PANDEMIC PHILANTHROPY

EXPLORING CHINESE DONORS' EMBRACE OF COVID-19 R&D FUNDING

BRIDGE

CONTENTS

FOREWORD

Born and raised in Beijing, I had my first opportunity to visit the United States as a middle school student in the year 2000 as part of a nationwide environmental awareness competition co-organized by the Chinese Ministry of Science and Technology and Global Communications for Conservation, a US NGO. That trip played a pivotal role in shaping my career path, giving me my first experiences of cross-cultural communications and introducing me to the concept of business as a realm not just for money-making, but for achieving social good.

This motivation of cross-cultural communication for social good is at the heart of Bridge Consulting – the company I founded in 2016 as a joint venture with US-headquartered Global Health Strategies – and it helps to explain why we have prepared this report now. At a time when the COVID-19 pandemic has thrust China into global headlines more than ever before, most focus has understandably been on the government response. But I believe there is another story that is just as important, namely the response of China's philanthropic community.

Though little-remarked upon in mainstream media, I believe this trend has the potential to reshape the sector, as well as to contribute positively to collaborative international efforts to control the novel coronavirus. Since the beginning of the outbreak in China, major corporate and individual donations have flowed to the scientific sector to fund research and development projects that are targeted at developing a vaccine or decisive therapeutic treatment for COVID-19. These donations, already totaling over $250 million, represent the first encounter between China's young but rapidly maturing philanthropic sector and its fast-growing scientific

capability, and as such mark the start of what could be a transformative partnership for both parties.

Although this trend primarily matches Chinese capital with Chinese science and technology, it would be a mistake to think of this "Pandemic Philanthropy" purely as a domestic phenomenon with no bearing on the wider world. Chinese President Xi Jinping's declaration that any vaccine developed in China will be treated as a global public good lends Chinese research & development (R&D) an immediate relevance outside its borders, raising the prospect of China playing a substantial role in what would be the largest global health campaign ever seen. This move also positions R&D as part of China's concerted efforts to establish itself as a responsible global actor in the face of severe criticism from some quarters and a growing rift with the United States.

This movement has seen both government and philanthropically-funded aid reach not just traditional aid recipients but also rich western nations in the form of masks, ventilators and personal protective equipment (PPE). The recent announcement of $2 billion of Chinese funding over two years to assist global response underlines the priority that international collaboration is assuming in Chinese diplomacy for the COVID-19 era. Indeed, a proportion of the R&D donations we examine in this report are also destined for laboratories in the USA, Australia and Italy.

I commend this report to all leaders in global philanthropy, public health and international scientific collaboration, especially those who have (or hope to have) programs and partners in China. It is vital to understand the recent outpouring of R&D donations as part of the evolution of both Chinese science and technology and Chinese philanthropy in order to position your organization to effectively engage with it. As we make clear, there are no firm guarantees that this trend will establish itself in the long term, but informed engagement from international actors can help to cultivate it by contributing to specific areas of need.

Bridge Consulting exists to enable exactly this kind of collaboration, developing communication strategies for our clients that deliver compelling messages to carefully selected partners. I hope that this can be our contribution to the global pandemic response, and I hope this report will be a first step towards building a truly joined-up scientific and philanthropic movement.

Andre Shen
Founder & CEO
Bridge Consulting

01 INTRODUCTION

The emergence and spread of COVID-19 in late 2019 and early 2020 marked China's biggest public health crisis in living memory, soon surpassing the 2002-2003 SARS outbreak with which it was initially compared. Wuhan, the epicenter of the outbreak, and the surrounding province of Hubei were placed under "lockdown" on January 23, a condition that soon spread across the country until it was estimated to cover 760 million people by late February.[1] The Chinese government quickly developed an assertive narrative to build public support for these measures, casting them as a patriotic struggle against the virus in which the whole nation needed to be "mobilized".

Many companies and private individuals responded to the situation with generous donations and fundraising to ensure adequate supplies of medical and protective equipment reached frontline staff in Wuhan. As the social effects of the lockdown became clear, a multitude of further fundraising causes to assist various vulnerable groups proliferated online, recalling the selfless giving witnessed during previous disasters such as the Wenchuan earthquake of 2008.

But among some of China's largest companies and their founders – particularly in the tech sector – a new response began to emerge; multi-billion RMB donations were being made not just to frontline workers in hospitals, but to laboratories where scientists were rapidly beginning work to seek medical innovations that had the potential to turn the tide decisively against the virus: diagnostics, therapeutics and – the highest prize of all – a vaccine.

Why did this response happen? Most of the donors had little or no history of involvement with the health or medical sectors, and there was little in the response to previous public health crises to indicate that the private sector would take it on itself to fund scientific endeavour – a realm that has always been seen as the preserve of the state.

Part of the answer lies in the huge advances in China's scientific capability that have taken place over the last decade, leapfrogging it from a mid-ranking player to being globally competitive with Europe and North America. Chinese science and technology had already scored a major win in the early days of the outbreak by sequencing the genome of the virus in record time, laying the foundation for many of the following innovations.

But the response also reflected the growth and maturing in China's philanthropic sector over recent years, with the rise of corporate and individual foundations that were able to channel game-changing amounts of money in targeted and professional ways. And this in turn was built on China's 40-plus years of relentless economic growth and the emergence of private capital as a force that could be turned, when needed, to social and not just commercial ends.

As COVID-19 has emerged as a global pandemic, and the economic effects start to be felt, what is happening in China has relevance all over the world. Scientists working for governments, academia and private companies are working to find interventions against the virus on every continent, with Chinese scientists closely involved in the international research conversation. However, we are also witnessing a geopolitical struggle for control of the COVID-19 narrative that threatens to cloud objective analysis and weaponize science.

Meanwhile, China has also stepped into an international aid response role, making numerous overseas donations of masks, protective equipment for frontline workers and medical equipment including ventilators. This has come from both government bodies and the private sector (most notably the Jack Ma Foundation) and is targeted at traditional aid recipients as well as European and North American countries such as France and Canada. Chinese President Xi Jinping's announcement at the World Health Assembly in May 2020 of a $2 billion fund to assist affected nations in their response indicated the diplomatic priority that China is giving these efforts.

All of these forces – science and technology, politics, economics – will determine the shape that this emerging trend takes from here. It is possible that we are witnessing the emergence of a major new trend in philanthropic funding for medical R&D in China – or any number of unforeseen factors could derail it. Above all, despite the undoubted generosity of the companies and individuals involved, there will need to be a clear motivation – whether strategic or incentive-based – if this behavior is going to be established as a long-term pattern.

The coming pages will examine the following questions:

- What has been given and to whom?
- Have people in China noticed this trend? How have traditional and social media responded?
- How has the development of Chinese philanthropy laid the ground for the response seen during COVID-19?
- How does Chinese science and technology compare globally? Can China be the source of competitive R&D?
- How is this trend likely to develop as the pandemic continues? What will be the key factors that determine whether it lasts?

KEY TERMS

Philanthropy

For the purposes of this report, we define philanthropy as the channelling of private capital from companies or individuals to "public good" causes without a mechanism for the giver to receive direct monetary or commercial benefit. This is often mediated by a foundation which the giver has previously established, and the immediate recipient may also be a foundation which in turn directs money towards the final user. This definition therefore, excludes monetary transfers from governments or public bodies from being designated as "philanthropic". However, government-run bodies (such as universities) may be the recipients of philanthropic giving or the intermediate recipient which then redistributes donations to final users. It should be noted that the distinction between public and private sectors is often unclear in practice in China.

Private companies vs state-owned companies

A "private company" in this report is understood as one that the state (at national, provincial or municipal level) does not own or formally direct. This includes companies that are founder-owned or family-owned, those that are majority-owned by private equity, as well as publicly-listed companies whose shares trade on stock exchanges in mainland China, Hong Kong or overseas. We recognize that the state takes a keen interest in the activities of the private sector and may attempt to influence these companies in numerous ways (both formal and informal), but these companies do not come under the authority of SASAC (State-owned Assets Supervision and Administration Commission) or any of its lower-level equivalents. State-owned companies take many forms (including partial listing on local stock exchanges) but their ultimate ownership and direction always resides with the state and they are frequently charged with achieving public policy objectives which may override commercial objectives such as profitability.

02 PHILANTHROPIC DONATIONS TO COVID–19 R&D

2.1 Overview of announced donations

There was a large-scale mobilization of private philanthropy in China following the start of the COVID-19 outbreak in early 2020, with over ¥20 billion ($2.82 billion) from almost 1,800 businesses donated in the month following the imposition of the "lockdown" in Hubei province on January 23. Although most of this money went to immediate medical and social relief efforts, an estimated 5-10% of giving was targeted at R&D efforts that seek to develop vaccines, antiviral drugs and other therapeutic treatments. The total funds contributed by Chinese philanthropy to R&D are now estimated at ¥1.8 billion ($256 million)[i], among which our research identified 14 major donations made up to mid-May 2020 (shown in Table 1 below).

Sources of giving

Donations came from corporate, individual and academic sources, either as direct gifts or grants from foundations. The tech and real estate sector dominated, with notable donations from Evergrande Group, Alibaba founder Jack Ma, Baidu, Tencent, Momo and Lenovo. There was also representation from the automotive and real estate sector. Foundations linked to Zhejiang and Tsinghua universities (which raise funds from alumni both inside and outside China) also made donations.

Destination of giving

Funds were directed at teams of academic scientists throughout China, primarily to institutions with elite reputations. These included the Chinese Academy of Sciences (CAS) and Chinese Academy of Engineering (CAE), universities such as Tsinghua,

[i] This estimate includes only confirmed cash contributions that have been made public and does not include contributions in stocks and/or variable project-based funding.

as well as the research groups of high-profile individual academics. In addition, a small but notable share of giving was directed internationally. This came primarily from the Jack Ma Foundation, which donated funds to teams at Columbia University and the Peter Doherty Institute for Infection and Immunity in Australia. Yiming Zhang, founder of ByteDance, also donated to a COVID-19 therapeutics accelerator project jointly launched by the Bill & Melinda Gates Foundation, Wellcome and MasterCard in March.[2]

Both inside and outside China, donations were split between those which were given to the research groups of specific academics, and those which went to institutions. Among the most notable institutional donations were Vanke's gift to Tsinghua University, which led to the establishment of a new school of public health at the university, and Huiai Foundation's donation to the Global Health Drug Discovery Institute (GHDDI), a public-private partnership research center established in 2016 by a partnership between Tsinghua University, the Beijing Municipal Government and the Gates Foundation.

Table 1. Philanthropic commitments for COVID-19 response

Donor	R&D				Amount
Type	Organization	Destination Country	Organization	R&D Area (if known)	
Individual Foundation	Jack Ma Foundation[3]	Australia	Peter Doherty Institute for Infection and Immunity	Vaccine	¥14.7m ($2.06m)
		US	Columbia University, Dr David Ho	Antiviral drugs	¥15m ($2.15m)
		China	Chinese Academy of Engineering	Antiviral drugs	¥20m ($2.8m)
		China	Chinese Academy of Science	Clinical strategies	¥20m ($2.8m)
		China	Zhong Nanshan's Medical Foundation	Antiviral drugs	¥10m ($1.41m)
Corporate Foundation	Tencent Charity Foundation[4]	China	Zhong Nanshan's Medical Foundation	Epidemiology, prevention, screening, diagnosis	¥20m ($2.8m)
		China	Chinese Academy of Engineering	Not publicly available	¥30m ($4.23m)
		China	Tsinghua University, GHDDI	Vaccine and treatment	¥15m ($2.12m)
Academic Foundation	Tsinghua University Education Foundation[5]	China	Tsinghua University Education Foundation's Special Epidemic Fund (Chunfeng Fund)	Not publicly available	¥150m ($21.2m)
Academic Foundation	Zhejiang University Education Foundation[6]	China	COVID-19 R&D Fund	Not publicly available	¥500k – ¥2m (70k-282k)/ Per Project
Foundation	Shenzhen Huiai Foundation[7]	China	Tsinghua University, GHDDI	New drug R&D	Not publicly available
Company	Vanke[8]	China	Tsinghua University	Vanke School of Public Health	200m Vanke stock[ii]
Company	Evergrande Group[9 10]	China & US	Harvard University & Guangzhou Institute of Respiratory Disease and Zhong Nanshan	Diagnosis, treatment and vaccine	¥800m ($115m)
		China	Chinese Academy of Medical Sciences	Antiviral drugs	¥100m ($14.1m)

[ii]This is estimated to be worth about ¥5.3 billion ($744 million) based on Vanke's stock price at the time of announcement of April 2, 2020.

Company	Yili Group[11]	China	Zhong Nanshan's Medical Foundation Li Lanjuan's Team Cheng Jing's Team	Not publicly available	¥15m ($2.12m)
Company	Baidu[12]	Undetermined	Baidu's Special Epidemic Fund	Antiviral drugs, public health information promotion	¥300m ($42.3m)
Company	Momo Inc[13]	China	Momo's Special Epidemic Fund (half will go to Zhong Nanshan's Medical Foundation)	Not publicly available	¥10m ($1.41m)
Company	Water drops[14]	China	Tsinghua University	Vaccine	¥1m ($0.14m)
Company	Volvo Asia-Pacific[15] & Li Shufu Charity Foundation[16]	China	Shanghai Public Health Clinical Center	Vaccine	¥200m ($28.2m)
Individual	Steven Zhang[17] (President, Suning International)	Italy	Department of Biomedical and Clinical Sciences "L. Sacco" of Milan	Vaccine	¥800k ($108k)
Individual	Yang Yuanqing[18] (CEO of Lenovo)	China	University of Science and Technology of China	Health education	¥10m ($1.41m)
Individual	Yiming Zhang[19]	Global	COVID-19 Therapeutics	Drug development	¥71m ($10m)
				Total Amount	**¥1.8b ($256m)**

2.2 Philanthropic announcements and reactions

Official announcements

Most donors announced their philanthropic initiatives on social media platforms such as WeChat and Weibo. These announcements tended to explain the motivation behind the donations in terms of "contribution to society", with some directly addressing the need of the scientific and public health communities for extra resources to meet the challenges of the outbreak. Many announcements echoed the military rhetoric used by the government in describing efforts to control the virus as a "battle" or "fight" as well as describing vaccines and other technologies as "weapons". It was also notable that almost all donors stressed the long-term nature of both their funding commitments and scientific process, in hopes of managing public expectations of quick breakthroughs. These donors also emphasized that investment in scientific research should be seen as an act of public service in its own right.

"This is a long-term battle between the human race and the virus, and developing an effective vaccine will take time. The foundation hopes to support the development and the growth of medical science."[20]

- Jack Ma Foundation

"Drugs, vaccines and preventions mechanisms are powerful weapons in the fight against the virus. It requires a long-term commitment to R&D."[21]

- Momo

"There is no proven effective treatment for COVID-19, but Baidu will fund to accelerate R&D development as well as to promote public health information."[22]

- Baidu

Media coverage

Media coverage of philanthropic donations has been a channel for donors to talk about their own motivation and actions, as well as for the government to build these actions into their overall narrative of China's response to COVID-19. Meanwhile, social media gives us a window to assess how Chinese citizens are reacting to this new trend.

- **State-run media**

  State-run media (including broadcast and print outlets, as well as their social media channels) dominate China's news landscape, with the most resources and the widest readership or viewership. They are also of primary importance in setting the tone and content of secondary reporting and discussion by private outlets, social media and influencers. State-run media are part of the government or Communist Party structures, with the function of communicating messages to the mass audience.

  State media reports on R&D philanthropy highlighted aspects of the trend that resonated with key government narratives, presenting donations as illustrative of a unified national response from all sectors of society. Most state media reports focused on the following two themes:

  1) Highlighting how donations from Chinese philanthropists are benefiting the world, reinforcing the government narrative of China as a responsible nation actively participating in combating COVID-19 through international cooperation.

  2) Emphasizing Chinese philanthropists' donations as a response to President Xi Jinping's calls for international cooperation on R&D.

- **Private media**

  Private media such as *Yicai, Sina and QQ.com* tend to run stories focusing on the individuals and organizations behind the donations. For example, one article on *Yicai* mentioned that the Jack Ma Foundation is donating PPE all over the world, while providing support to small and medium-sized enterprises to ensure the continuous production and international transport of goods during the pandemic, highlighting the innovative solutions offered by Alibaba Group. Coverage in private media, while echoing broad government messages, gave entrepreneurs and business leaders more opportunities to speak directly to the public about their donations.

> *"17 years ago, Alibaba Group found an opportunity and survived SARS. Today, the company has grown, and while we strive to survive in face of the crisis, we also want to ensure others live and have a better life with the help of technology."*[23]
>
> ***- Jack Ma (Alibaba Group founder), QQ.com, April 27***

> *"At this moment, we are facing an opportunity and not a fortune. We have the opportunity to speak together from our heart, to bring happiness to more people, to praise life."*[24]
>
> ***- Wang Shi (Vanke founder), Sina, April 2***

Public reaction

In general, public reaction in China towards COVID-19 R&D philanthropy has been largely positive. Most comments praised donors for their generosity, though some comments displayed concern over the strength and progress of China's R&D capability, and a few expressed their skepticism towards motives behind the donations.

Positive

- Praise for the act of giving, for both the individual and the organization.
- Agreement that donations should be given to R&D as scientific research can help to solve the crisis.

Netural

- Support expressed for scientists, often in patriotic terms, but no mention of the philanthropic aspect.
- Gaps in R&D development in China highlighted as a reason why some of the donations are going to overseas researchers instead of domestic institutions.

Negative

- Skepticism towards motives behind the donations – suspicion that donations are being made for corporate interests to help raise givers' public profiles.

However, the overall volume of coverage for R&D philanthropy specifically was moderate, and did not become a widely trending topic. There were fewer than ten hashtags (conversation topics) dedicated to this theme on Weibo, and among these donations, the Jack Ma Foundation and the Tsinghua University Foundation received the most attention. This probably reflects the high newsworthiness Ma and Tsinghua enjoy in China, more than a surge of interest in the R&D theme in particular.

03 EVOLUTION OF CHINESE PHILANTHROPY

China's philanthropic sector is still young and nascent compared to richer countries where charity has been long-established. However, its economic growth has created a class of ultra-rich individuals and companies who are rapidly increasing their giving. Government oversight is professionalizing the sector, but it also dictates priority causes, although there is evidence of increasing diversity. In this environment, there is clearly potential for new philanthropic causes to emerge, as long as they have political backing.

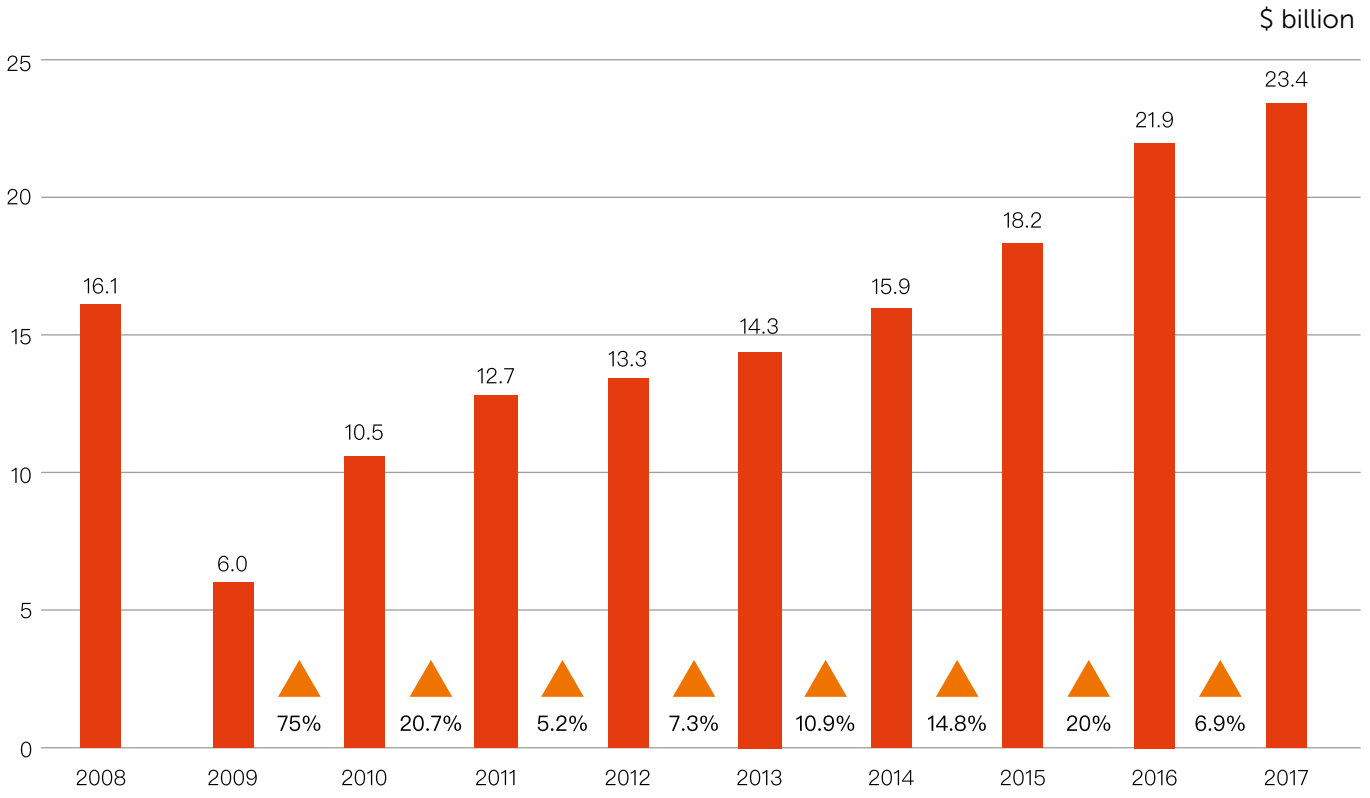
3.1 Context of economic growth in reform era; increasing social role of private capital

China has ancient charitable traditions, but the current wave of philanthropy is built on the prolonged economic revival that the country has enjoyed since the start of the "reform and opening up" period in 1978. This began a 40-year period during which annual GDP growth averaged 9.5%, doubling the size of the economy every eight years. The emergence of a vibrant private sector (estimated to account for 60% of China's GDP and 80% of urban employment) has been the engine for the private and corporate fortunes that have driven the emergence of the modern wave of philanthropy in China.[25]

3.2 Growth of private and corporate philanthropy with key landmarks

A major turning point in the revival of Chinese philanthropy was the nation's response to the catastrophic Wenchuan earthquake that struck

Total giving in China over the past 10 years



Source: Annual Report on China's Philanthropy Development 2009-2018

Sichuan province in May 2008. As well as millions of individual donations, the disaster also sparked a huge increase in corporate philanthropy in China; within 10 days of the earthquake Chinese firms had donated ¥1.6 billion, and those who had yet to give (or failed to give enough) were the subject of online campaigns. This kicked off a process whereby CSR shifted from simple charity giving and traditional volunteering programs to long-term planning and aligning with companies' core values and the country's strategic development.[26]

Charitable giving in China has been steadily growing ever since. According to the Asian Venture Philanthropy Network (AVPN)'s 2019 Philanthropy in China report, giving grew by 15% in 2015 and 20% in 2016, outpacing GDP growth and emerging as an important contributor to the 2030 Sustainable Development Goals.[27] However, it is important to place China's philanthropic sector in a global context. In 2017, total giving totalled $23.4 billion, equivalent to 0.2% of China's GDP,[28] while in the same year US charitable donations of $410 billion represented more than ten times that proportion at 2.1% of US GDP.[29] The growth of charitable giving in China has been driven by the private sector and a new generation of wealthy philanthropists. Giving by corporates and individuals account for the vast majority of the total giving – in 2016, corporate giving made up 65% ($14 billion) while individual giving made up 21% ($4 billion) and others such as public institutions made up the remaining 14% ($3 billion).[30] Again, this stands in contrast to the United States where 70% of all giving are from individuals.[31]

This growth also looks set to continue. Today, China has 799 billionaires, the largest number in the world according to the *2020 Hurun Global Rich List*,[32] as well as the highest number of millionaires engaged in Environmental, Social and Governance (ESG) related investing according to a recent research by UBS.[33] Of the 200 wealthiest individuals in China, 46 now have foundations, and of the philanthropists interviewed by the Ash Center for

Democratic Governance and Innovation at Harvard University's John F. Kennedy School of Government, two-thirds had established or were planning to establish charitable foundations.[34]

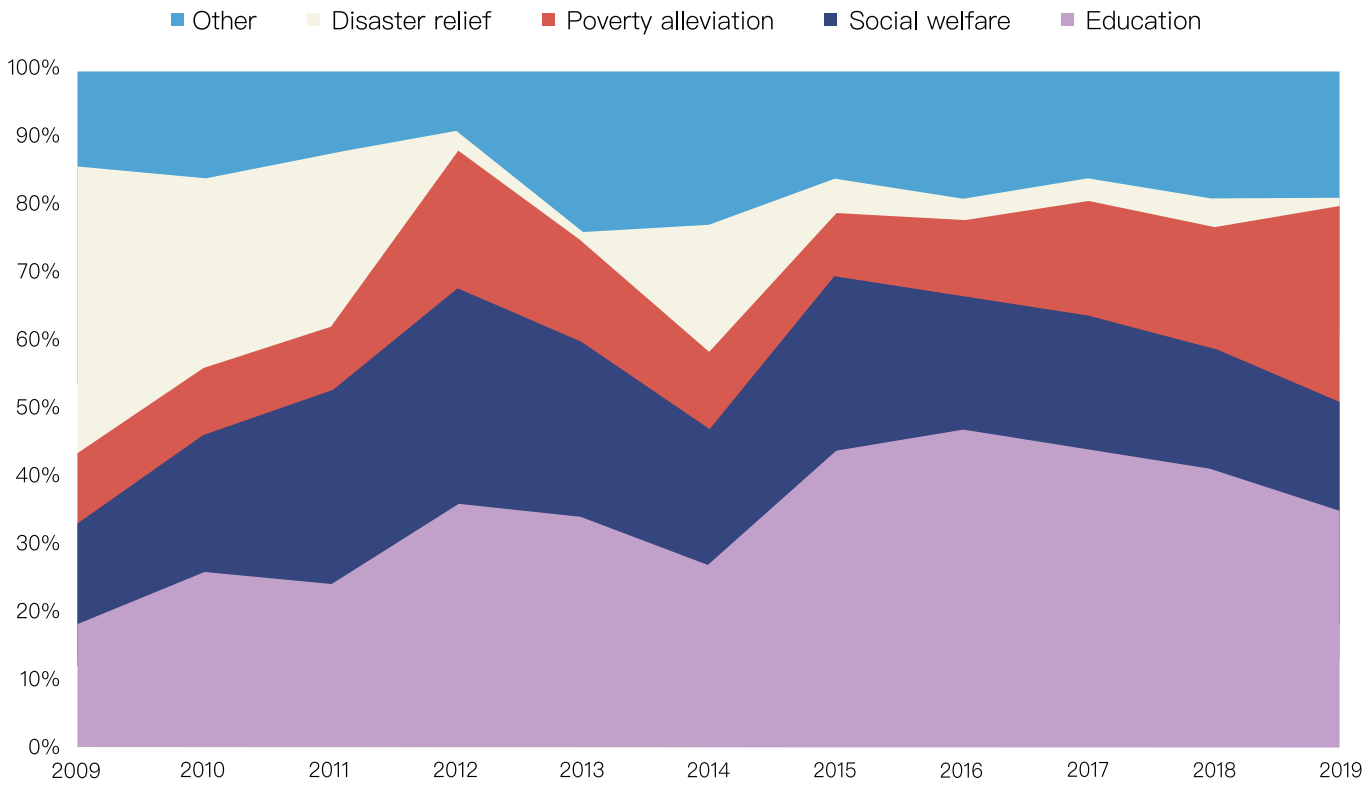
3.3 Government role & attitude to philanthropy

The attitude of the Chinese government towards philanthropy has evolved rapidly in recent decades. In the years following the founding of New China, there was no recognition of the need for private charity, which would have been seen as a mark of government failure.[35] Although philanthropy has been gradually recognized by government since the dawn of the reform era, the state has continued to carefully manage its development. It was not until 2016 that any organizations other than public foundations – many of which were government-organized – were able to get public fundraising status.[36]

Much of this has changed since the implementation of the new 2016 Charity Law, which was a milestone in providing more legitimacy to the philanthropic sector.[37][38] The Law provides guidelines for organizations to clarify charitable status, and increases transparency by requiring information disclosures from charitable organizations.[39]

In addition to the policy-making role that the central government has in enabling the philanthropic sector, it also plays an important role in shaping priority issues. Poverty alleviation, for instance, is high on China's agenda, and the central government has pledged to eradicate extreme poverty by 2020. National strategies, such as the Belt and Road Initiative (BRI), have also been driving more domestic givers to engage in international development issues.

Share of Chinese philanthropic giving to major causes, 2009-2019



* Social welfare includes charitable foundations & etc.

Source:Hurun Research

3.4 Trends in focus causes for Chinese philanthropy

While Chinese philanthropy covers an array of issues, education has steadily remained the largest cause for donors, accounting for 35% of allocated funds in 2019, with most going to universities, primarily to the giver's alma mater. In line with the government's policy focus, the proportion of donations allocated to poverty alleviation has also been increasing steadily over the past five years, totaling 29% of all giving in 2019, making it the second largest cause.[40] It is also worth noting that 90% of China's top 10 philanthropists – according *to Hurun China Philanthropy List 2019* – chose to donate to education and poverty alleviation in 2019.[41]

There remain limited philanthropic funds directed at the health sector to date, with scientific, medical or public health research given even lower priority. Nonetheless, there is a clear emerging trend of philanthropic diversification resulting in an increase in giving to traditionally under-funded causes in China.[42]

- **Youth Entrepreneurship.** The Shunde Foundation for Innovation and Entrepreneurship – a grant giving organization established in 2017 by entrepreneur He Xiangjian – has provided $45 million to support young entrepreneurs. Similarly, the One Foundation, established by well-known actor Jet Li, founded One Lab – an initiative dedicated to support youth-led social purpose organizations that serve local communities.
- **Climate Change.** The Vanke Foundation, linked to one of China's top real estate developers, has pledged resources towards the development of climate change solutions by Chinese business entrepreneurs.

04 GROWTH IN CHINESE SCIENCE AND TECHNOLOGY CAPABILITY

China's science and technology capacity has rocketed on multiple measures over the last decade to become a world leader in research funding and output. This is directly relevant to the philanthropic response we are witnessing under COVID-19, as for the first time China has the means to make significant medical breakthroughs domestically. However, this need not mean a kind of "scientific nationalism"; significant gaps still exist in China's capacity in the pharmaceutical sector, and the scientific case for international collaboration remains compelling.

4.1 Chinese science and technology from 1978 to present

When China's universities reopened undergraduate admission via national examination in 1978, it had been over a decade since higher education had been thrown into near standstill by the Cultural Revolution. The recovery in Chinese science and technology since then has been extraordinary, and today the country competes on many measures with established North American and European giants of research and innovation. Science and technology capability is recognized as a core component of national strategy, with successive generations of leadership prioritizing its funding and recognizing its role in building China's military, technological and economic strength.

A 2018 report by the US National Science Foundation[43] chronicled China's rise on multiple measures of scientific capacity from the year 2000[44] against other major science-funding and producing nations. Among its findings were:

- **China awards more science & engineering PhDs than any country except the United States** (c.35,000 in 2014). However, since at least one-third of US-conferred PhDs are to non-US citizens (many of whom are Chinese), it is likely that China has been the country whose citizens receive the highest number of PhDs since at least 2005.
- **China has the world's highest number of scientific researchers** (c.1.6 million in 2015). China first exceeded the US in 2005, and then again in 2010 (following a post-financial crash dip); its figure represents over 80% of the combined EU total.
- **China is the second-largest global spender on R&D** (based on purchase power parity (PPP)). It climbed from below 50% of US spend to over 80% in just six years (2009-2015) and exceeded EU spending in 2015, spending over $400 billion (PPP).
- **China accounts for the largest number of published science & engineering articles** (c.400,000 in 2016, slightly above the US for the first time). However, it is still outstripped by the US and EU in the proportion of researched published in the top 1% of most-cited journals.[45]
- **China files by far the largest number of patents globally** (1.3 million in 2016; 43% of global total).[46] However, its share of triadic patents (those filed jointly with US, Japanese and EU authorities, widely regarded as the "gold standard") is far lower, at just 6.9%, behind the US, Japan and Germany – although China's share rose sevenfold from 2006-2016.

China's leading universities are now recognized as world leaders in science. Peking University and Tsinghua University, the country's most elite institutions, have both ranked in the annual *QS World University Rankings* since 2017.[47] Meanwhile, the awarding of the 2015 Nobel Prize for Medicine to Tu Youyou, the first time a Chinese scientist had been awarded the prize for work conducted in China, was highly lauded as evidence of China's scientific ascent (although the story was complicated by the fact that Tu had done her work largely outside of the state scientific system[48]).

Recent policies have recognized the strategic value of science and technology to the advancement of China's economy. Biotechnology is included (along with medical devices) as one of ten key sectors under Made in China 2025, a 10-year national industrial strategy launched in 2015 which seeks to build the country's strengths in high-tech, high-value sectors; moving China up the value chain by bringing the highest-margin stages of supply chains in these key industries onshore.[49] Meanwhile, the "Thousand Talents Program" and similar government initiatives have prioritized the recruitment of both international and foreign-trained Chinese experts from prestigious overseas universities.

4.2 Pharmaceutical & vaccine industry

Compared to other high-tech industries such as telecommunications, China's pharmaceutical sector is only in the early stages of having significant global impact. China is the world's second-largest pharmaceutical market and a major supplier of active pharmaceutical ingredients (APIs) to western pharmaceutical firms, but is the site of limited product innovation. However, it is making rapid progress thanks to major regulatory reform with quicker and more robust drug approval processes introduced in 2015, and a new drug administration law in 2019.

The sector is also reaping the benefits of maturing talent, with a wave of new companies started by veteran Chinese executives of Western pharmaceutical giants, and private capital flowing into biotech startups founded by graduates of elite universities at home and abroad.

A staff member starts preparatory work for the manufacturing of a COVID-19 inactivated vaccine at a new vaccine production plant of Beijing Institute of Biological Products. Photo: Sinopharm

Many of these new wave of firms are running drug discovery programs and clinical trials, and moving along the innovation spectrum from "me too" (replicating known technologies) through to "me better" (improving known technologies), and entering the early stages of "me first" (innovation based on basic science breakthroughs).[50] The foundation of the Global Health Drug Discovery Institute (GHDDI) by the Gates Foundation, Tsinghua University and the Beijing Government in 2016 showed that philanthropic capital also recognized this trend.

In April 2020, both Seattle-based PATH and Norway-based Coalition for Epidemic Preparedness Innovations (CEPI) also registered offices in Shanghai, set up to facilitate collaboration between Chinese scientific research institutions and their global partners[51] – further indication that the trend looks set to continue.

China's vaccine industry consists of a large number of companies focusing on supplying the National Immunization Program (NIP) by selling to government buyers. The resulting industry dynamics have led to small profit margins and intense competition. Coupled with weak oversight, this has led to a lack of funding for R&D, and a series of scandals caused by corner-cutting or deliberate fraud. In seeking to address the major social outcry caused by the 2018 Changsheng scandal, China introduced an ambitious Vaccine Law in late 2019 which aims to address many of these weaknesses. The new law specifies that entering the international procurement market can provide an effective mechanism for Chinese vaccine-makers to raise standards and increase their investment in R&D. China currently accounts for just four of the c.150 vaccines that the World Health Organization (WHO) "prequalifies" for procurement by UN agencies, but numbers are expected to rise with new procedures introduced by the law. The WHO's approval of the China-made Japanese Encephalitis vaccine (see below) and the foundation of GHDDI are two recent signs of the rapid changes in the industry. However, no Chinese drug company has yet taken a product to the global market at anything like the scale that COVID-19 would demand.

Case study: first vaccine from China to be prequalified by WHO

Japanese encephalitis (JE), a mosquito-borne viral infection is a severe disease that causes brain inflammation and is endemic in parts of China, Russia, and South and South-East Asia. There is no specific treatment for the disease, but it is vaccine-preventable.

Following China's successful meeting of WHO's vaccine regulatory standards in 2011, a Chinese-produced JE vaccine was prequalified in October 2013, becoming both the first Chinese-produced vaccine to be prequalified by WHO, and the first JE vaccine prequalified for paediatric use. This opened the door for the vaccine's inclusion in the portfolio of Gavi, the Vaccine Alliance, which provides vaccine financing for low-income countries where the burden of JE is especially high.

International organizations had a significant role to play in facilitating the prequalification process. With a grant from the Gates Foundation, PATH collaborated with the vaccine manufacturer China National Biotec Group, WHO and ministries of health on clinical trials to demonstrate that the vaccine, made from an active but weakened virus, is both safe and effective. The vaccine has since reached millions of children across countries with endemic JE transmission, including Lao PDR, Nepal, Myanmar, Cambodia, Indonesia and India, ensuring protection against a disease that till today remains without cure.[52]

CD-JEV is unpacked in India for vaccination against Japanese encephalitis. Photo: PATH/Julie Jacobson.

05 LONG-TERM IMPACT OF COVID-19 ON R&D PHILANTHROPY IN CHINA

5.1 Factors affecting future directions of current trend

The trends described in this report have the potential to be transformative for the future of both China's philanthropic sector and its medical research. It is possible that over the next decade we will see private Chinese capital emerge as a major source of revenue for medical and public health R&D, with the COVID-19 pandemic as the major catalyst. Conversely, it may prove what we have seen in early 2020 is instead an immediate response to a crisis situation that will not be sustained in the long term. It is still far too early to make any confident predictions about which scenario will come to pass, but we are able to identify and examine some of the key factors that will influence how this trend will develop in 2020 and beyond.

Economic climate

For China's private sector and private wealth to become established as an ongoing source of philanthropic capital, the large companies that generate this wealth must continue to flourish. As the COVID-19 pandemic progresses, it is clear that all countries are likely to face a deep economic downturn, with recession a certainty, and a prolonged depression a possibility. Even if China's apparent success in controlling its own outbreak means that it is able to escape the worst of these effects at home, its integration into world markets and supply chains means it cannot help but be hit by global economic trends. In such a climate, the amount of capital that business can contribute to philanthropic causes, even if willing, may be severely affected. On the other hand, a sustained economic downturn may place pressure on the

state to cut back on public spending, leading to a drop in government funding for areas such as science R&D.

Political climate

Just as important as economics will be how China's political leadership sets the narrative over COVID-19 both domestically and internationally. For the trends described in this report to be established in the long term there will need to be a sustained political priority placed on boosting China's capacity in areas such as vaccine and therapeutic development, pandemic preparedness and the funding of virology and epidemiology. If China's leadership designates these areas as a key national priority, there are likely to be strong incentives for companies to demonstrate their support for this agenda. If, however, China's recovery is relatively swift, allowing other political priorities to crowd this agenda out, the current trend could stagnate or reverse.

As COVID-19 has become a pandemic triggering a global crisis, we have seen increasingly heated international debates over questions of blame and the relative performance of different countries in managing their responses. China has launched a concerted global campaign to present itself as a generous and responsible actor, donating medical equipment and staff to affected nations (including many wealthy European countries) and emphasizing its cooperation with the with WHO. Meanwhile, there is an emerging attempt by "China hawks" in the West to use this crisis as a moment to begin a "decoupling" from economic and industrial reliance on China, arguing that it has been exposed as an irresponsible global actor by the crisis. An increase in China's medical and health R&D capacity could give China more leverage in this "narrative battle", for example if a vaccine were to emerge from Chinese scientists. In this respect, investment in vaccine R&D could be cast as a patriotic endeavor on behalf of China in an increasingly hostile international environment, again providing an incentive for private companies to respond to.

Motivation & structure

The motivation behind recent R&D donations will be perhaps the biggest factor in determining whether this trend endures as an ongoing commitment. As shown above, donors have spoken openly about the search for a vaccine as being long-term and seem to have deliberately managed expectations about the likelihood of success. This in turn suggests that the motivation for engaging in this type of philanthropy is not primarily to gain media attention; both the large sums needed to make an impact in R&D and the "non-photogenic" nature of the gift (compared to crates of protective equipment or medical supplies, for example) would make this a poor investment for donors who primarily had this aim.

While it is reasonable to assume that genuine humanitarian or patriotic motives have been at play in the face of an immediate crisis, R&D philanthropy will need to be part of a long-term strategy for donors who will continue to give to this area. This means that donations from foundations, rather than from companies, are more likely to be sustainable, but also that the foundations will need to have clarity and commitment over where their priorities lie. Given how recent such foundations are as a phenomenon in China, there is likely a need for donors to rapidly increase their expertise, for instance through hiring scientists who can advise on making grants in the most effective way. Foundations may also wish to learn from their more established overseas counterparts.

5.2 How could donors benefit from R&D philanthropy?

While there are hopeful signs that some donors may already be planning a long-term strategic commitment to R&D funding, it is reasonable to assume that others will only keep giving to this area if they perceive clear ways that they can benefit from such donations. These possible benefits can be classified under market benefits, brand benefits and political benefits.

Brand benefits

Our social media analysis suggests that companies who are seen to respond generously and constructively in a time of national crisis are likely to experience a rise in positive public sentiment towards their brand. Companies may also be sensitive to the risk of brand damage arising from not participating in philanthropic efforts at a time when others do. However, while these concerns apply to philanthropy in general – which is now well-established as an essential part of large companies' branding – the picture for R&D philanthropy is different. The number of companies or foundations we have identified as investing in R&D is still very small, and the amount of media coverage they have received is modest. In many cases, donors have also engaged in more "visible" donations, suggesting that their giving to R&D arises from different motives and cannot simply be explained by an appeal to "brand-building".

There is, though, the possibility of a huge branding pay-off should one of the R&D projects supported by a philanthropic donation make a major breakthrough, for instance in creating a vaccine. Although the unpredictability of such discoveries mean that R&D investments cannot be understood as branding exercises, we should also assume that donors are aware of this potentially major gain and would be ready to capitalize on it for branding purposes.

Political benefits

The intersection of politics and business in China makes it essential for entrepreneurs and executives to enjoy good relationships with officials, who in turn are charged with ensuring that businesses follow the priorities and policies set by politicians. With corporate philanthropy now part of the expectations of all major companies, there is a strong incentive for companies and entrepreneurs to engage in the kinds of philanthropy that will advance government priorities.

- A 2016 study by Chinese and Swedish academics found that making donations was widespread among China's private enterprises, with 10% of firms' profits being donated on average, but with a wide variation. The paper found that business owners who participated in either of two key political bodies[vi] (whether nationally or locally) were more likely to make regular and substantial donations. The authors theorize that this participation confers business

[iv] Chinese People's Political Consultative Conference (CPPCC) or National People's Congress (NPC)

advantages in terms of relationships to officials and greater understanding of policy directions, while helping officials to achieve targets for donations to social programs:

> *[D]onations can help to build good relationswith the government and can improve the public status of private entrepreneurs... Such improved status can be helpful when dealing with officials... [and] private business activity can be promoted. In addition, private donation can earn political rewards for the owner of the private firm and can even facilitate their political participation.*[53]

- A 2018 report in the *Financial Times* found that companies including Wanda, HNA and Evergrande had been major funders of major rural anti-poverty programs, including mass relocations of poor communities to newly-built villages, respectively spending ¥2 billion, ¥1 billion and $1.5 billion on programs in Guizhou and Hainan. Noting that all three companies had come under high-profile criticism in 2017 for excessive indebtedness and overseas acquisitions, the report quotes a financial commentator describing the strategy as "an extremely good way of buying some political capital and showing they are falling into line". It also notes that these projects, and others involving Alibaba, JD.com, New Hope and Fosun are focused on a project known to be a priority of President Xi Jinping[54], and quotes Anthony Saich, a Harvard professor saying "[t]hese groups have always given back to those areas that are deemed important to the leadership."

Based on the above patterns, it is reasonable to conclude that there is a political dimension to the high-profile donations studied in this report.

If any one of these donations were to have a transformative effect on the progress of COVID-19 (e.g. developing a vaccine or therapeutic treatment) it would have not only a huge national health benefit, but provide a geopolitical win for China, something that would likely elevate the political status of any company associated with such efforts. While there is likely to be a reward in terms of branding only in the case of a major breakthrough, government is more likely to be appreciative of additional funding even without such outcomes, since it reduces the burden of research funding borne by public funding.

Market

In addition to brand or political gains, there is the possibility of direct commercial benefit arising from philanthropic projects. This could include:

- Intellectual property rights for donors over treatments developed by research projects they had funded
- A benefit for tech companies from access to commercially valuable data acquired through a research project or collaboration
- The opportunity to diversify into profitable new areas through relationships and technology acquired from entering this sector as a donor

These possibilities raise a host of moral and legal questions. It seems unlikely that donors have entered into their current charitable funding with the direct expectation of these benefits, but it is certainly possible that these situations could arise down the line, and there are precedents for such dynamics. It has been claimed, for example, that the tech and real estate companies funding the anti-poverty projects mentioned above benefit by securing access to new and emerging markets in these regions, or by securing access to new pools, labor or supply of goods. JD.com has provided 25,000 jobs and 103 business incubation centers in 832 nationally designated poor countries, while Alibaba has launched over 600 "Taobao villages"[55] – gaining access to new agricultural supply chains in the process.[56 57]

Case Study: Global Health Drug Discovery Institute (GHDDI)

The Global Health Drug Discovery Institute (GHDDI) was founded in 2016 as a first-of-its-kind Public Private Partnership in China, bringing together Tsinghua University, the Beijing Municipal Government and the Bill & Melinda Gates Foundation. GHDDI's goal is to engage in cutting-edge science that results in new discoveries that can be translated into new medicines, therapies and vaccines that specifically target diseases affecting the world's poorest people and countries. GHDDI is the result of many of the trends identified in this report, building on China's rapid rise to internationally competitive science, and recognising its potential to be a transformative source for translating scientific breakthroughs into commercially scalable production at low cost.

GHDDI would be a highly suitable partner for a philanthropic foundation wishing to fund R&D efforts. It is the only private institution in China that is recognized by the National Science Foundation of China as eligible for their funding, placing it alongside universities and national institutions. However, its relatively small scale and tight focus increases the level of transparency and accountability that a donor would enjoy, while its experience of managing relationships with government, academia and a major foreign donor equip it for flexible approaches to partnership (which would also support its moves to financial sustainability). It is also unique for its focus on reducing inequity through targeting treatments with the biggest potential to save most lives worldwide.

Chen Jining, Mayor of the Beijing Municipality, Qiu Yong, President of Tsinghua University, and Bill Gates, Co-chair of the Bill & Melinda Gates Foundation attend the opening ceremony of GHDDI. Photo: GHDDI

5.3 International comparison

Finally, looking at how medical R&D developed as a focus for philanthropy overseas may provide some clues to the future direction of the current phenomenon in China.

A 2016 paper[58] that identified the largest funders of health research in the world found that the vast majority were public (government) bodies, but found six philanthropically funded bodies, three of which placed in the top twenty, namely the Wellcome Trust (6th), the Howard Hughes

Medical Institute (HHMI) (9th) and the Bill & Melinda Gates Foundation (16th). Notably, of all six private foundations on the list, only one (the Gates Foundation) has been founded in the last 65 years while others date back as far as the nineteenth century: Institut Pasteur was established in 1887, while Wellcome was founded in 1936 and HHMI in 1953.

It is safe to say that there is nothing inevitable about this trend in China; only a small number of individuals in western countries have chosen to donate their fortunes to health research, and only one in recent decades. China's development path is very different and there is no reason why we should expect it to mirror the pattern of the US or Europe; there is no historical inevitability that a "Chinese Howard Hughes" is waiting in the wings.

However, it is perhaps no coincidence that Bill Gates has so assiduously cultivated relationships with both the tech and philanthropic worlds in China, and it may be that a range of factors including the personalities of some of China's boldest tech entrepreneurs, the rise of Chinese science to a level where it can challenge the best in the world, and the extreme urgency of the challenge posed by COVID-19 combine to leave a lasting legacy on China's philanthropic sector from the current crisis.

06 CONCLUSION

The wave of charitable donations to medical research and development since the start of the COVID-19 outbreak represents something new in the development of the philanthropic sector in China. For the first time China's billionaires, companies and foundations have turned their charitable attention to scientific endeavors, recognizing the potential for such investments to have a transformative effect on public health and society.

6.1 Why is this significant?

This trend marks a new stage for philanthropy in three key ways:

- Firstly, and most importantly, it shows a **shift in ambition** from a responsive model of action to a strategic one. Whereas previous charitable causes have largely focused on responding to the suffering caused by (for example) poverty, environmental damage or poor education levels, the decision to channel significant resources to the search for a vaccine represents a desire to use philanthropy to address the cause of the problem. Of course, this change is not absolute – donations to R&D represent a minority of all philanthropic funding and there have still been many charitable donations of masks, protective equipment, food for the vulnerable and so on. However, the change in thinking from the major donors outlined in this report is unmistakable.
- Secondly, the decision to fund scientific research represents an **expansion of scope**. To date, philanthropy in China has predominantly been a low-tech affair focused on the provision of physical goods and resources. The anti-poverty campaigns of recent years have already witnessed the start of a move away from this simple model, with companies using their

experiences in logistics and job creation to address structural problems in rural areas. However, in entering the laboratory and embracing high science, philanthropy has taken a major stride towards linking itself with some of the most innovative and advanced areas of today's China.

- Thirdly, the shift represents an **acceleration of maturity** in the sector, most obviously in the willingness of philanthropists to invest in projects with an uncertain return and a potentially years-long timescale. Whereas philanthropy has often been closely tied to brand-building in the past, the lack of immediate payoffs or photo opportunities (and the relatively limited media coverage) suggests the sector is seeing beyond philanthropy as simply another type of corporate PR. Cultivation of government relations has also been used to explain much philanthropy in China, and we would certainly not deny that such motives may still be present for the donors detailed in this report. However, it is notable that the charitable sector is now seen as a partner in the country's most pressing national priority, a world away from the crudely transactional models of "funding for favors" that have often dominated the analysis of giving by companies or entrepreneurs.

6.2 Why has it happened now?

Of course, the immediate cause has been the **COVID-19 pandemic itself.** The scale of the crisis that hit China in January-February 2020 cannot be underestimated, with China being the first country to suffer an outbreak and scientific research the sole pathway towards understanding and controlling the virus. The "whole-of-society" response that China's political system was able to mobilize meant that all actors, whether state or private, saw COVID-19 as their top priority. The "war" rhetoric of the government and the prospect of a huge economic impact meant that patriotic and business imperatives alike pointed in the same direction, towards immediate and significant action. However, as our report makes clear, the roots of the trends described here also go back far longer.

A **"graduating generation"** of entrepreneurs from China's tech sector who have created giant companies and huge personal fortunes are now stepping back from direct leadership. The most notable is Jack Ma, who retired from Alibaba in 2019, but other examples such as Tencent's Charles Chen and He Xiangjian (founder of appliance giant Midea) show that Ma is just the best-known example among a wider phenomenon. As this group look for ways to contribute meaningfully to their society, secure their legacies and avoid the political vulnerability that can come with great wealth, philanthropy is a natural focus for their energies, and it is not surprising that the increasingly direct involvement of proven business leaders would drive a change in the ethos of the sector.

Thanks to both the efforts of this elite cadre of givers and the Chinese government's increased regulation, we are seeing a **maturing philanthropic sector** that is able to channel this wealth in an increasingly professional and strategic way. The Charity Law has increased the capacity of the sector, arguably giving the government the confidence to allow it to play a role in such a strategically important enterprise as the COVID-19 response.

The **growth of China's science & technology sector** means that there are viable "home-grown" destinations for this philanthropy to flow to. Though at an early stage, China has already shown that it can develop and mass-produce world-class vaccines that can have a global impact. These advances are likely to increase willingness to give to R&D considerably. In 2016 a Chinese billionaire, Chen Tianqiao, donated $115 million to the California Institute of Technology for neuroscience research, but attracted much criticism for giving outside his own country. If future Chinese philanthropist can contribute to scientific endeavors while still behaving in a "patriotic" manner, R&D funding could become a much more mainstream cause.

6.3 Will the trend continue?

Although this trend towards R&D philanthropy is at an early stage, there are reasons to hope that it will have staying power.

The ongoing global COVID-19 pandemic means that the search for a vaccine will continue to have the highest priority for the foreseeable future. Given concerns over global supply, it is likely that even if a vaccine were first discovered elsewhere, research would continue within China to ensure a reliable domestic supply, as well as to support China's international aid efforts. The geopolitical tensions caused by the pandemic reinforce this view; a China-produced vaccine would be a major "win" for China both domestically and internationally, supporting its narrative of successful management of the virus, while the ability to supply a vaccine to other countries would present major diplomatic and commercial opportunities. However, any conclusion on this question must be tentative at best. It is relatively easy to make a one-off gift, but continued giving will require thoughtful engagement with the complex issues outlined in this report. Both the pandemic itself and the phenomenon of R&D philanthropy are in their early stages, and the extreme economic and political uncertainties that the pandemic brings with it mean any number of unforeseen situations could derail this trend. Bridge Consulting will continue to monitor how philanthropists behave as the pandemic develops and return to this topic in a future report.

6.4 What are the needs and opportunities?

The emergence of health R&D as a destination for philanthropic funding puts the spotlight on gaps and needs that will need to be met if the current trend continues:

- There is a major **expertise gap** to be filled for any organization that wishes to play a meaningful and effective role as a funder of scientific research. Investment in this area in the long term will need to recruit experienced scientists who can ensure that their funds are being directed wisely, evaluating the merits of potential projects and assessing the value of their output. The budgets that a serious commitment to this field are likely to involve will also require a general upgrade in the professionalism of the sector; for example, involvement in a highly regulated and politically important sector will likely necessitate experienced government relations professionals and experienced and credible leaders.
- There is also a question of **philanthropic structure**. As our research has shown, donors to COVID-19 R&D have included individuals, companies, foundations and other associations. However, in the long term it is likely that only a professionalized and independently run foundation will be equal to the demands of participating in this arena. Without clear separation from the (usually commercial) sources of funds, conflicts of interest can easily arise, while keeping donations within a corporate structure is likely to mean they are deprioritized by leaders whose ultimate focus is elsewhere. With strengthened charity laws in China being more rigorously enforced, and large sums of money in play, regulatory compliance must also be a key focus, again requiring a dedicated organizational structure.
- There is also a question over the amount of capital needed for philanthropy to have a real impact in such a high-spending area. Although China has a huge amount of private wealth, the proportion pledged for philanthropy is so far much lower than in the US, and where it does exist, it has not yet narrowed its focus in the way it would need to do to make a difference to such a long-term and high-technology enterprise as medical R&D.
- Although the emerging trend described of R&D philanthropy is homegrown – with both the source and the destination of most funds inside China – there is still the potential for **overseas expertise** to contribute. As noted in this report, there are a number of well-established

international private funders of health R&D with hundreds of years of experience between them, with experiences that are likely to be invaluable, if shared correctly. This applies particularly to organizations with a presence in China (such as the Gates Foundation and CEPI) who can advise on organization, strategy, and particularly on brokering partnerships between Chinese and overseas scientists to facilitate collaborative research.

6.5 Final thoughts

China's philanthropic movement has evolved at great pace over the last two decades in response to both long-term trends and one-off catalytic events. In the face of the COVID-19 crisis we should expect to see philanthropy change and adapt along with the needs and priorities of these unprecedented times.

We are greatly encouraged by the trends described in this report, seeing in them the potential for a new level of ambition in Chinese philanthropy as a force which addresses itself to the largest problems of society. The search for a COVID-19 vaccine has focused many donors in China on the possibility of philanthropy helping to meet huge global challenges, a shift that could change the face of the sector.

Although there are many challenges that need to be overcome for this vision to be realized, the rapid and decisive reaction of philanthropists in early 2020 gives us hope that this can be a turning point for the sector, and one that sees it make a contribution whose benefits are felt far beyond China's shores.

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