

HUAWEI Case Study

“Huawei is a cyber-security risk”

DENG YINGXIN

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HUAWEI introduction

A [Chinese](#) multinational technology company founded in 1987 by [Ren Zhengfei](#) and headquartered in [Shenzhen](#), [Guangdong](#)

Huawei has deployed its products and services in more than 170 countries

Main products

Four key domains which are telecommunication networks, IT, smart devices, and cloud services

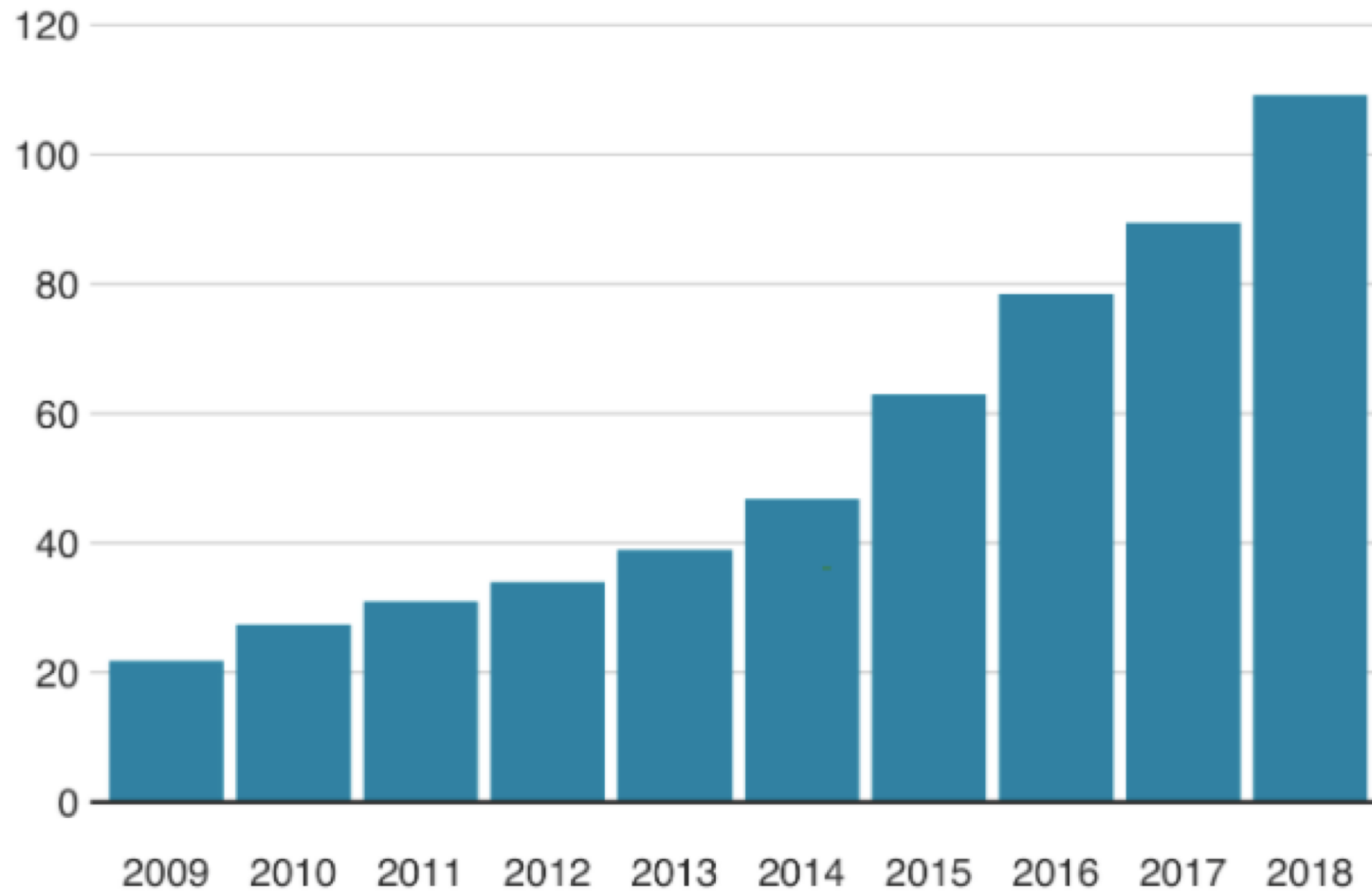
In overseas markets, **operator business** is HUAWEI's core business and gain more profits than its corporate business, and customer business. (Statistics over a latest six-year span: 70%、67%、59%、56%、49%、40%)

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HUAWEI introduction

Huawei has grown rapidly over a decade

Revenue in billions of US Dollars



Source: Huawei



<https://www.bbc.com/news/business-46480208>

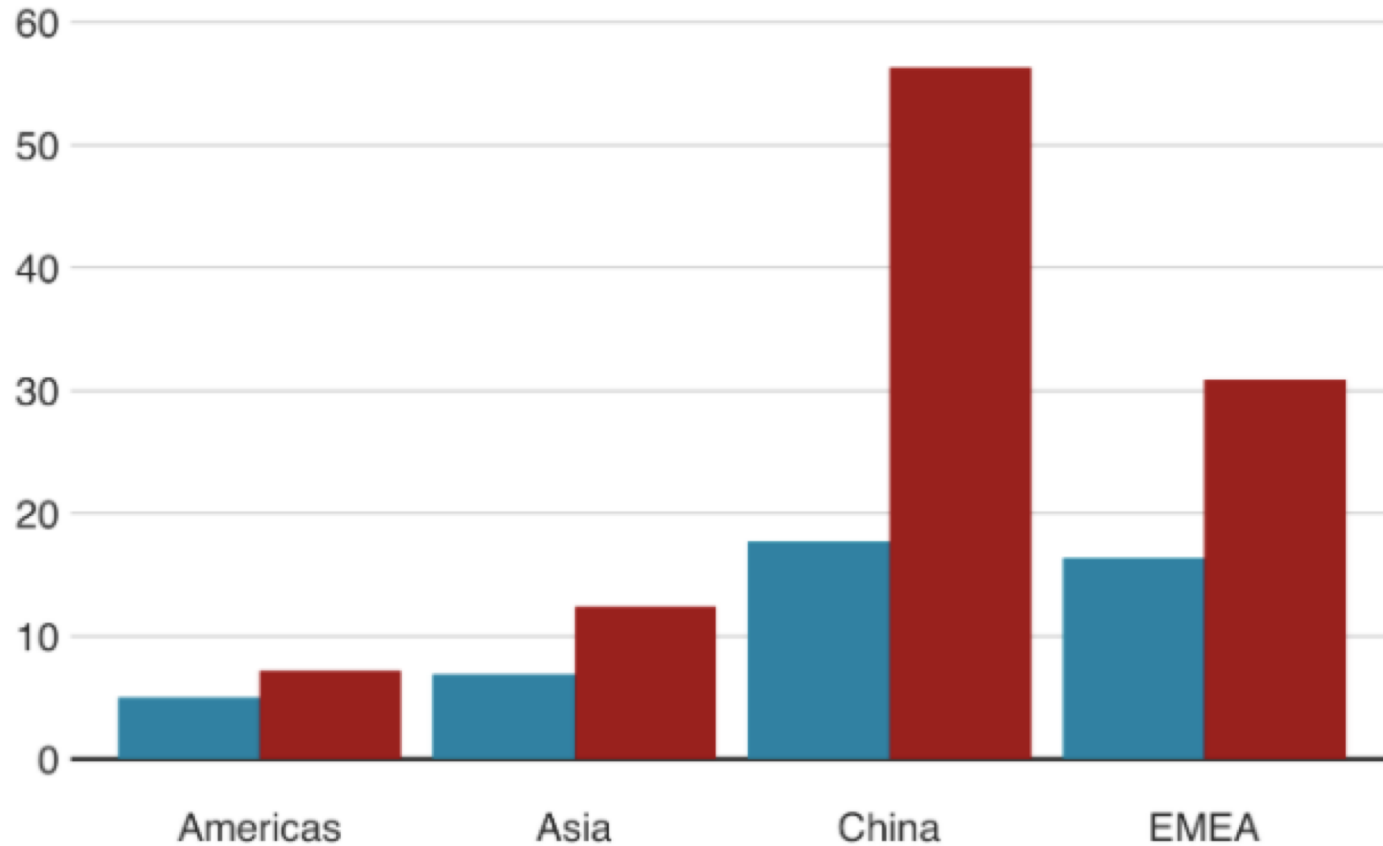
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HUAWEI introduction

Huawei's sales have grown on every continent

Revenue by area in billions of US dollars

■ 2014 ■ 2018



Source: Huawei; EMEA: Europe, Middle East, Africa

BBC

<https://www.bbc.com/news/business-46480208>

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5G-introduction

5G INTRODUCTION

Fifth generation wireless (5G) is a wireless networking architecture built on the 802.11ac IEEE wireless networking standard, which aims to increase data communication speeds by up to three Huawei times compared to its predecessor, 4G (IEEE 802.11n)

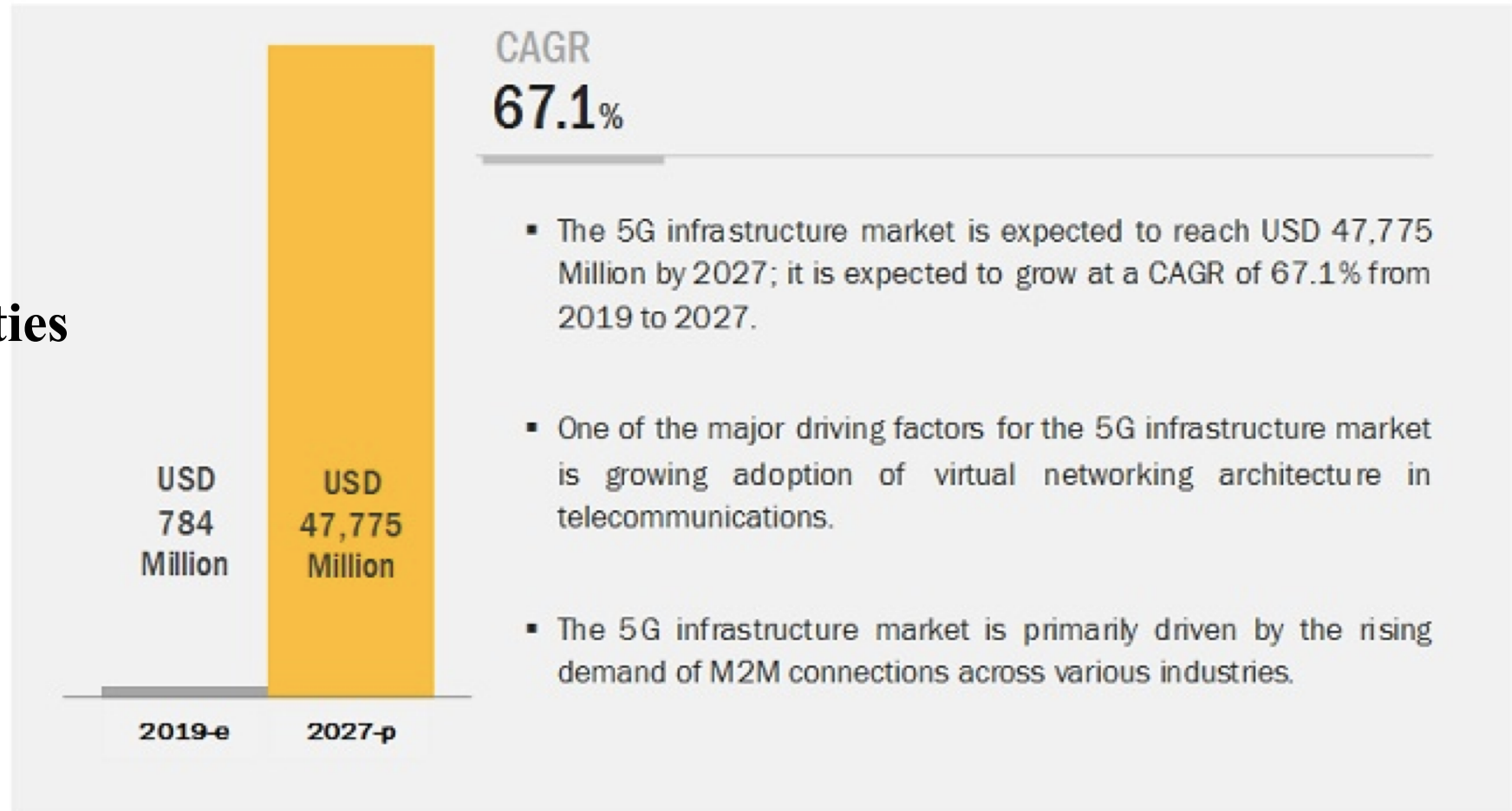
Greater download and browsing speed, reduced latency, energy saving, cost reduction, higher system capacity, and massive device connectivity, wider coverage and more stable connections.

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5G introduction-WHY IMPORTANT?

Attractive Opportuntites in 5G infrastructure Market

Attractive opportunities

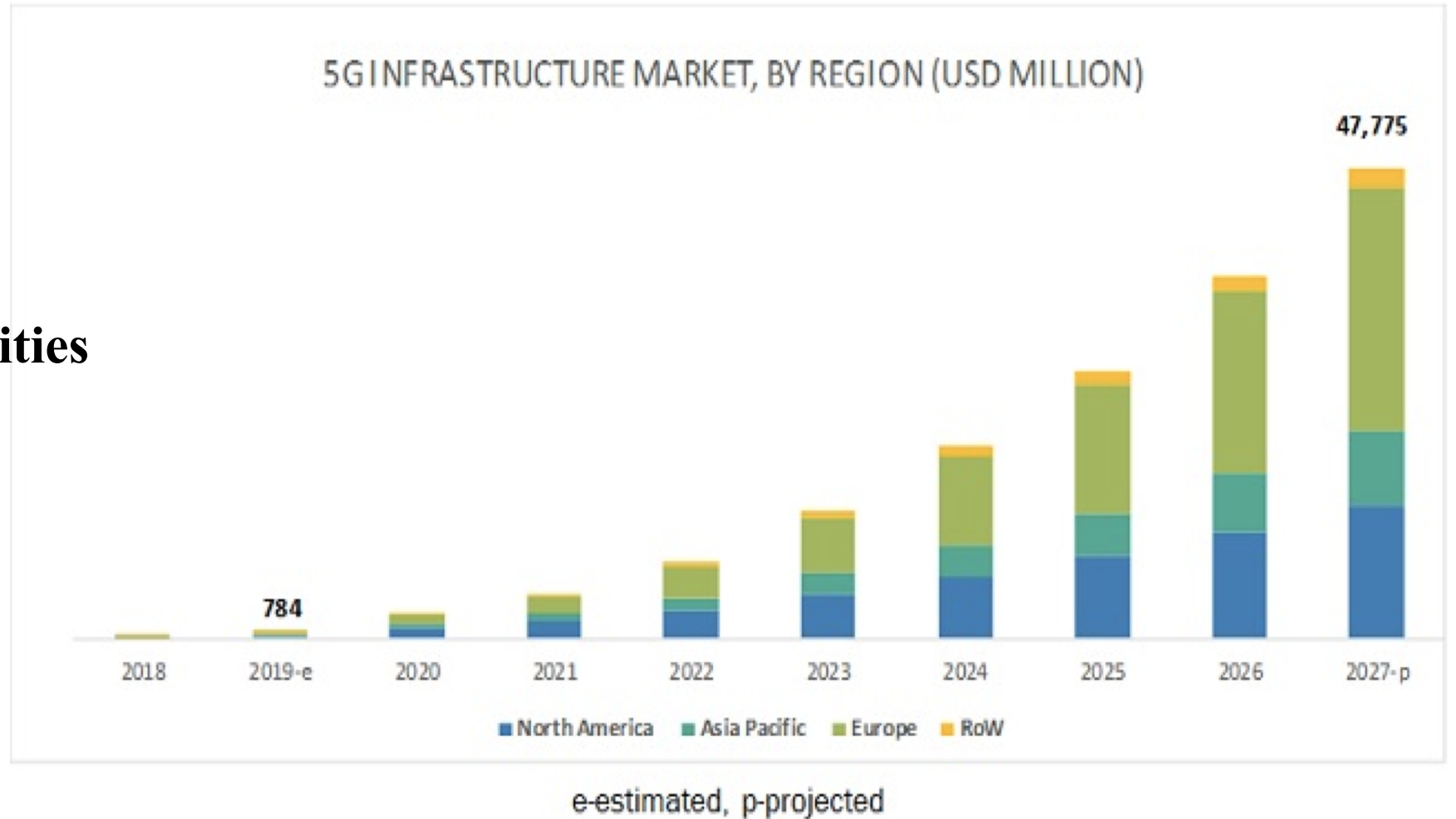


e-estimated, p-projected

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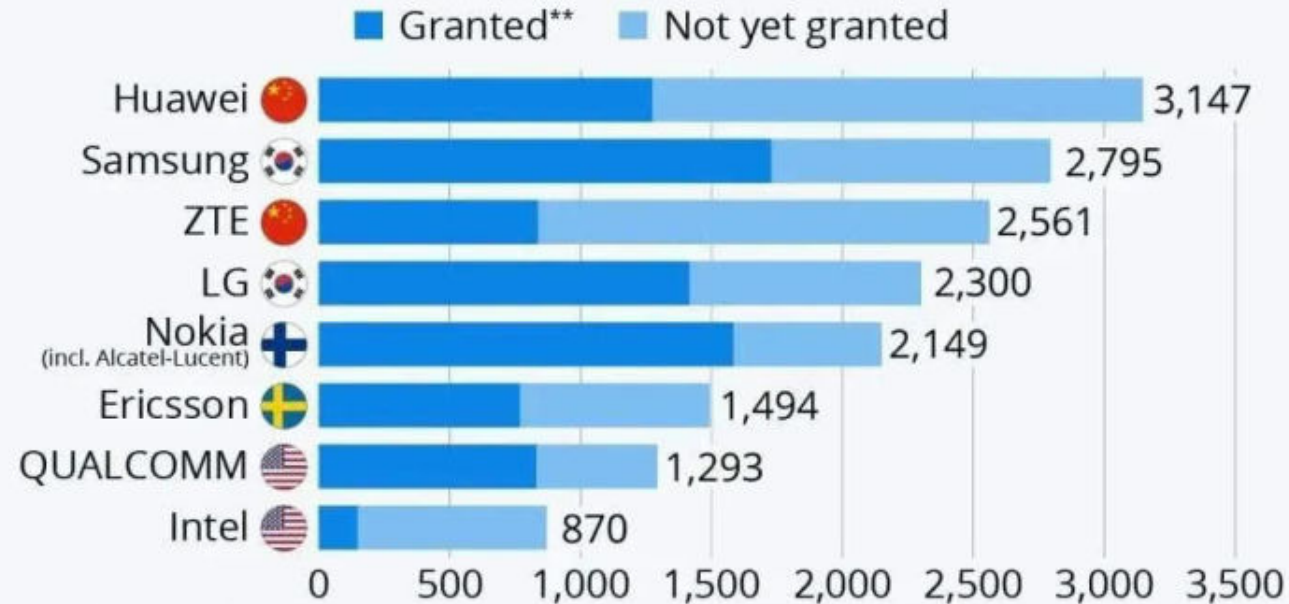
5G introduction-WHY IMPORTANT?

Attractive opportunities



Who Is Leading the 5G Patent Race?

Companies which have filed the most patents for 5G technology*



As of February 2020

* 5G SEP patent families, which is a group of patents covering the same technological area

** 5G SEP families with at least one granted patent counted

Source: IPlytics

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HUAWEI 5G- Challenges

1. The extortionate price in acquiring the new product by consumer

2. Fierce competition

3. The size of massive MIMO and limitations of traditional technology to support it (inadequate coverage of high-frequency bands)

4. Political risks

03 HUAWEI 5G- Challenges

Why some countries banned HUAWEI to penetrate in their markets?

1. Security concern

“Its prowess has caused jitters in other countries, which worry that Huawei’ s kit might come with “back doors” —*deliberate security holes* that could act as conduits for Chinese *spies or cyber-saboteurs*.”

(From: calibre. “The Economist [Fri, 24 Jan 2020]” iBooks.)

On top of that, *5G by itself will significantly increase the threat landscape from a cybersecurity perspective*. The network layer will be more intelligent and adaptable through the use of software and cloud services. The number of network antennae will increase by a factor of 20, and many will be poorly secured ‘things’; there is no need for a backdoor if you have any number of ‘bug doors’.

03 HUAWEI 5G- Challenges

Why some countries banned HUAWEI to penetrate in their markets?

2. Geopolitical concerns

“ It is foolish to assume that China, with its long record of hacking and intellectual-property theft, is an exception. The country is *a one-party dictatorship*. Under Xi Jinping it has become *increasingly repressive at home and assertive abroad*.”

(From: calibre. “The Economist [Fri, 24 Jan 2020]” iBooks.)

[China’s National Intelligence Law](#), particularly Article 7, which states that any organization or citizen shall support, assist, and cooperate with state intelligence work.

The flow of financial capital through government subsidies boosted China’s rise as a global technological superpower.

The founder of HUAWEI, Ren Zhengfei, is a former Deputy Regimental Chief in the People's Liberation Army.

03 HUAWEI 5G- Challenges

Why some countries banned HUAWEI to penetrate in their markets?

3. Institutional theory

The bigger the distance between the host country and home country in political terms, the more complex the operating environment is for MNCs. (Alien corporations will face more challenges and higher political risk).

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HUAWEI 5G- Challenges

A different story behind these accusations

1. Security concern

In the UK, Huawei has provided telecommunications infrastructure since 2005.

Managing the risks to cyber security and national security will become more complex in a 5G environment. In global supply chains, bans based on the nationality of the provider offer little assurance.

Computer security, like all security, is about trade-offs, not absolutes. It is naive to assume that banning Huawei is sufficient to protect networks from attackers, of any nationality. Back doors are a worry, but most hackers make do with the accidental flaws that plague all digital devices. Russia, for instance, has no domestic electronics industry to speak of, and thus no ability to insert back doors. That does not hamper its hackers—nor those of Iran and North Korea. Designing robust networks, building them with checkable equipment and sharing knowledge and expertise will make life harder for hackers from all countries, not just China. Such measures would be worthwhile even if the doubts surrounding Huawei did not exist. The fact that they do simply makes the need more pressing. ■

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A different story behind these accusations

2. Geopolitical concerns

Regarding China's National Intelligence Law, it assumes that the *law's vague language* concerning cooperation of individuals and organizations on national intelligence matters *extends to all spheres of activity, domestic and overseas* — and that the Chinese government would take advantage of this to *force companies* to conduct what amounts to offensive cyber operations at the behest of Beijing.

(Paul Triolo and Kevin Allison. Will the battle over Huawei kill globalization?
Published February 21, 2020)

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A different story behind these accusations

3. What's the extent of trust?

If the *lack of trust* in Chinese vendors is not really about one particular law, or even a particular company, but is instead *about China's broader political system and status* as an economic, political, ideological, and military “*adversary,*” then the *global technology* sector is in a serious *pickle*.

(Paul Triolo and Kevin Allison. Will the battle over Huawei kill globalization?
Published February 21, 2020)

Determining the “adversary nation” content in end-user devices will not be easy.

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A different story behind these accusations

4. The trade war between America and China

Three perspectives:

- 1) Economic potential is the core of Sino-US competition
- 2) Technological advantage is the core of Sino-US competition
- 3) High-tech industry is the core of Sino-US competition

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A different story behind these accusations

5. The alliance

Which countries have taken action?

- In November 2018, **New Zealand** barred Huawei from supplying a local mobile network with 5G equipment
- The **US** and **Australia** had already closed the door on Huawei's involvement in their next-generation mobile networks
- **Canada** is carrying out a security review of Huawei's products
- **UK** service provider BT is removing Huawei kit from the core of its 5G network, and from infrastructure to be used by the emergency services
- On 7 December, the **EU's** technology commissioner Andrus Ansip said countries "have to be worried" about Chinese manufacturers
- The interior ministry of **Germany** says it opposes banning any suppliers from its 5G networks, but the country is now thought to be reconsidering

<https://www.bbc.com/news/technology-46483337>

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A different story behind these accusations

5. The alliance

The attitude of the United States and its main allies towards Huawei 5G

Disable

The US

Australia

New Zealand

Japan

Czech Republic

UK

Tend to disable

Canada

Korea

Poland

Denmark

Norway

Partially disable

France

Italy

Netherlands

Bahrain

Tend to enable

Germany

Hungary

Spain

Portugal

Turkey

Philippines

Thailand

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A different story behind these accusations

5. The alliance Alliance pressure

The attitude of the US allies towards Huawei 5G is determined by variables at the external and internal levels of the country. The external force mainly comes from the pressure exerted by the United States, the dominant country in the alliance system, on the member states. **The higher the alliance pressure that allies actually bear, the littler the allies' ability of decision-making, and the huger the possibility to ban Huawei 5G.** At the same time, at the domestic level, the level of local embedding of multinational companies will affect the country' s cost estimation and security perception of Huawei' s 5G, thereby affecting national decision-making. That is, **the higher the level of embedding of multinational companies, the more likely the country will be to accept Huawei.**

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A different story behind these accusations

5. The alliance

Alliance pressure of major U.S. Allies

	'FIVE EYES' MEMBERS	ASIAN ALLIES		EUROPEAN ALLIES	
	UK Australia Canada New Zealand	Japan	Thailand	France Germany Italy	Spain Poland
Strength (relative)	Strong	Strong	Weak	Strong	Weak
Trend of alliance cohesion	Stronger	Stronger	Stronger	Weaker	Weaker
Alliance Pressure	High	High	Moderate	Moderate	low

Translated from 马骥. 中美竞争背景下华为5G国际拓展的政治风险分析[J]. 当代亚太,2020(01):4-29+158.

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A different story behind these accusations

			Alliance pressure		
			High	Moderate	Low
the level of embedding	High	Political risk	3	1-2	1
		National attitude	UK Disable	Thailand: enable Germany: tend to enable	Spain: enable
	Moderate	Political risk		3	
		National attitude		France: partly disable Italy: partly disable	
	Low	Political risk	4-5		4
		National attitude	Canada: tend to disable Australia/Japan/ New Zealand: disable		Poland: tend to disable

Translated from 马骥. 中美竞争背景下华为5G国际拓展的政治风险分析[J]. 当代亚太,2020(01):4-29+158.

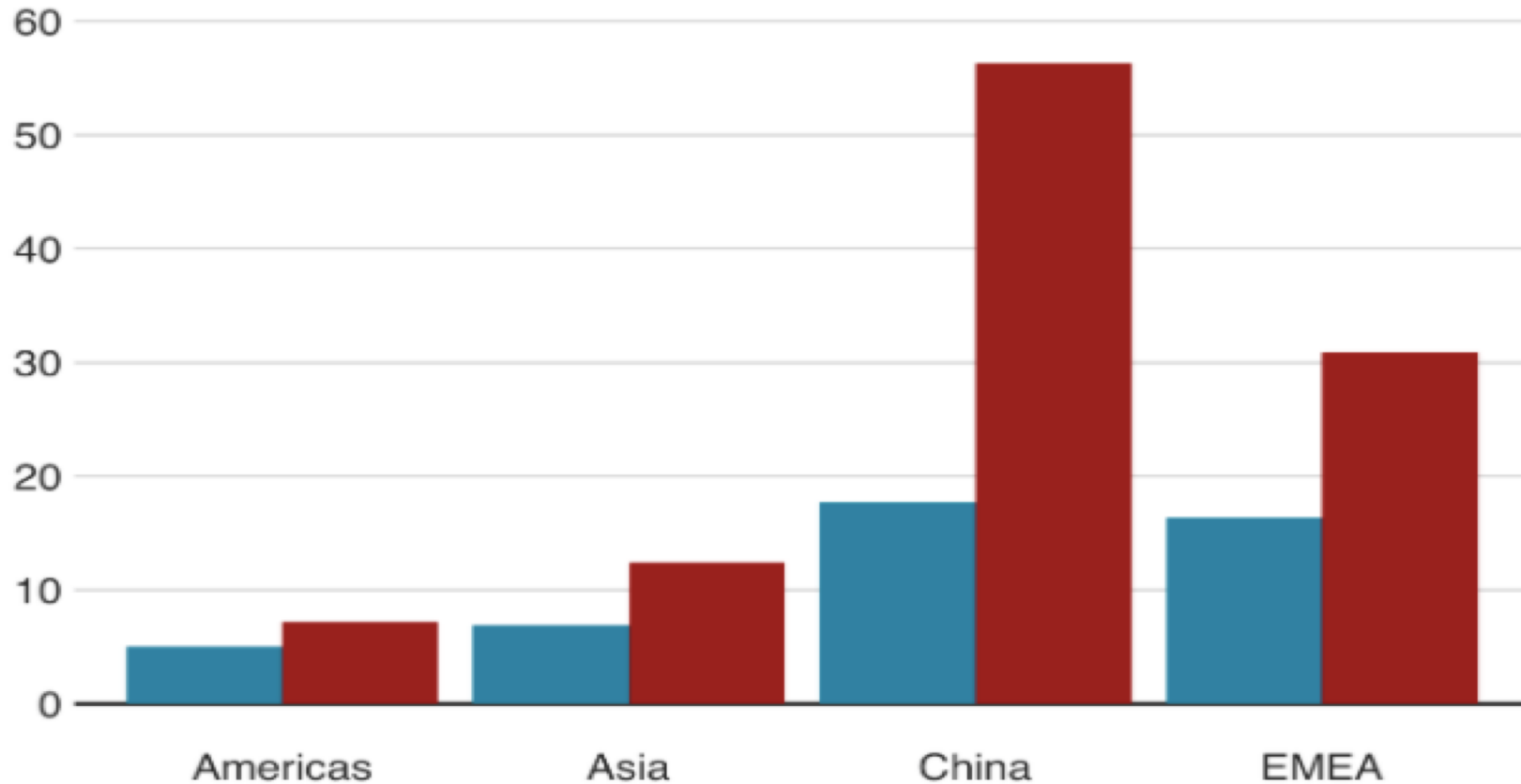
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A overlook- What would happen to HUAWEI?

Huawei's sales have grown on every continent

Revenue by area in billions of US dollars

■ 2014 ■ 2018



Source: Huawei: EMEA: Europe, Middle East, Africa

BBC

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A overlook- What would happen to Sino-US relation?

1. Trade War Intensifies
2. China tends to design out US technology.

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A overlook- Markets beyond the US and China

1. Retaliation between countries may intensify; Alliance cohesion may also enhance
2. Policies based on trustworthiness and country-of-origin criteria could soon take on a life of their own, going much further back in supply chains.
3. Nations forced to take sides, hindering development of next-generation mobile networks everywhere.



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