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POLICY BRIEF

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Subsidising Balkanisation: What China's 3G Subsidies Teach us about 5G Open Ran

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EXECUTIVE SUMMARY

Open RAN is increasingly becoming the answer to how to diversify 5G networks and beyond, especially in the light of a potential exclusion of China's participation in western networks. In recent times, the US and Japan have jointly pledged $4.5 billion to support its development. Much – or perhaps entirety – of this support is predesignated for the O-RAN Alliance, a closed-door and private industry consortium.

State interventionism is back – in a sector hereto characterised by open western markets and free competition. The public support currently pledged to the O-RAN consortium bear many resemblances to the Chinese government's attempt to support TD-SCDMA, a unique standard for the Chinese market that was designed to support local vendors. Its use was a pre-condition for public subsidies for R&D or public procurement.

As recent as 2020, the US Trade Representative reported on China's standard-setting practices and subsidies as one of the world's worst trade barriers. Those who advocate similar support in the West are either indifferent or nescient about how EU and US trade negotiators worked to address subsidies and opaque standard-setting. It is an open question whether the US and Japan will offer a level-playing field to European vendors – or non-O-RAN members who may develop their own Open RAN variants.

Nowadays, Chinese scholars and senior officials openly talk of "TD-style innovation" as a disaster for the nation that delayed China's rollout of 4G and plunged the economy into a performance and innovation lag. A key lesson for policymakers today is how vendors that cannot survive without subsidies will not optimise the organisation for innovation but public grant-seeking. This is an eerie warning for the 5G debate in some western capitals.

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BACKGROUND: HISTORY REPEATING

Open RAN is increasingly becoming the answer to how to diversify 5G networks and beyond, especially in the light of a potential exclusion of China's participation in western networks. In recent times, the US and Japan have jointly pledged $4.5 billion to support its development at a bilateral summit at leaders' level in April 2021.[1] Over the past two years, an intensive campaign has resulted in new US legislative proposals, US call on the G7 community,[2] UK diversification strategies,[3] which do not preclude state subsidisation or government mandates for Open RAN.[4]

Much – or perhaps entirety – of this support is predesignated for the O-RAN Alliance, a closed-door industry consortium founded by five dominant telecom operators that have formed a quasi-standardisation development organisation (SDO). However, unlike a true SDO that must ensure transparent, open and non-discriminatory participation, the O-RAN Alliance is *de jure* a private consortium that chooses its own membership. The founding members enjoy a privileged standing with veto powers over membership, technical specifications of interfaces required to work, and open-source codes currently under development.

Is it in the interest of market economies to adopt state capitalist policies that even Chinese industrial planners have rejected as unsuitable for the mobile industry?

All to promote nascent suppliers in their efforts to catch up with already existing – and deployed – 5G solutions from European, Korean, and Chinese vendors. In other words: State interventionism is back – in a sector hereto defined by open market principles and free competition. Traditionally, the buyers – i.e., the telecom operators – decide which technology or vendors to use. Also, government subsidies had to be technologically neutral to comply with the rules of the World Trade Organization (WTO). Moreover, public funds could only promote standard-setting work that was open to all.

The policy and fiscal support put into motion to support Open RAN and O-RAN are unprecedented in this industry in the past three decades – at least in market economies. Its parallels can only be found in China's past practices, during the 3G era, when Chinese

[1] Governments of the United States and Japan, statement accessed at: https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/16/fact-sheet-u-s-japan-competitiveness-and-resilience-core-partnership/

[2] US Dept of Commerce, statement accessed at: https://www.commerce.gov/news/press-releases/2021/04/commerce-secretary-gina-m-raimondo-head-us-delegation-g7-digital

[3] UK DCMS, 5G Supply Chain Diversification Strategy, accessed at: https://www.gov.uk/government/publications/5g-supply-chain-diversification-strategy/5g-supply-chain-diversification-strategy

[4] T-Mobile, Orange, Telefonica, Vodafine, Major European Operators Commit to Open RAN Deployments, accessed at: https://www.telefonica.com/documents/737979/145974448/mou-press-release-eng.pdf/133b3897-ac5a-935f-3c51-7763eb345718?version=1.0

authorities sought to promote the TD-SCDMA (Time Division Synchronous Code Division Multiple Access) standard – that was unique to the Chinese market and developed by local vendors. Its use was a pre-condition for public subsidies for R&D or public procurement.

The public support pledged to the O-RAN consortium and bore many similarities with China's policies to promote TD-SCDMA. Neither were open to the public – in the case of O-RAN, it is *de jure* closed, as a private organisation, while 3G standard development in China was *de facto* only open to Chinese vendors. This paper draws upon the parallels between O-RAN and TD-SCDMA, or whether it is in the interest of market economies to adopt state capitalist policies to compete with China's technological prowess. Should the EU and the US adopt practices that even Chinese industrial planners themselves have rejected as unsuitable for the mobile industry?

Observers may allege that the policy and fiscal intervention for O-RAN is a double-standard by the self-professed champions of market economies, all for the sake of developing their own national champions. If Shakespeare coined "be fire with fire, threaten the threatener and outface the brow of bragging horror", Talking Heads cautioned how against burning down the house. Indeed, the Chinese scholars caution how TD-SCDMA has led to innovation lag, decades of misspending and loss of global influence. And the principal mistake was not to *propose* an alternative standard per se – but for how the government *promoted* it, which effectively disincentivising innovation.

OBJECTIVES THAT UNDERPINNED TD-SCDMA

China rolled out its GSM networks with two mobile phone telephone companies (China Mobile and China Unicom) spun off from the Ministry of Posts and Telecommunications in 1994. In the 1990s, several standards contended to spearhead China's upgrade to 3G. But no other standard is so strongly tied to the conception of modern Chinese telecom as its own national 3G standard, the Time Division Synchronous Code-Division Multiple Access (TD-SCDMA).

The standard was developed by the Chinese Academy of Telecommunications Technology (CATT) with the technical assistance of Siemens in the late 1990s. TD-SCDMA was officially presented by the China Wireless Telecommunications Standard group (CWTS) to the International Telecommunications Union (ITU) in 1999. Despite diverging from pre-existing time division duplex that already existed within UMTS (3G) standards, TD-SCDMA was adopted by the global network of mobile SDOs called 3GPP and became an official 3GPP standard.

Toted as one of the first major digital achievement by China, the protocol uses a Time Division Duplex (TDD) mode, which transmits uplink traffic (from the mobile terminal to the base station) and downlink (from the base station to the terminal) in the same frame in different slots. Uplink and downlink spectrum is assigned flexibility, dependent on the type of information being transmitted.[5]

TD-SCDMA was conceived explicitly for domestic use. But it faced nominal competition against other national standards proposed for Chinese 3G networks. China Mobile – designated to be the largest amongst three Chinese state-owned enterprises (SOEs) providing mobile network services – championed its use. Meanwhile, China Unicom nominally experimented with W-CDMA (a standard mainly deployed in Europe), while China Telecom used the CDMA 2000 standard, more commonly used in North America. But the dominance of TD-SCDMA and China Mobile was already politically anchored even before China's 3G trials began in 2008. Media reports that China Mobile alone has invested an estimated $32 billion in the TD-SCDMA 3G network build-out, developing compatible devices and marketing.[6]

The architects of TD-SCDMA may have deemed it sufficiently similar to international standards that would allow Chinese manufacturers to learn from the domestic market and prepare for an overseas expansion. But this would not be the case: TD-SCDMA quickly suffered from an "innovation lag". Also, several non-Chinese vendors – including Siemens, Motorola and Ericsson – developed TD-SCDMA products, despite the significant costs involved in developing a product line demanded by just one customer – namely China Mobile. There were also intentions to promote the standard globally.[7] However, such efforts were futile since other regions already had adopted existing (UMTS) 3G standards. Only some rare attempts were made: For example, a local Japanese operator (IP-Mobile) committed to TD-SCDMA but left the market before its launch.

Strategic autonomy, or to grow out of the dependency on western firms that controlled key network technologies, was a national objective.

At least from the point of view of governments, developing an alternative mobile protocol does not follow a strict commercial rationale – which is apparent in the case of both Chinese 3G and O-RAN 5G. Since its conception, TD-SCDMA was developed as a *"strategic technology, a matter of national security and pride."*[8] Policy imperatives

[5] UMTS World, TD SCDMA Technical Summary, accessed at: http://www.umtsworld.com/technology/tdscdma.htm

[6] Kinney, RIP: China Mobile's TD-SCDMA 3G network (2009-2014), accessed at: https://www.rcrwireless.com/20141217/carriers/td-scdma-3g-mobiles-td-scdma-3g-network-2009-2014

[7] EE Times, Siemens,Huawei link to push TD-SCDMA, accessed at: https://www.eetimes.com/siemenshuawei-link-to-push-td-scdma/

[8] Chien, China's wireless scheme poses big commercial risk, accessed at: https://www.reuters.com/article/us-telecoms-china-3g/chinas-wireless-scheme-poses-big-commercial-risk-idUSL11510045200706l1

on strategic autonomy, to grow out of the dependency on western firms that controlled key network technologies, was a national objective, exactly as it is now for the US and its western allies. There is an uncanny similarity with the current bifurcation logic.

Also, avoiding license and royalty payments for standard-essential patents (SEPs) and other fees was equally important to foster domestic Chinese firms. Especially if SOEs like ZTE or Datang were to receive a larger share of the potentially vast 3G market in China.

In sum, there are few doubts that TD-SCDMA was designated to be a *de facto* national standard, despite many messages of the contrary: In 2004, the Joint-Commission on Commence and Trade (JCCT) between the US and China, China pledged technology-neutrality for the adoption of 3G telecommunications standards, promising its domestic telecommunications services freedom to choose, without any involvement from Chinese regulators. Mobile network licenses would be issued without technological mandates.

But thanks to the government promotion of TD-SCDMA, it became a *de facto* standard. By 2006, TD-SCDMA was even publicly recognised as the national 3G standard by the Ministry of Industry and Information Technologies (MIIT).[9]

STANDARDISATION WITH CHINESE CHARACTERISTICS

TD-SCDMA bears many similarities with the support for the O-RAN consortium by the US and its allies. State-led promotion of an alternative *protocol* is a way to subsidise a market that allows for selectively supporting just some players, since subsidising a *technology* (like 5G radio or virtualisation) is non-discriminatory. Also, soft measures allowed Chinese industrial planners to establish *de facto* (rather than *de jure*) mandates that made TD-SCDMA a national standard. The overall purpose – to facilitate indigenous actors to enter the market against R&D-intensive French, German, and Scandinavian manufacturers – is the same now in the US as it was twenty years ago in China.

It is not possible to balkanise the mobile network market without considerable state-driven market intervention. Governments may intervene through the imposition of soft quotas (through informal guidelines promising a set market share).[10] It can also offer fiscal incen-

[9] Xinhua, China Sets TD-SCDMA as National Standard for Telecoms Industry, accessed at: http://www.china.org.cn/english/scitech/155945.htm

[10] See UK Telecoms Diversification Taskforce Findings and Report, accessed at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/975007/April_2

tives to pick the winners. China used both to promote TD-SCDMA, and interestingly, they are also considered in a UK government report to support Open RAN to enter the 5G market.[11]

The need to bridge the R&D and IPR advantage to help the local firms against foreign competition led to invasive testing and authorisation procedures for all companies in China. In 2012, MIIT issued the *Notice Regarding Strengthening Management of the Network Access for Mobile Smart Devices* MIIT with numerous obligations imposed on foreign telecommunications and technology companies regarding IPRs, including mandatory technical regulations and testing requirements. In 2010, TD-SCDMA was also prominently showcased to support the controversial 15-year plan for 'indigenous innovation' to encourage self-reliance by supporting domestic firms to encourage R&D and reduce reliance on imported technology.

Very similar to how the US and other western countries are now formulating the China-dependency as a structural problem, China had been integrated into the global economy at the cost of becoming reliant on imported technology from Europe.[12] Similar effects as such "indigenous innovation policies" are today achieved through mandatory licensing. Accessing O-RAN Alliance's technical specifications is subject to contractual conditions, where the adopter must enter a licensing agreement with a duty to "irrevocable" license patents to the consortium members.

China's regulatory capture illustrates the risk of severely misaligned incentives – that rewards subsidy-seekers before innovators, or domestic over-specialisation before internationalisation. Moreover, standard-balkanisation and fiscal support often form a feedback loop as they become interlinked and policy measures are unsustainable without each other: Market interventions are rarely a "one-off" to facilitate market entry but tend to become permanent. Underperforming Chinese entities like Datang may have been on life-support for decades thanks to quota purchases by SOE mobile operators or cross-subsidies (to energy infrastructure subsidiaries). Some Western vendors (especially in the heavily politicised area of chipsets) could be unknowingly developing the same addiction to public aid.

Some Western vendors could be unknowingly developing the same addiction to public aid.

[11] ibid.

[12] Tsai, Wang, How China institutional changes influence industry development? The case of TD-SCDMA industrialization, accessed at: https://conference.druid.dk/acc_papers/7gx623ot4yrtclddt7yjked2chd3.pdf

Nonetheless, a diverging national standard allowed China to build in features that were tailored for other policy needs. Both TD-SCDMA and its 4G successor (TD-LTE) incorporated key features developed for China, distinguishing it from other international standards. Its key distinguishing feature is encryption: In 2012, the State Encryption Management Bureau announced that only domestically developed encryption algorithms (effectively meaning a protocol called ZUC) would be permitted for use in 4G with TD-LTE networks in China.

IMPEDIMENT ON INNOVATION

The economic stimulus package by the Chinese State Council in 2009 for the IT industry specifically identified government support for TD-SCDMA as a priority area. As the subsidies were conditioned to the use of TD-SCDMA, they were directed support for Chinese SOEs prioritising the domestic market – rather than enterprises that were eyeing internationalisation. In the following years, Chinese telecom regulators were reluctant to allow operators to deploy other technologies– which even included 4G.

Government support for inferior, domestic specifications delayed roll-out of next-generation networks and forced the entire nation into a performance gap.

The political attachment to TD-SCDMA ended up delaying China's rollout of next-generation networks. 4G materialised quite late in China relative to other markets, and not before 2013 a successor to TD-SCDMA had been launched – China's own 4G standard, TD-LTE. When China began licensing its 4G spectrum, it did so by repeating the national strategy for 3G and promoting its own national standard, using China Mobile as the main leverage. Although the divergence between Chinese and international standards became negligible at this stage, China decided to hold out for a local 4G deviation near-identical to the existing international equivalent.

China's telecom standardisation policy of this era shows how government support for inferior, domestic specifications delayed the rollout of next-generation networks and forced the entire nation into a performance gap. However, the performance gap of TD-SCDMA equipment is relatively minor, compared to the speed and capacity differential we now observe in the 5G age: 3GPP specifications currently demonstrate eight times higher capacities and twice the energy efficiencies of the O-RAN specifications.[13]

[13] Lee-Makiyama, Open RAN: the technology, its politics and Europe's response, accessed at: https://ecipe.org/wp-content/uploads/2020/10/ECI_20_PolicyBrief_08_2020_LY03.pdf

Some may still argue that TD standards boosted China's manufacturing and paid off since small and uncompetitive players – such as Datang – have benefited under the protecting wings of import substitution and public funds. However, the government had to also "own" their survival, as the companies are perpetually dependent on public support and cannot survive in a competitive environment.

Nowadays, Chinese scholars openly call China's attempt at 3G bifurcation a "Great Leap Forward" with "hundreds of billions of public funds thrown into the sea",[14] that ended in failure – with only 10% of the world's 4G mobile equipment following Chinese standards, supplied by fading dinosaurs who saw public funding as their primary strategy for survival.

Chinese scholars and senior officials talk of "TD-style innovation" as a disaster for the nation. China's industrial policy may have had a few beneficiaries, but industry observers share the sentiments of Professor Kan of Beijing University of Post and Telecommunications: *"Even natural disasters have beneficiaries. Construction companies benefit from fires and earthquakes, but that does not mean a nation should pray for disasters."*[15]

The politicisation of the TD-SCDMA eventually led to the demotion of senior officials (notably Minister Wang Xudong, who was replaced as the chair of the Electricity Regulatory Commission) when the 3G networks failed to deliver. China remained on the wrong side of the digital divide until it converged its national standards with international standards in the 4G age. Customers rejected China Mobile's technologically subpar TD-network because of its poor service quality as the network could not carry the amount of traffic by popular apps like WeChat. Network performance caused a rare, public spat between Tencent (publisher of the WeChat) and China Mobile in 2013, with the latter even lobbying the government to throttle the app.[16] Some legacy problems of China's inferior TD networks even persisted to this day, which contributed to an earlier phase-out of the 3G networks in China.

In conclusion, China became overly dependent on SOEs and government subsidies, especially as TD-SCDMA became a strategic emerging industry and qualified for National Key Technology R&D Programs. China's TD-SCDMA supply chain was simply not mature

A key lesson for policymakers today is how vendors that cannot survive without subsidies are not likely to optimise its organisation for innovation, but for public grant-seeking

[14] Kan,北京邮电大学教授阚凯力: TD式创新 祸国殃民, accessed at: https://www.techsir.com/a/201412/20389.html

[15] Ibid.

[16] Wu, Wan, from WeChat to We Fight: Tencent and China Mobile's dilemma, accessed at: https://core.ac.uk/download/pdf/301362881.pdf

enough in terms of commercialisation. A key lesson for policymakers today is how vendors that cannot survive without subsidies will not optimise the organisation for innovation, but public grant-seeking. This is an eerie warning for the 5G debate in some western capitals. The TD ecosystem consisted of domestic-facing SOEs that were not just less competitive and became even less incentivised to innovate thanks to R&D funding and the absence of international competition.

TD-SCDMA DEEMED A TRADE BARRIER

Since 2004, and as recent as 2020, the US Trade Representative (USTR) reported on China's standard-setting practices and subsidies in the mobile industry as one of the world's worst trade barriers. USTR notes in its National Trade Estimates (NTEs, its annual review of the most prominent trade barriers) that China had *"chosen [TD-SCDMDA] standard at the government's direction, and not as a commercial decision"*.[17] In 2004, it also raised multiple concerns about the subsidies linked to it: *"reports on plans to support and favor China's domestic 3G standard are troubling".*

US trade negotiators are also rightly concerned about the self-perpetuating cycle of standardisation and subsidisation, conscious of how subsidies must be technologically neutral and non-discriminatory: *"China's preferences to the development and testing of TD SCDMA in the form of subsidies and licensing advantages, raise serious questions about China's commitment to impartial regulatory decisions and technological neutrality with respect to licensing.*[18] In other words, both China and the US should adhere to non-discrimination commitments on R&D subsidies, or aid for testing and industry "plugfests".

As recent as 2020, the US Trade Representative reported on China's standard-setting practices and subsidies as one of the world's worst trade barriers.

Also, standard-setting and development work on TD-SCDMA was alleged to take place behind closed doors, exclusively reserved for Chinese entities. TD-CDMA was conceived in cooperation with Siemens of Germany – but the Chinese standard-setting body, CWTS (a body formally organised under MIIT), never fully admitted foreign entities in its work. China did not admit foreign suppliers into its SDO until 2013 as a concession in trade disputes with the US and the EU. Chinese companies who may have been subjected to hefty antidumping and countervailing duties held strong incentives to advocate its government to opening up.

[17] See full report at: https://ustr.gov/sites/default/files/uploads/reports/2010/NTE/2010_NTE_China_final.pdf

[18] See full report at: https://ustr.gov/archive/assets/Trade_Sectors/Telecom-E-commerce/Section_1377/asset_upload_file43_9276.pdf

China's SDO publicised and shared its specifications but developed them within an exclusive membership, with limited transparency and influence for non-members. Ironically, "private standards" like those being developed by the O-RAN consortium impose very similar practices. USTR describes the promotion of TD-SCDMA as a *"serious barriers to market entry for foreign suppliers seeking to enter this sector"*.[19] Moreover, a senior US industry representative describes the Chinese standardisation process: "[…] *may become de facto mandatory standards, making the short comment windows even more critical. These hastily enacted regulations also allow enforcement agencies to both interpret obligations unevenly and, potentially, target foreign companies.'*[20]

O-RAN conditions and Chinese standard-setting also resemble each other in how they deal with intellectual property. US official stance reiterated that compulsory licensing practices to access standardisation were discriminatory, since they deprive US companies of the ability to set market-based terms in technology licensing with Chinese companies.[21] By requiring technology transfers, it argues that China undermined the value of US investments and technology and weakened the global competitiveness of US firms.

Overall, USTR complaints against TD-SCDMA and TD-LTE are found in, inter alia:

- National Trade Estimates (NTEs) over foreign trade barriers, since 2009.[22]
- Report to Congress on China's WTO Compliance, all years between 2006 and 2020 (fifteen annual reports in total)
- Telecom Sectoral Review (Section 1377 Review) in 2004, 2005, 2006, 2009.[23]
- Priority Watch Lists, over foreign trade barriers, in 2008
- Trade Policy Agenda, in 2008 and 2009.[24]
- Annual Report of the President's Trade Agreements Program, in 2007 and 2008.[25]
- State of play of bilateral trade negotiations, 2008.[26]

[19] See full report at: https://ustr.gov/sites/default/files/files/reports/2020/2020USTRReportCongressChinaWTOCompliance.pdf

[20] ITI, transcript of hearing testimony, available at: https://www.itic.org/policy/030719ITIJoshKallmerHearingTestimonyFINAL.pdf

[21] See full report at: https://ustr.gov/sites/default/files/files/reports/2020/2020USTRReportCongressChinaWTOCompliance.pdf

[22] See full report at: https://ustr.gov/archive/assets/Document_Library/Reports_Publications/2009/2009_National_Trade_Estimate_Report_on_Foreign_Trade_Barriers/asset_upload_file868_15464.pdf

[23] See full report at: https://ustr.gov/archive/assets/Trade_Sectors/Telecom-E-commerce/Section_1377/asset_upload_file802_5269.pdf; https://ustr.gov/archive/assets/Trade_Sectors/Telecom-E-commerce/Section_1377/asset_upload_file959_7529.pdf; https://ustr.gov/sites/default/files/Results%20of%20the%202009%201377%20Review.pdf; https://ustr.gov/archive/assets/Trade_Sectors/Telecom-E-commerce/Section_1377/asset_upload_file43_9276.pdf

[24] See full report at: https://ustr.gov/archive/assets/Document_Library/Reports_Publications/2008/2008_Trade_Policy_Agenda/asset_upload_file649_14563.pdf; https://ustr.gov/sites/default/files/uploads/gsp/speeches/reports/2009/12%20-%202009%20Annual%20Report%20Full%20Text%20and%20Annexes.pdf

[25] See full report at: https://ustr.gov/archive/assets/Document_Library/Reports_Publications/2006/asset_upload_file688_10223.pdf

[26] See full report at: https://ustr.gov/sites/default/files/uploads/reports/2008/asset_upload_file974_14558.pdf

In addition to government positions, several reports and testimonies by US trade associations, such as Telecommunications Industry Association (TIA) and Information Technology Industry Council (ITI), have raised concerns over Chinese subsidies, technology mandates and mobile standard-setting practices in various documents.[27]

Those who advocate similar support in our market economies are either indifferent or nescient about how our trade negotiators worked for decades to address similar subsidies.

In conclusion, advocating for public support to developing an alternative technical protocol is not novel. China championed throughout the 3G era – but after a decade of diplomacy and lobbying, US and EU efforts have borne fruit as the Chinese SDOs are now open to foreign participation. However, those who advocate similar support in market economies today are either indifferent or nescient about how EU and US trade negotiators worked for decades to address similar subsidies conditioned on closed and opaque standard-setting.

CONCLUSION: WHAT DO CHINA'S PAST STANDARDS TELL US ABOUT PROMOTING OPEN RAN?

Early as 2003, the bifurcation logic of China in pursuing a new standard was apparent for industry observers. US NTIA wrote: *"The development of TD-SCDMA was undertaken in part as an attempt to avoid paying royalties to Western companies that had innovated first and developed better standards."*[28] But in 2021, it is not the Chinese laggard-SOEs who are lobbying for support, but the US PC industry, who wants to overcome European network vendor who was first to innovate 5G.

China's experiences in its closed-door and conditional openness in standard-setting brings attention to an important lesson that goes beyond how western and Chinese industrial policies may converge. China's 3G experience also shows how TD-SCDMA suppliers never grew out of their addiction to protectionism, becoming a liability for the government for perpetuity. How some Chinese SOEs (like Datang and ZTE) managed to benefit from TD-SCDMA bear many resemblances to why some PC industry players (who are now at the end of their product lifecycles) support O-RAN. Meanwhile, one company that chose to face the competition outside of the TD-ecosystem became more competitive than any Chinese vendor – and that company was Huawei.

[27] See ITI, Comments Submission for USTR-2018-0018-0001 Response to Annex C ("List 2") Tariffs on Chinese Goods Imports; USTR-2018-0026 Response to "List 3" Tariffs on Chinese Goods Imports, 2018; National Telecommunications and Information Administration (NTIA), Comments on the National Strategy to Secure 5G Implementation Plan Docket No. 200521-0144, 2020; Telecommunications Industry Association Reports

[28] "Siemens, Huawei link to push TD-SCDMA," EE Times (August 2003), https://www.eetimes.com/siemenshuawei-link-to-push-td-scdma/#. From the NTIA letter https://www.ntia.gov/files/ntia/publications/itif-06252020.pdf

The US Congress has already passed such a law – Utilising Strategic Allied (USA) Telecommunications Act,[29] seeking to financially support a domestic 5G equipment market by $750 million to accelerate development and deployment of Open RAN technologies. While the Bill includes the establishment of an 'objective criteria' to be followed to determine if equipment follows the 'definition of Open RAN equipment'.[30] However, Open RAN is not a technology in itself, but a buzzword for combining several existing technologies like virtualisation, automation, AI, which defies a precise definition. It may follow naturally that subsidies for Open RAN will be directed to the O-RAN consortium in the similar vein that Chinese subsidies for TD-SCDMA were directed to those companies who actively developed the O-RAN specifications.

O-RAN consortium develops its specification in cooperation with several Chinese technology suppliers currently sanctioned under US law.

Moreover, the O-RAN consortium and its specifications are developed in cooperation with several Chinese technology suppliers subject to US sanctions (e.g. ZTE, Inspur and Phytium for their links with the Chinese military and security apparatus).[31] Therefore, an oversight committee has been formed to direct the grants to (presumably) US companies.[32] Understandably, the US government cannot subsidise Chinese entities it may deem as "adversaries".[33] However, the key question is: Will the US and Japan offer a level-playing field to European vendors or non-O-RAN members who may develop their own Open RAN variants?

An answer to this question also foretells whether the transatlantic agenda will be burdened with another trade dispute. After all, the US mobile networks are already "free" of Chinese suppliers. Therefore, Federal US subsidies for Open RAN will not displace Chinese vendors, but Europeans: Aiming to replace EU vendors with a manufacturing consortium of US chipsets and cloud services combined with Chinese stacks, virtualisation, and radio antennas. In effect, the US PC industry is not just advocating for bifurcation from Shenzhen. It is also simultaneously promoting an alliance with Beijing to declare war on Paris, Munich, Espoo, Stockholm, and Cambridge.[34]

[29] See the full bill at: https://www.congress.gov/bill/116th-congress/house-bill/6624/text

[30] Hill, House unanimously passes $750 million Open RAN 5G bill, accessed at: https://www.rcrwireless.com/20201118/policy/house-unanimously-passes-750-million-open-ran-5g-bill

[31] See US OFAC and US BIS list, verified by May 25, 2021

[32] The committee is also advised by a number of political bodies including Federal Communications Commission, the Defense Advanced Research Projects Agency (DARPA), the Intelligence Advanced Research Projects Activity of the Office of the Director of National Intelligence (IARPA), NIST, the State Department, the Department of Homeland Security.

[33] Likely also invoking national security exceptions under the WTO

[34] Alcatel, Siemens, Nokia, and Ericsson (and their merged entities) are based at these locations. Cambridge is the provenance of the ARM, which challenged the traditional US chipsets on which O-RAN architecture is built.

Meanwhile, Europe has multiple options for promoting Open RAN as a broader concept, in a manner that is technology and vendor-neutral and avoids the innovation and rollout lag. Bearing in mind that there will be many months – or even years – before the O-RAN consortium delivers secure and stabilised specifications, let alone its first viable 5G product. At the time of writing (early 20201), the first 4G Open RAN (i.e. neither 5G or O-RAN) products entered wider commercial use.

The most obvious solution for the EU and its Member States would be to subsidise demand – i.e. its operators and the purchase of 5G RAN equipment in a technologically neutral manner rather than subsidise supply: The aim would be to advance the pace of the 5G rollout and extend coverage beyond what is commercially viable. The EU tradition is to subsidise R&D on an open and non-discriminatory basis. Open RAN may not be a technology in itself – but the research on key underlying technologies (such as virtualisation, automation, and AI) can be supported – without running afoul of EU or WTO rules. Such R&D subsidies would advance the Open RAN concept – without picking winners.