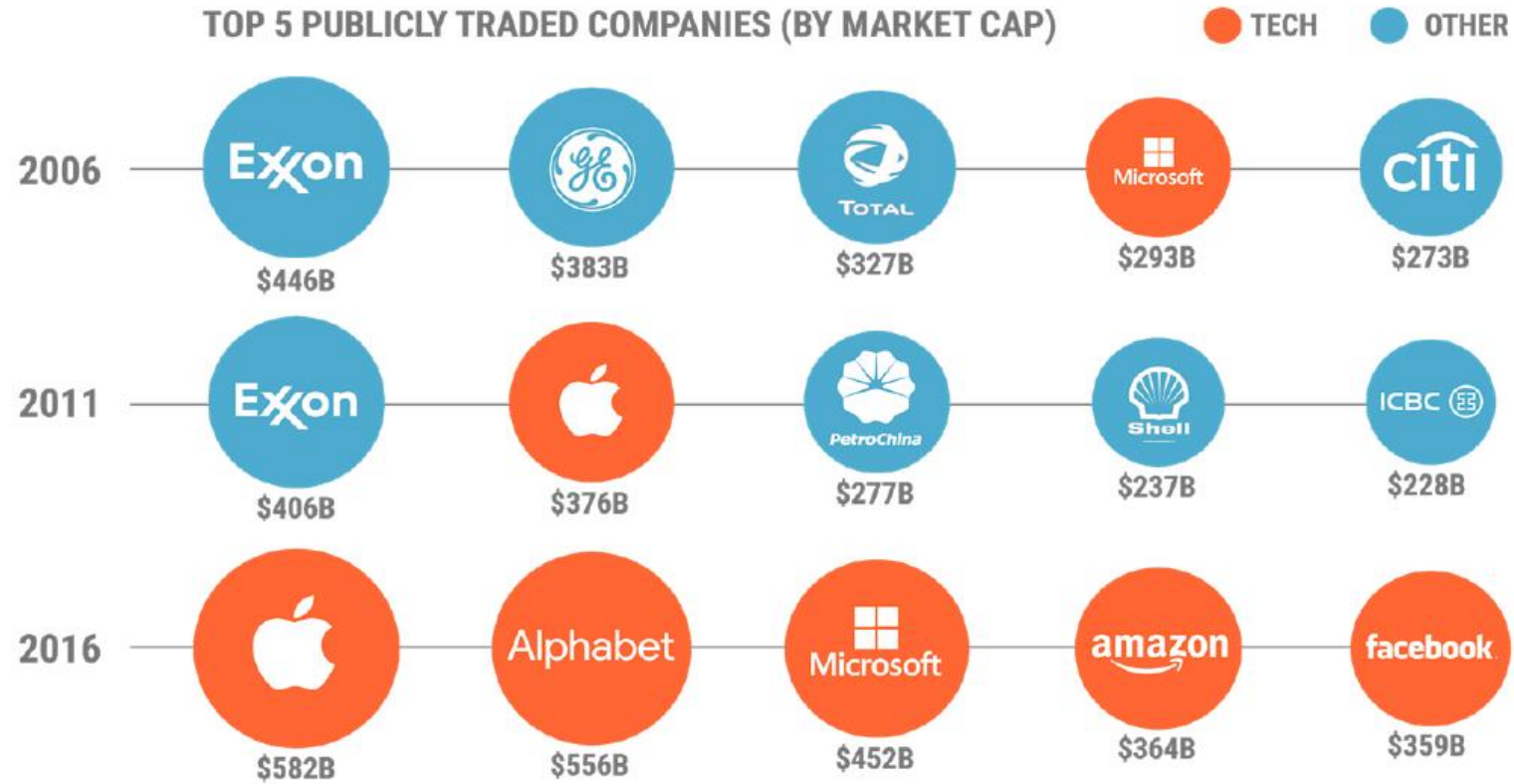


Digital innovation: the global challenge

Technology adoption is quicker than ever



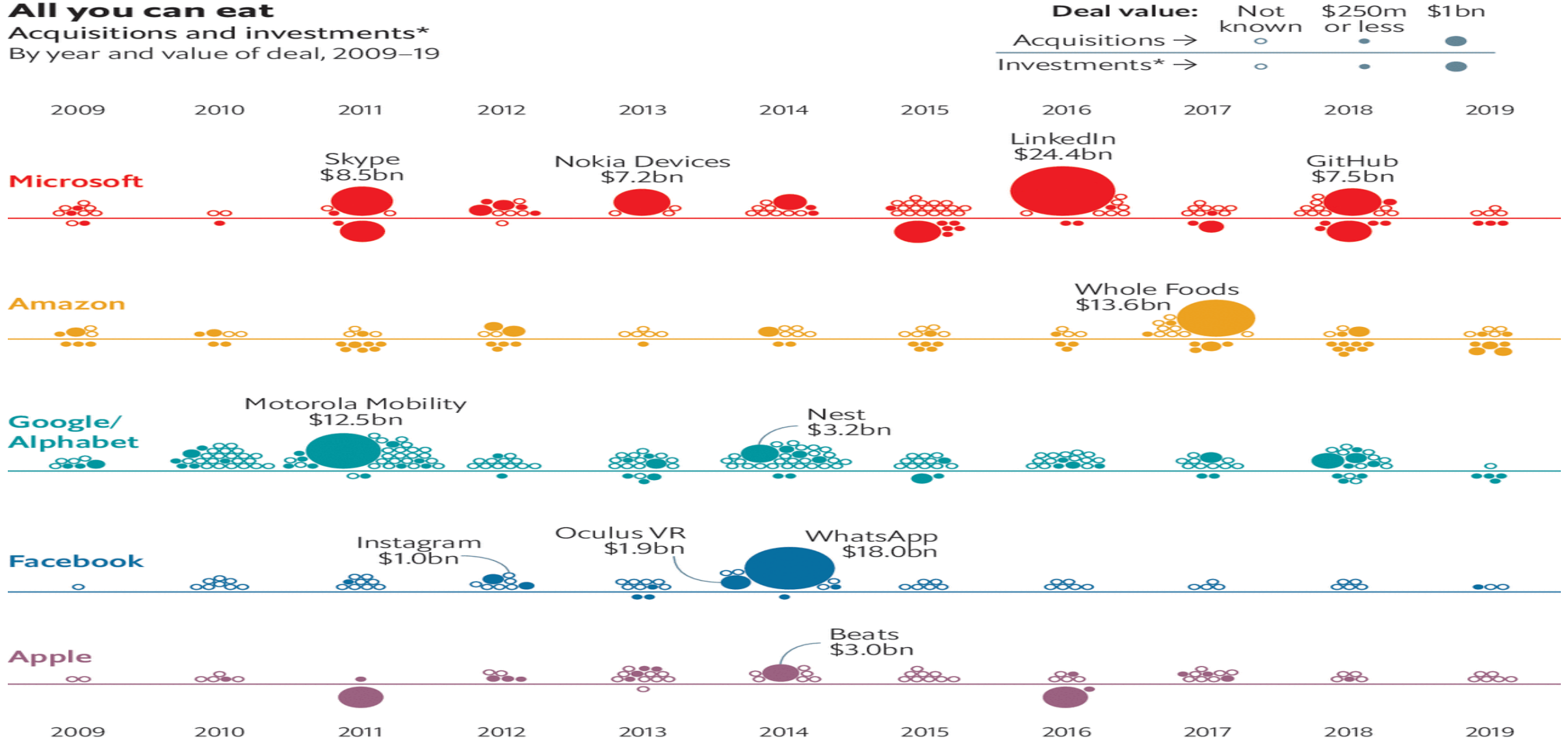
Technology is eating every industry



All you can eat

Acquisitions and investments*

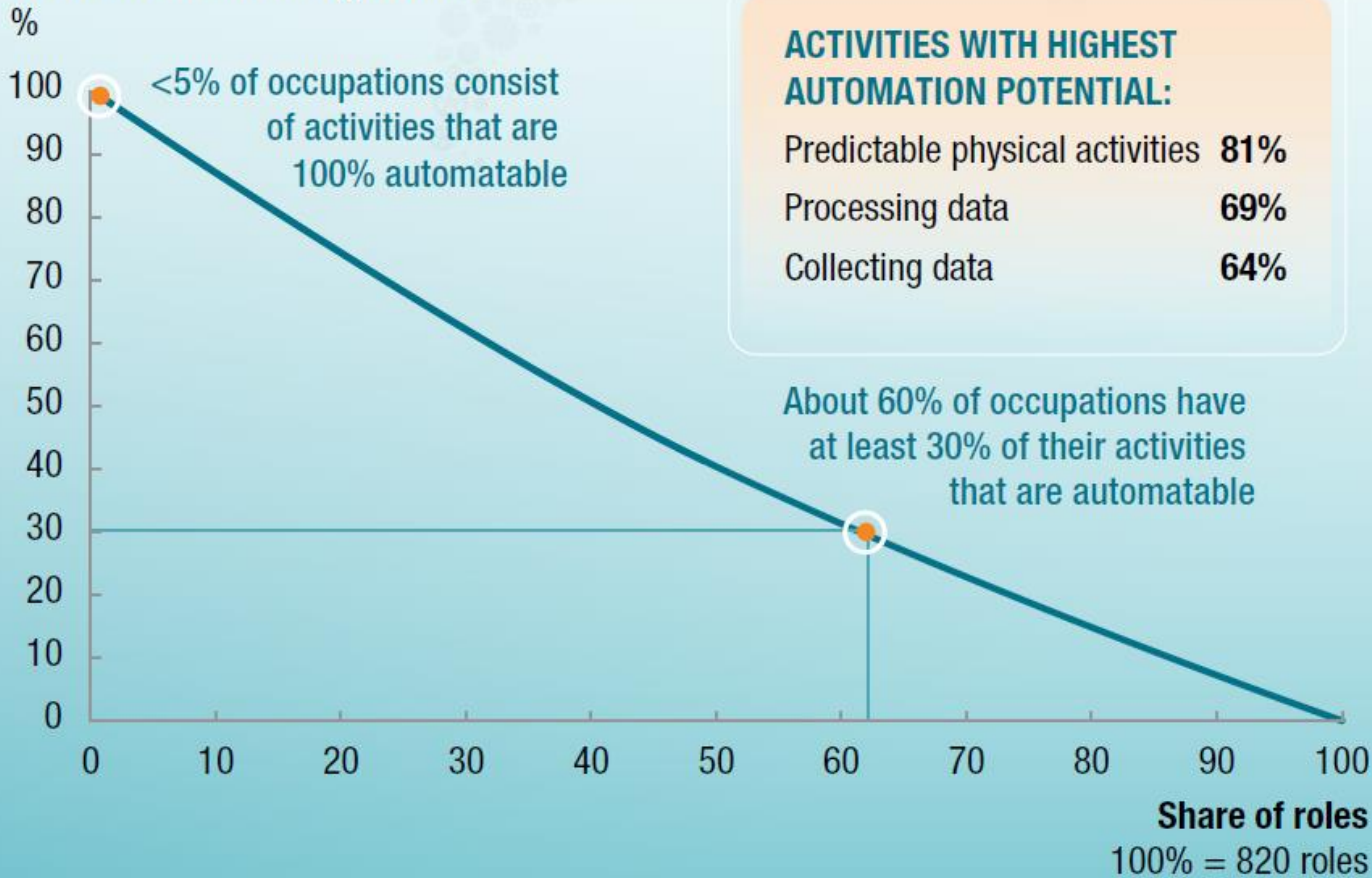
By year and value of deal, 2009–19



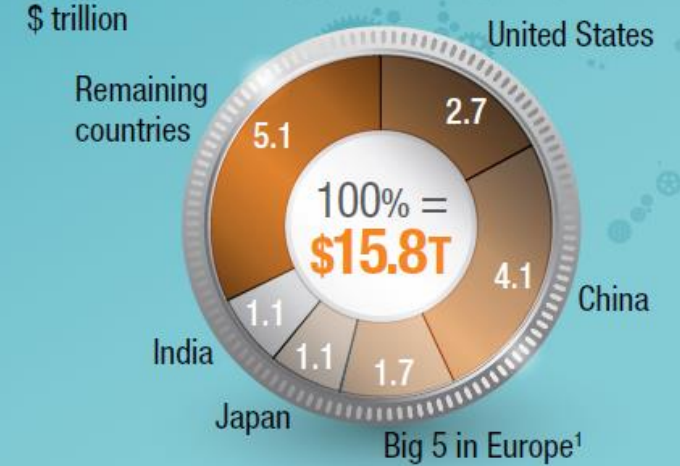
Impacts of digital innovation, robotics, artificial intelligence on the labor market

While few occupations are fully automatable, 60 percent of all occupations have at least 30 percent technically automatable activities

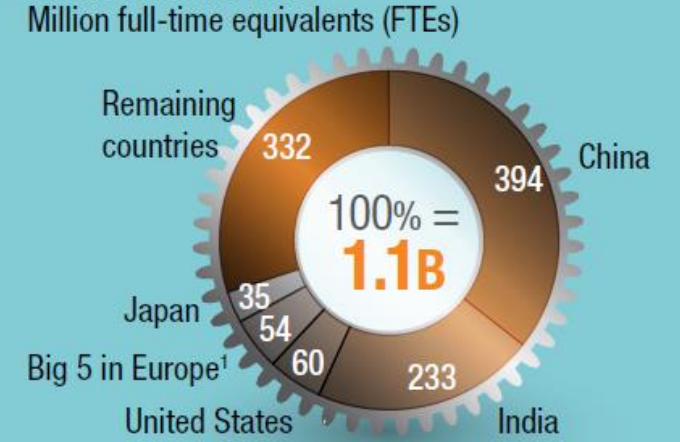
Technical automation potential



Wages associated with technically automatable activities

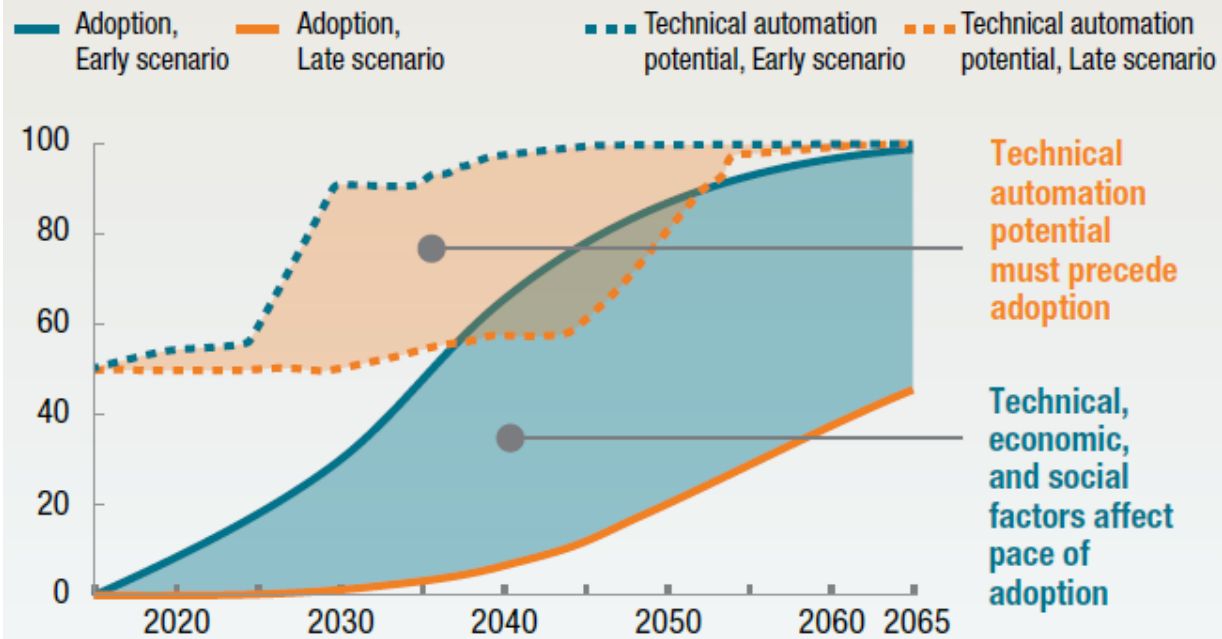


Labor associated with technically automatable activities



¹ France, Germany, Italy, Spain, and the United Kingdom.

Scenarios around time spent on current work activities, %



MCKINSEY GLOBAL INSTITUTE

Automation will boost global productivity and raise GDP

G19 plus Nigeria

- **Productivity growth, %**
Automation can help provide some of the productivity needed to achieve future economic growth
- **Employment growth, %**
will slow drastically because of aging



McKinsey&Company

THE VERGE

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Automation threatens 800 million jobs, but technology could still save us, says report



EXPRESS

Home of
the Daily and
Sunday Express

ROBOT WARNING: Artificial intelligence to steal 'thinking jobs within 45 YEARS'

WSJ | OPINION
Europe Edition · February 16, 2019 · Print Edition · Video

The Fed Can't Save Jobs From AI and Robots

TechRepublic

COVER STORY

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Why AI could destroy more jobs than it creates, and how to save them

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NEWS

WEF: Robots 'will create more jobs than they displace'

FORTUNE

A.I. Expert Says Automation Could Replace 40% of Jobs in 15 Years

CBINSIGHTS

Platform

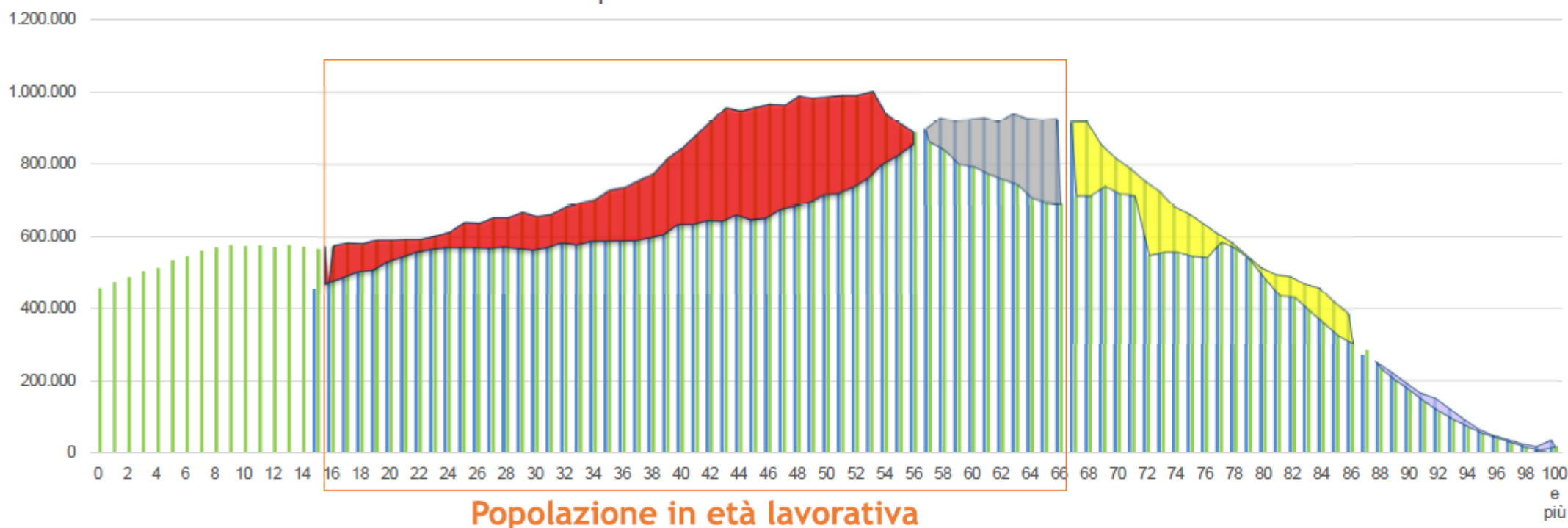
Service:

AI Will Put 10 Million Jobs At High Risk — More Than Were Eliminated By The Great Recession

Artificial Intelligence and employment: an assessment for the Italian market

Expected demographic change

Popolazione Italiana 2018 vs 2033

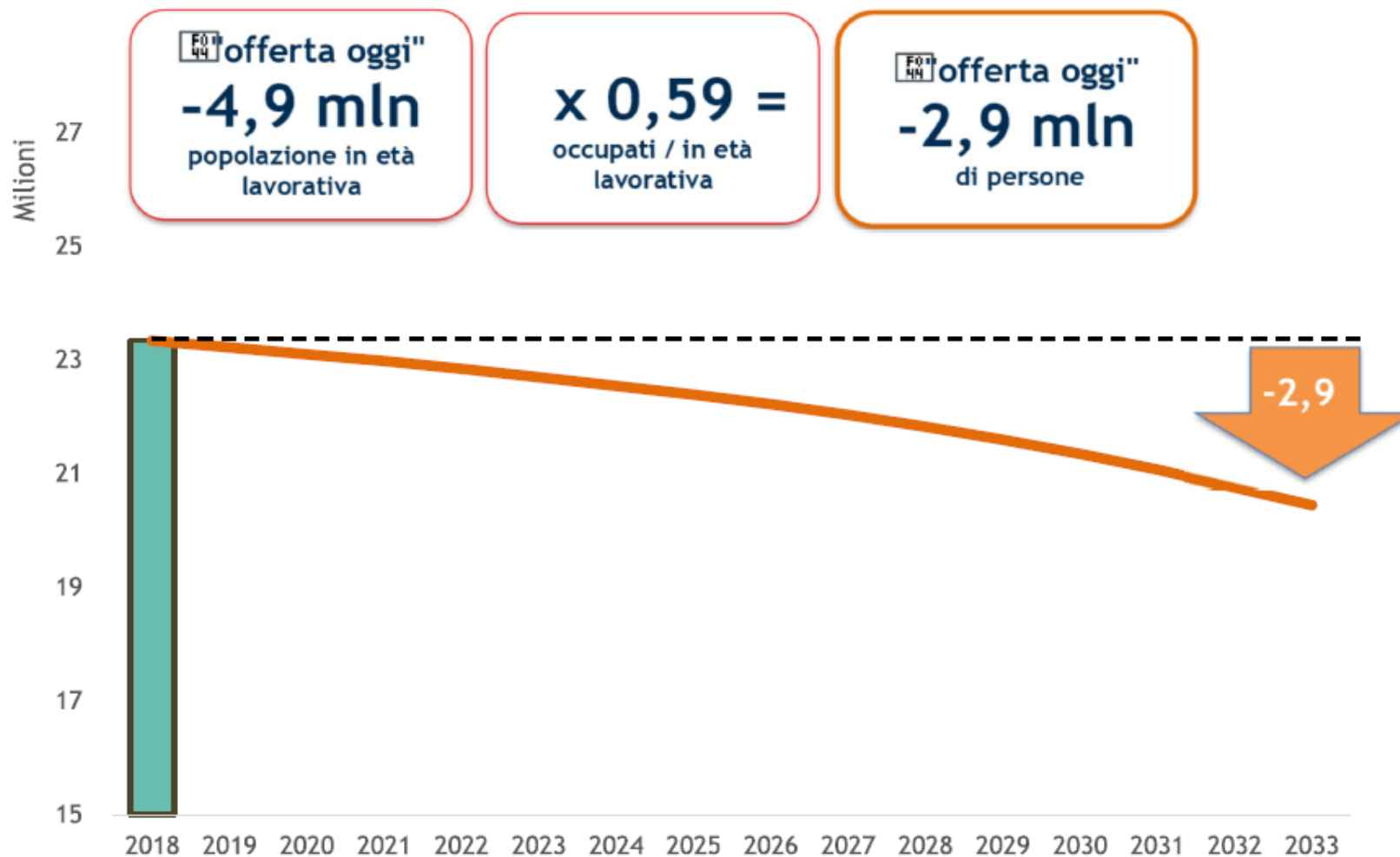


- Perdita di "offerta" di lavoro
- Aumento di "offerta" di lavoro
- Aumento di popolazione che richiede servizi/assistenza

Source: Istat

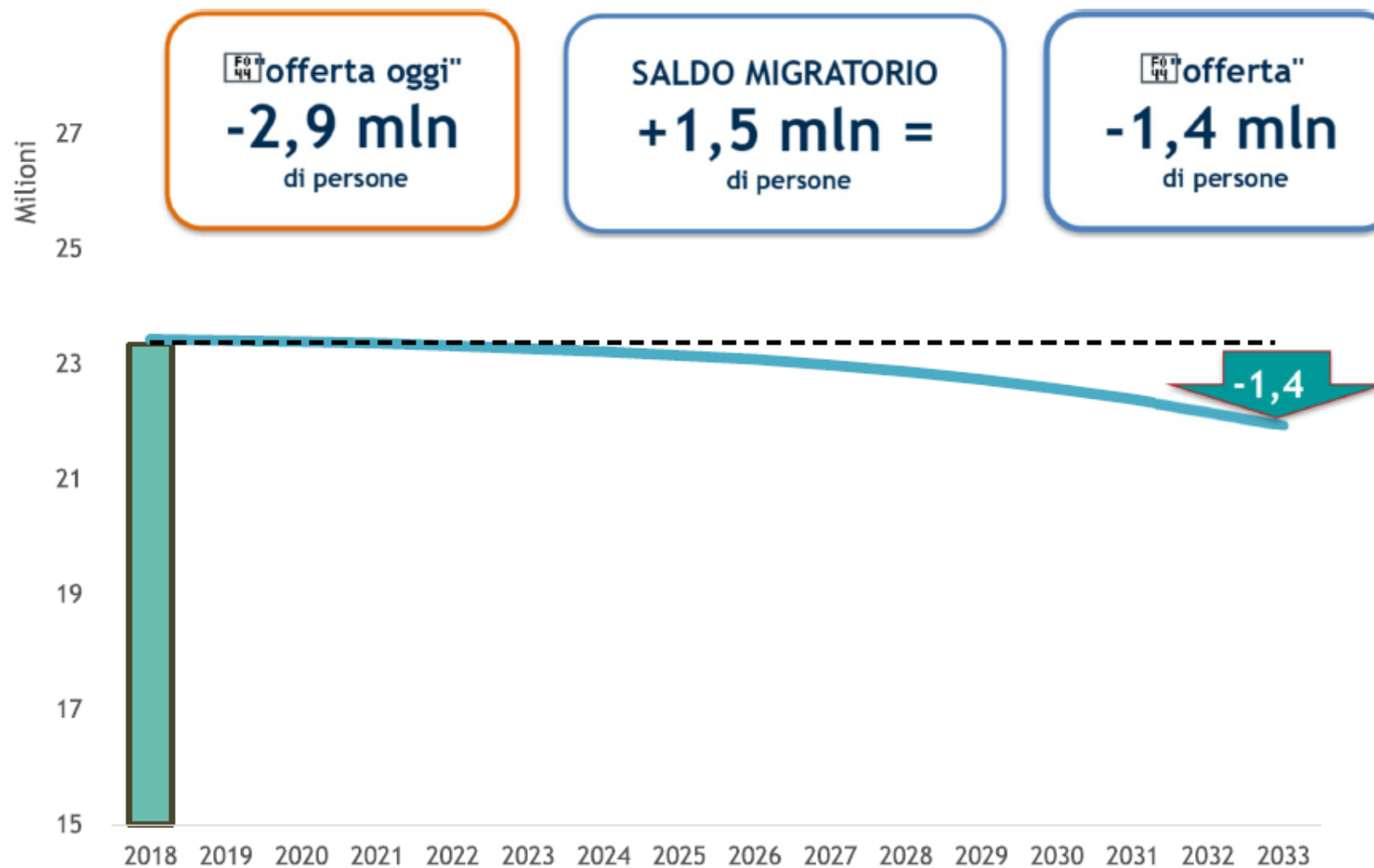
Labor supply evolution

SSERVATORI.NET
digital innovation



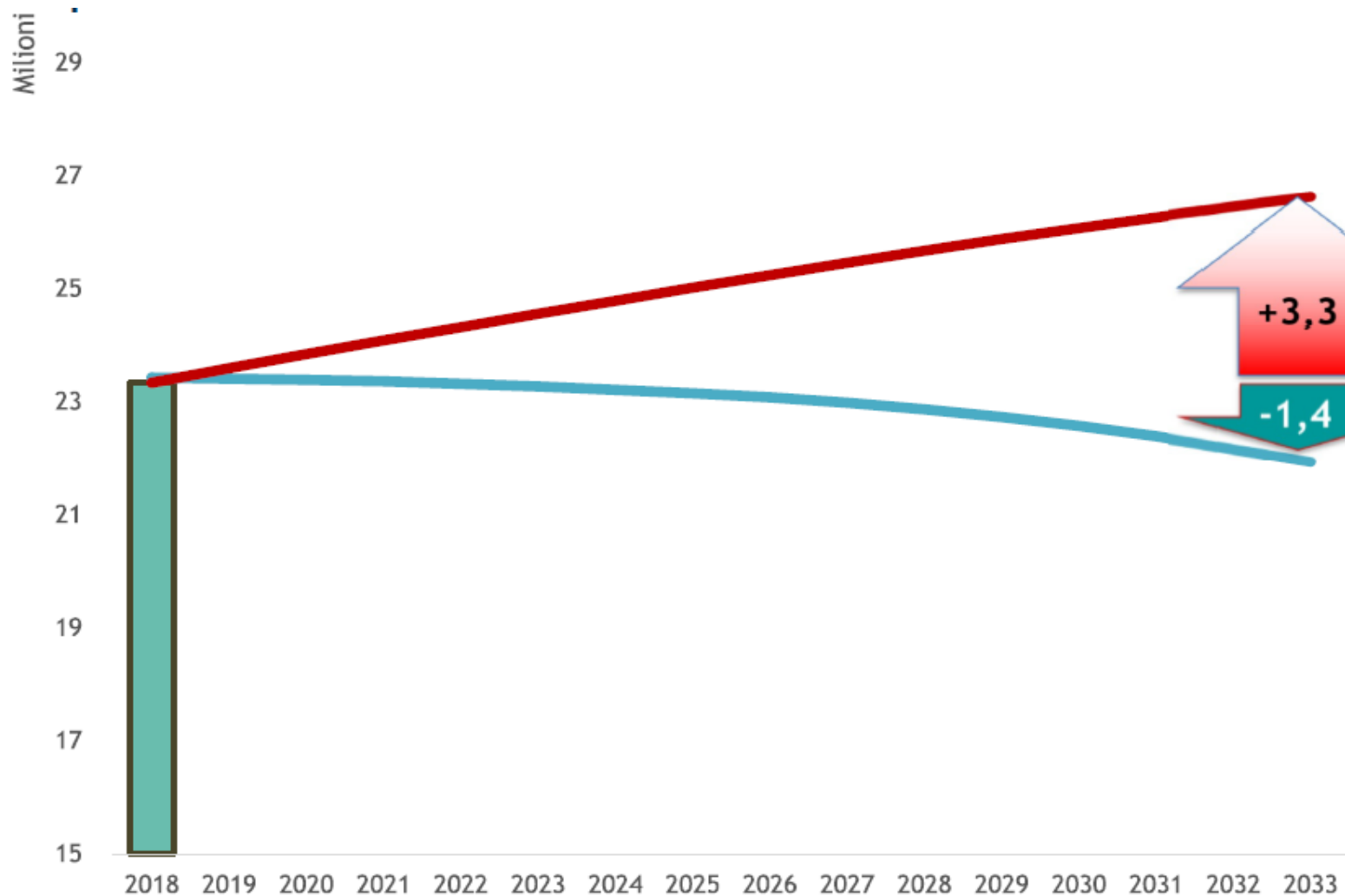
AGEING
Calcolata a partire dalle
variazioni demografiche
nelle varie fasce di età.

Labor supply evolution



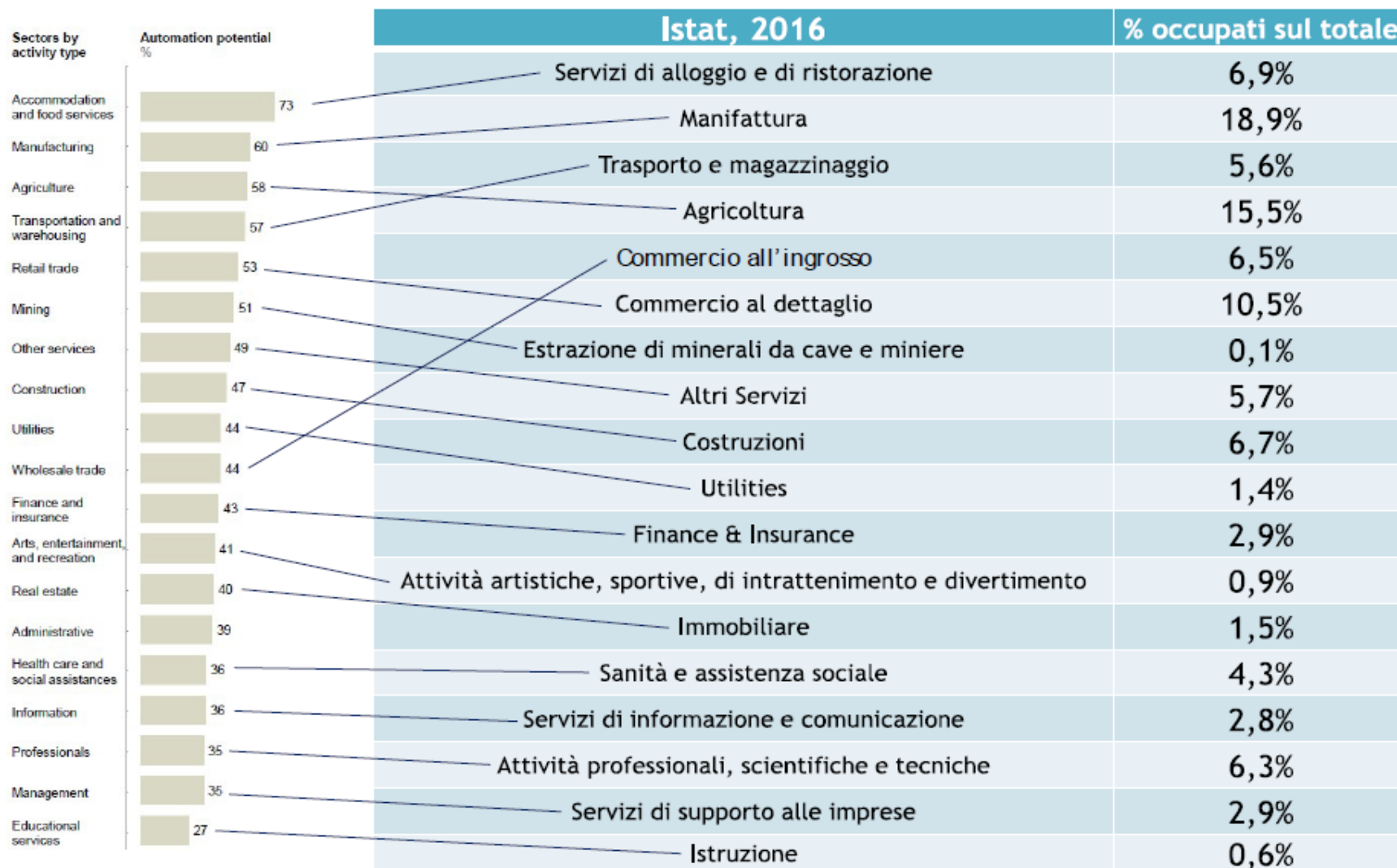
A preliminary assessment

OSSERVATORI.NET
digital innovation



ITALY: Automation Potential

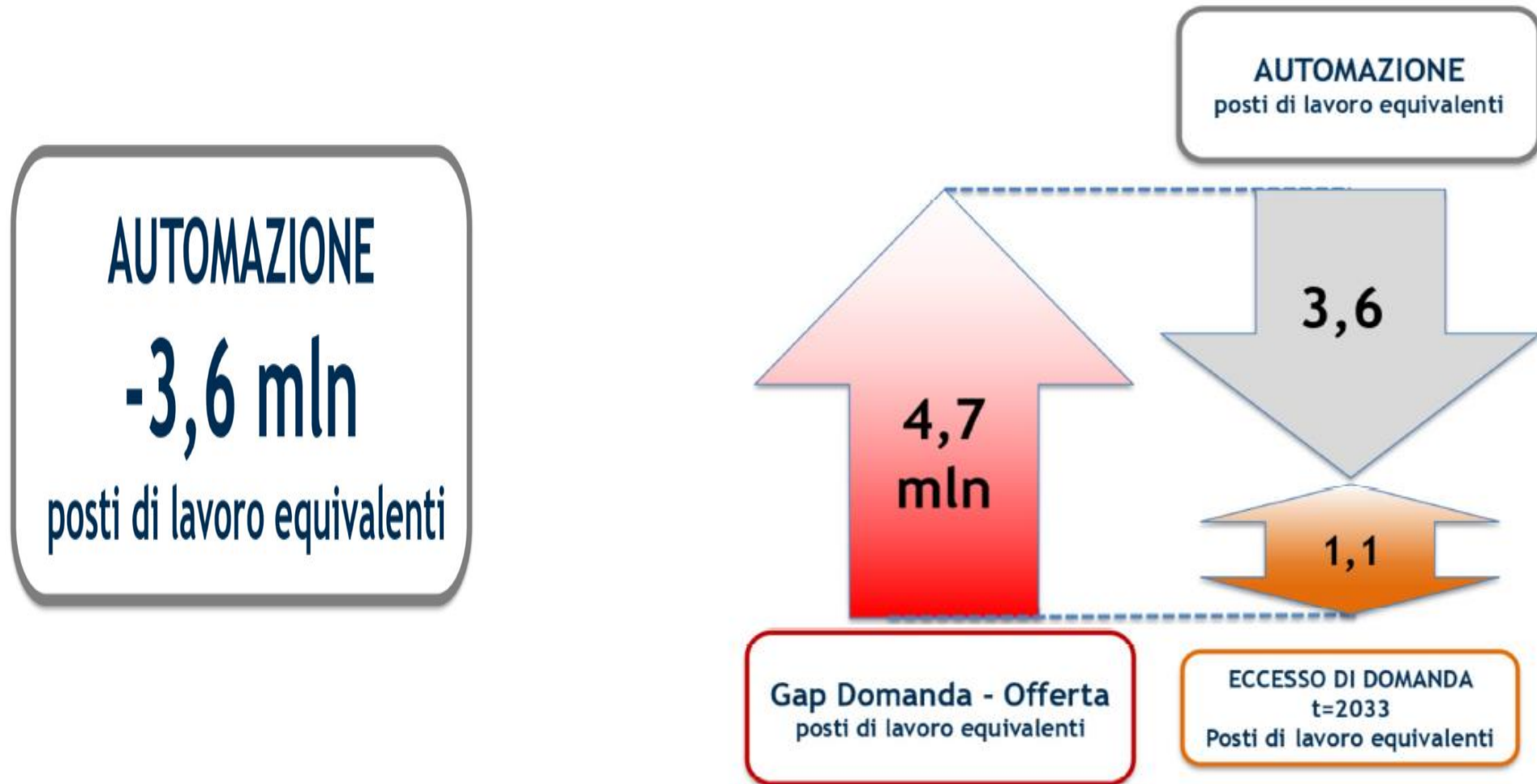
SSERVATORI.NET
digital innovation



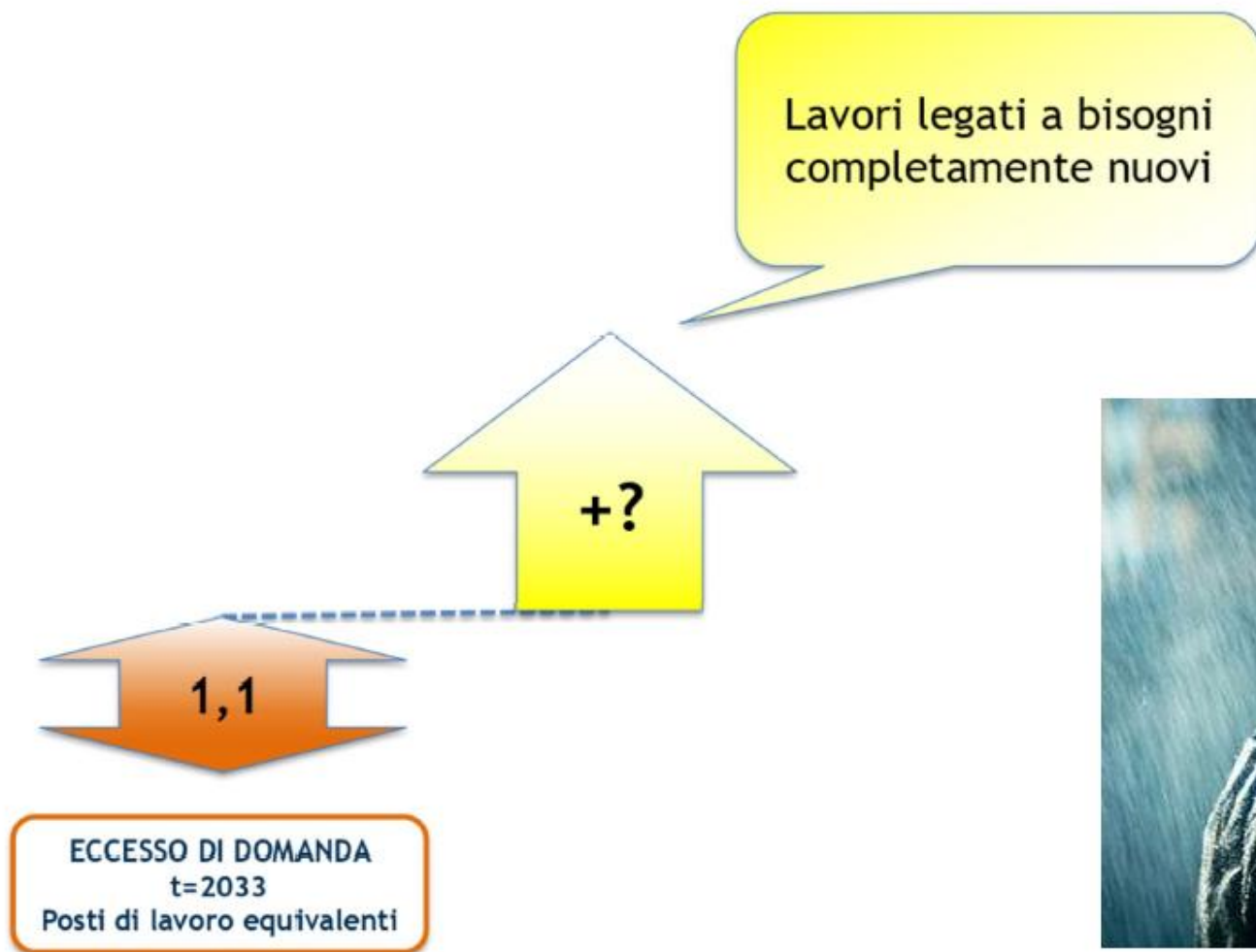
POTENZIALITÀ (t = + $\frac{F_0}{R_5}$) DI
AUTOMAZIONE IN ITALIA

51%

ITALY: Automation potential impact in the next 15 years



ITALY: Automation Potential



Digital innovation: the challenges in the financial services market

Market Challenges Neo-Banks e Neo-Insurances

NEO-BANKS

UK

CUSTOMERS WITH MONZO, REVOLUT, ATOM, STARLING, TANDEM (MILLIONS)



SOUTH KOREA

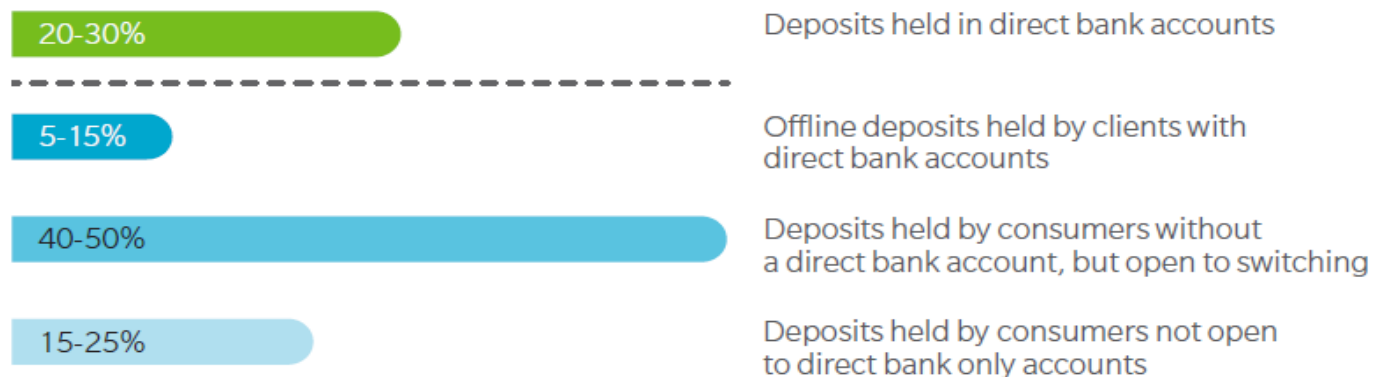
CUSTOMERS WITH KAKAO (MILLIONS)



US DIRECT BANKS

OPENNESS TO DIRECT BANKS

% OF TOTAL HOUSEHOLD DEPOSITS (MONEY MARKET/SAVINGS EXCLUDING UHNW)



Source: Oliver Wyman Rising Rate Survey

> **15%** of the total banked population attracted by one of South Korea's first digital-only banks in one year

5% UK adult penetration of top digital banks

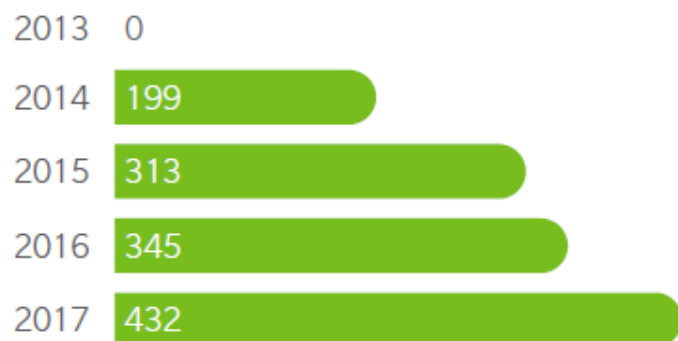
> **20%** of US customer deposits in direct bank accounts

Another **50%** with the potential to switch

NEW P&C OFFERINGS

GROWTH OF ZHONGAN, FIRST ONLINE-ONLY INSURER IN CHINA

NUMBER OF CLIENTS
MILLIONS



NUMBER OF POLICIES SOLD
BILLIONS



> **432 million** customers gained over four years by China's first online-only insurer ZhongAn

Source: Oliver Wyman Analysis; Press Releases

GROUP OF EXISTING BANKS

GROUP OF DIGITAL CHALLENGERS

AVERAGE COST TO ACQUIRE NEW CURRENT ACCOUNT CUSTOMERS

~\$150



~\$30



DAYS FROM APPLICATION TO CURRENT ACCOUNT FUNCTIONALITY BEING ACCESSIBLE

3



0



TIME TO LAUNCH A NEW FEATURE

3-6
months



2
weeks



RETAIL BANKING CUSTOMERS PER FTE

<1,000



>2,500



EMPLOYEES RATING THEIR COMPANY AS A 5 STAR EMPLOYER

25%



68%

b



Market Challenges FinTech - BigTech

The Alphabet Soup of Creating Digital Banking Stars

A

ARTIFICIAL INTELLIGENCE AND AUTOMATION

Outside of Technology, the Banking and Securities sector is the biggest spender on external AI services and has fast growth¹

	2016	2019E
Telecommunications	50	300
Education	100	450
Utilities	100	500
Insurance	200	650
Transportation	200	700
Government	500	1000
Manufacturing	900	4000
Retail	1100	5000
Other Industries	1000	5150
Healthcare	900	5300
Banking & Securities	1900	7500

B

BIG TECH

Traditional banking is being challenged not by small FinTech startups, but by established tech giants because of...



UNUSUAL SUSPECTS

Amazon's unbundling of the bank

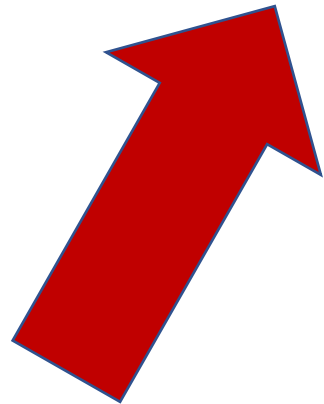
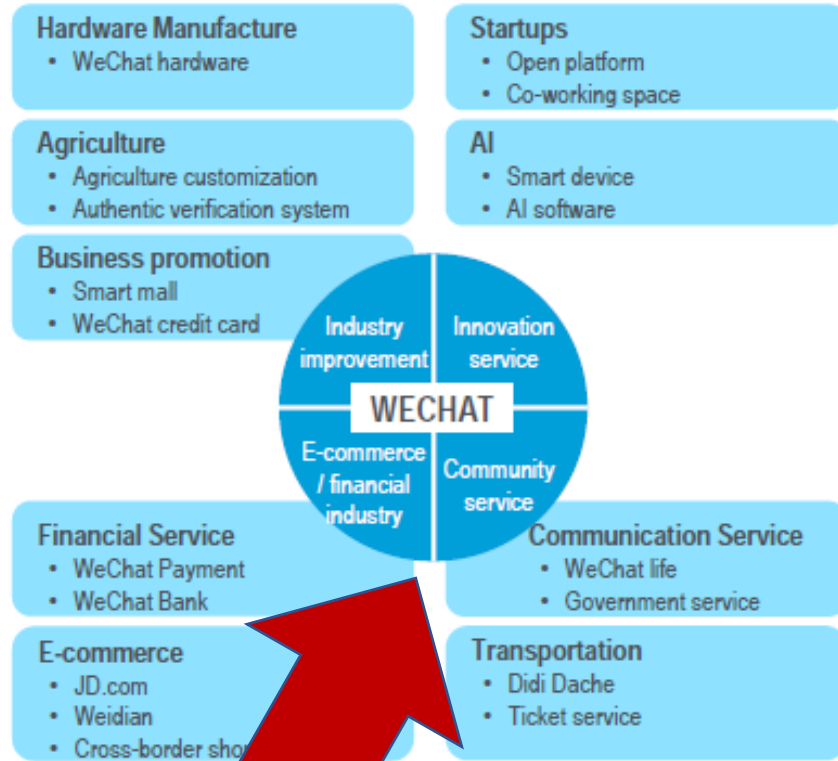
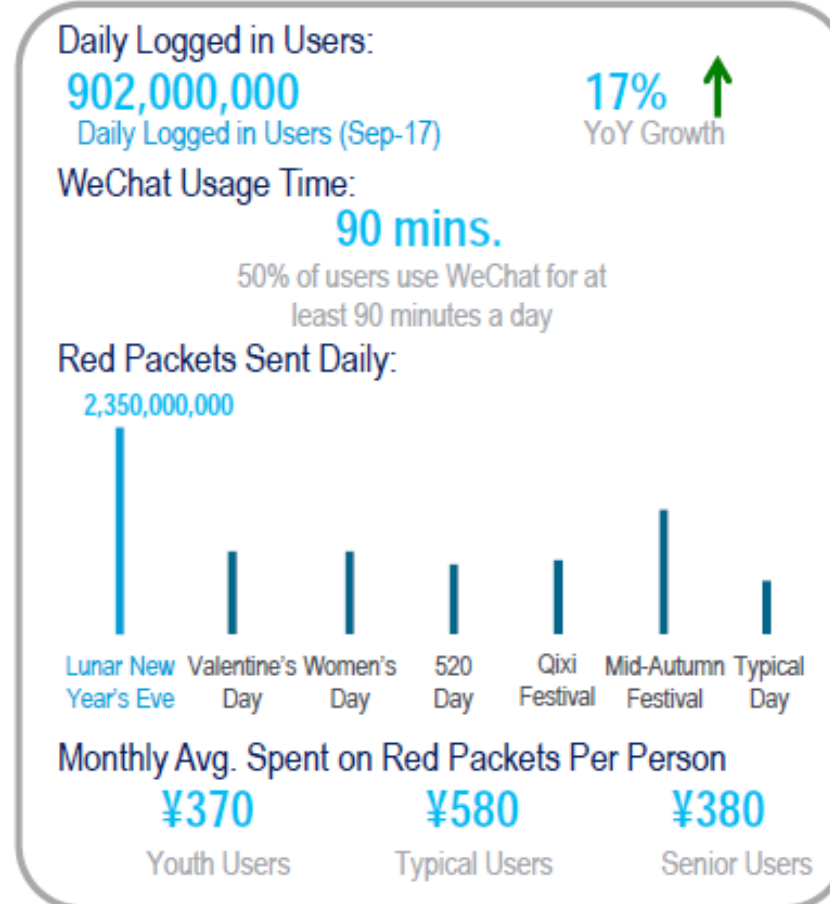


Figure 34. Tencent Ecosystem



Source: Company Reports, Citi Research

Figure 35. WeChat Stats and Trends

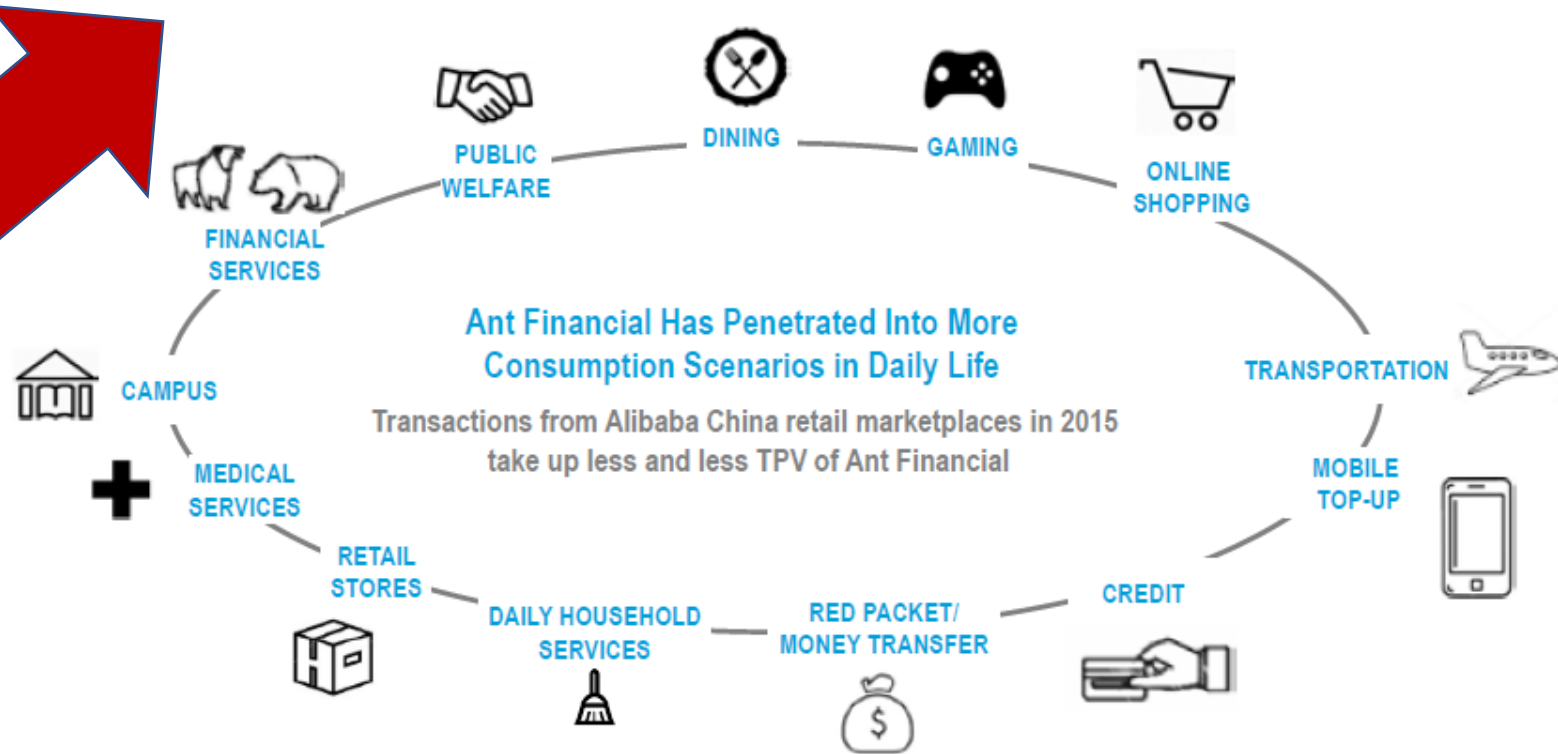


Source: Company Reports, Citi Research

Weixin (WeChat) Pay –

Tencent owns and operates Tenpay, which allows users to **transfer money through WeChat, a social messaging app.** With **980 million monthly active user accounts as of September 2017** (+16% YoY), Tencent's Weixin mobile messaging app has become a powerful multi-function platform, including for integrating third-party services, including payments and financial services. Weixin Pay and QQ Wallet are **consumer-facing mobile payment solutions that expand use cases for social** (red envelope gifting and money transfers), Online to Offline (O2O) services, and online finance. Based on a Tencent survey, about 70% of respondents spend more than RMB100 (\$15) per month in payments and transfers, with the most popular function being digital red envelope money (85% of respondents), followed by payments (58%) and money transfer to contacts (57%). WeChat credit card (payment processed via scanning QR code) was used by 20% of respondents, and 14% used Weixin Pay to pay off credit cards.

Figure 31. Ant Financial Ecosystem



Source: Citi Research

Ant Financial is one of the largest FinTechs in the world. Its strategic vision is based on:

- (1) leveraging the power of the Internet and big data;
- (2) empowering financial institutions to create an ecosystem;
- (3) serving both SME and individual customers;
- (4) providing inclusive financial services.

Ant Financial's competitive advantages include: a large user base; an incubator for vital, innovative financial products; and a world-class financial cloud technology platform. In addition, it is a pioneer in the DT Era, employing data to drive innovation.

Alipay is now the modern gateway to an ecosystem of financial services



PAYMENTS



The crown jewel, Alipay, is now a mobile wallet that has **520M+ users**, and **110M+ partners across 15 countries**.



WEALTH MANAGEMENT



Yu'e Bao is a money market fund that invests spare change from Alipay wallets. The money market fund is **the largest in the world**, managing **\$233B** at the end of 2017.



Ant Fortune is a marketplace for other Ant Financial and third-party financial products. At the end of 2017, Ant Fortune had **330M users**.



INSURANCE



Ant Insurance Service has nearly **400M users** and is seeing premium growth of 43% YoY. Ant Financial's marketplace has **80+ insurance companies** selling thousands of products.



CREDIT SCORES



Zhima Credit creates a credit score based on social networks and payments history – among other factors. At the end of Q1'17, it had about **260M users**.



CONSUMER LENDING



Ant's consumer credit offering, Ant Credit Pay, has **100M active users**. In total, Ant Financial has lent **\$95B** to consumers through Q1'17.



Ant Cash Now allows Alipay users to borrow funds quickly, based on user risk profiles.

Figure 6. Estimated Volume Lost to Disruptive Models by 2025

	North America		Europe		China		Developed Asia		Emerging Asia	
Payments	6%	34%	6%	34%	9%	50%	6%	34%	2%	36%
Investments	6%	34%	6%	34%	9%	50%	6%	34%	2%	36%
Personal Lending	6%	34%	2%	17%	6%	34%	2%	17%	1%	24%
Credit Card Lending	2%	17%	2%	17%	2%	28%	2%	17%	1%	24%
SME Lending	6%	34%	6%	34%	2%	28%	2%	17%	2%	36%
Mortgage	6%	34%	2%	17%	1%	14%	2%	17%	0%	12%

* Disruptive models vary across product – Investments: low price, digital only brokerage and robo-advisor; Mortgages: digital-only robo-mortgage, new credit scoring; Personal, credit card, and SME lending: digital only, P2P marketplace; Payments: digital payment via wallets; P2P or A2A and digital only cross-currency exchange. Source: Citi Global digital Strategy, "Bang and Fuse" model, Citi Research

The necessary transformation of the banking and insurance system

The question is: **will banks and insurances become innovative before new entrants (FinTech & BigTech) have achieved sufficient economies of scale for their market programs?**

A decade after the Great Financial Crisis:

- They can try to "buy innovation" through partnership or the acquisition of new fintech participants.
- Banks and insurances can buy innovation faster than FinTech can acquire new customers.

When the new competitor is a BigTech, the equation changes: the economies of scale are already existing and the database is, at times, greater than the banks themselves.

Internet-based platform companies - like Amazon, Alibaba, Facebook or Tencent - have captured an ever-increasing share of consumer attention and time.

A continuous transformation for banks & insurances involving:



NEW BUSINESS MODELS



**A REVISION OF THE
ORGANIZATIONAL STRUCTURE**



CORPORATE CULTURE REVIEW



**CONTINUOUS
TECHNOLOGICAL AND
INFRASTRUCTURAL UPDATE**