

Diplomacy and Innovation

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Introduction

We live in challenging times.

The world's leading climate scientists have warned us that there are only a dozen years left for us to keep global warming to a maximum of 1.5C. A landmark report by the UN Intergovernmental Panel on Climate Change (IPCC) says urgent and unprecedented changes are needed to reach the target¹

In the meantime, the number of undernourished people in the world has been on the rise since 2014, reaching an estimated 821 million in 2017². 1 in 9 people experiences chronic hunger. 1 in 4 of the world's children is stunted

This is a long line of people queuing up to find jobs. A slowing economy risks turning India's demographic dividend into a disaster³. 17 million people are entering the workforce every year in India, but only 5.5 million jobs are being created

To make things worse, we are being attacked by superbugs. Superbugs are proving to be ever more dangerous and are predicted to kill more people than cancer by 2050⁴

This is the middle of the ocean, but you may be forgiven for thinking it is something else. It is sometimes referred to as 'the great pacific garbage patch'. 1.8 trillion pieces of plastic trapped in the garbage blob floating on the ocean surface⁵

My point of showing you all this is not to depress you – although it is depressing – but to think about how we can address the big challenges that confront our world today.

We need innovative solutions if we are to meaningfully overcome these challenges. New ideas, products, processes, business systems, organizational forms, bold reforms.

Clearly **innovation** is central to our world today. Our old tried-and-tested models are not working anymore. If we are going to tackle the big challenges of our times, we are going to have to take innovative approaches and rely on new technologies.

We tend to think of innovation as being synonymous with the lone genius; as a single, simple observation, a flash of brilliance, and – eureka – a new world is born. Good science – the data,

¹ <https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>

² <https://www.un.org/en/sections/issues-depth/food/index.html>

³ <https://qz.com/india/1173792/as-gdp-growth-slows-indias-demographic-dividend-could-turn-into-disaster/>

⁴ <https://www.bbc.com/news/health-30416844>

⁵ <https://gulfnnews.com/uae/environment/the-dubai-connection-to-cleaning-the-great-pacific-garbage-patch-1.60042611>

theories, numbers, and hypotheses – by a brilliant individual lead to innovations which then transform our world.

The reality could not be further from that. What starts as an idea for a product or a service depends on thousands of forces, seen and unseen, to be transformed into its functional form.

What I am going to argue today is that innovation is more than technological advancement. I am going to focus on one seemingly extraneous factor – diplomacy – and argue that innovation outcomes are dependent on diplomatic processes. Although we don't usually associate innovation with political or diplomatic factors, I am going to argue that whether innovation occurs, what forms it takes, which standards get adopted, how businesses evolve, and when it is a force for good are all as much questions of **social and political factors** as they are of technological factors. If you think about it...

- The 5G standards the world will end up with is as much about politics as it is about technology
- How we manage ageing populations is going to be as much about social issues as it is about technological advances
- The solutions we implement to manage our country's water problems will reflect our political and social characteristics as much as it will our technological prowess
- The potential growth for Indian IT companies depends as much on their response to political winds in far-away markets as it does to technological shifts
- Which companies will come to dominate our healthcare system, connect us to each other, provide large scale employment with good wages, or simply entertain us will depend on political, regulatory, legal, and diplomatic factors as much as those firms' new innovations, technologies, efficiencies, or capabilities
- You can see where I am going with this...

I'm going to focus on two channels by which diplomacy – and I am going to use the term in the broadest possible sense – influences innovation

- The first is through generating access to knowledge and information
- The second is by enabling investors and innovators to reap the rewards

Access to knowledge and information

A recent HBR article highlights a very telling story of innovation.⁶ The article refers to innovation at a large technology company. Apparently, this company had won a multi-million-dollar contract to design a sensor that could detect pollutants at very small concentrations underwater. It was an unusually complex problem, so the firm set up a team of crack microchip designers, and they started putting their heads together.

About 45 minutes into their first working session, the marine biologist assigned to their team walked in with a bag of clams and set them on the table. Seeing the confused looks of the chip designers, the biologist explained that that clams can detect pollutants at just a few parts per million, and when that happens, they open their shells.

⁶ <https://hbr.org/2017/06/the-4-types-of-innovation-and-the-problems-they-solve>

As it turned out, this company didn't really need a fancy chip to detect pollutants – just a simple one that could alert the system to clams opening their shells. So, the company saved \$999,000 and ate the clams for dinner!

That, in essence, is the value of knowledge and information from different sources. To solve a really difficult problem, it is often helpful to expand skill domains beyond the specialists in a single field. It is just these kinds of unlikely combinations that are key to coming up with breakthroughs. In fact, a study analyzing 17.9 million scientific papers found that the most highly cited work tended to be mostly rooted within a traditional field, with just a smidgen of insight taken from some unconventional place. The highest-impact science is primarily grounded in exceptionally conventional combinations of prior work, yet simultaneously features an intrusion of unusual combinations.⁷

And this is not just for new-to-the-world scientific discoveries. It is also for more mundane forms of innovation. Take the example of Swiggy. As the online food ordering trend is becoming more prominent in India, the number of user interactions on Swiggy has grown exponentially – from roughly 2 billion in October 2017 to 40 billion in January 2019.⁸ To manage their growth they are relying on new advances in AI and big data analytics. But the company also recognizes the value of learning from very different cultures and markets. As their COO remarked in an interview recently, “Swiggy is an India-only business and we are solving an India-only problem, yet our teams have visited 10 different countries to try and learn from them”.⁹

However, it is also quite challenging to access and incorporate knowledge across different technologies, expertise, and regions of the world. Indeed, cross-border knowledge transfer would be quite constrained in a vacuum. One study estimated that only around 20% of scientific articles were published with international co-authors and less than 10% of patents filed in a country were with foreign co-authors.¹⁰

Thus, a strong framework is needed to facilitate a pattern of interaction that connects innovators across countries, geographies, and regions. And it is here that diplomatic efforts can play a major and important role. Diplomatic efforts establish and facilitate connections among different parts of the world to generate access to knowledge and information that might otherwise be challenging to reach.

Let me give you a very specific way by which diplomatic efforts may facilitate increased international interactions and innovation.

Take, for example, the topic of the day – the great Indian Monsoon Season. As the story goes, in the middle of July 2017, Gangabhashan Thaware, a farmer in Maharashtra walked into the local police station with a rather peculiar complaint – he wanted to file a FIR against the Indian Meteorological Department for a “wrong monsoon forecast”.¹¹ Monsoon rain had commenced by the end of May and after a brief spell of heavy showers in early June, the sky had turned completely dry for over a month decimating Thaware's cotton and jowar crop. He lost nearly Rs. 50,000 per hectare. He

⁷ <https://www.kellogg.northwestern.edu/faculty/uzzi/htm/papers/Science-2013-Uzzi-468-72.pdf>

⁸ <https://www.analyticsindiamag.com/how-indian-food-tech-giants-swiggy-and-zomato-are-using-ai-to-improve-customer-experience/>

⁹ <https://qz.com/india/1641543/swiggy-is-looking-for-data-scientists-and-made-in-india-managers/>

¹⁰ Ghemawat, P. (2018: 20). *The new global roadmap: Enduring strategies for turbulent times*. Harvard Business Review Press, Boston: MA.

¹¹ <https://www.livemint.com/Politics/Z10z9lZHnne1RgoRtVvUEK/The-art-of-monsoon-forecasting-in-India-and-the-science-beh.html>

contended that Marathi newspapers had published monsoon forecasts predicting good rains for two months, and asked, “why are we spending lakhs of rupees on people and satellites to make those predictions?”. In the end, the police did not register his complaint. But his story points to the fact that the Indian Met Department has a very challenging task in predicting the patterns of rainfall around the country. Climate models are notoriously difficult to build and micro-level predictions that focus on small areas are even harder. Today, the Met Department relies on supercomputer simulation driven methods for monsoon forecasting with better accuracy. But, all the technological progress in either supercomputing or simulation modelling would be held back without access to data points to feed into the system. And the relevant data points are not only from within the country but around the world. We need to know the weather all over the globe – ocean temperatures around the world and el-nino effects in the Pacific are important parameters that improve the accuracy of the model. So are sea ice conditions, sea levels, salinity, and wind speeds across the world.

But coordination on collecting and reporting information at such a level is a herculean task. It is reported that India gets a large chunk of global weather data through systems put in place by the United Nations. The World Meteorological Organization – a UN organization where India has been a member since 1949 – facilitates international cooperation for the delivery and use of high-quality, authoritative weather, climate, hydrological and related environmental services for use by all its members. They coordinate observations from about 10,000 weather stations, 7000 ships, and 3000 aircrafts to measure the key parameters of the atmosphere, land, and ocean surface everyday. In the ocean alone, they oversee nearly 9000 observing platforms around the world and 170 satellites that continually monitor the global ocean and atmosphere. They standardize the instrumentation, observation practices, and timing of these observations worldwide. Weather models, including our monsoon prediction models, are initialized using this observed data. Without the world leadership and expertise of such inter-governmental organizations, our models would be ineffective stymying our preparations for adverse weather events like floods, heat waves, cold waves, and lightning.

India’s participation in the World Meteorological Organization is a diplomatic effort. Governments sign treaties to participate in inter-governmental organizations such as this one, recognizing the need for global coordination in information generation and use. In a recent study, we examined whether a country’s participation in such organizations has any effect on innovation. Across 83 countries over a 10-year period, the results suggest a dramatic increase in national innovation when countries are better connected to intergovernmental organizations.¹² Participation in 12 additional learning-focused intergovernmental organizations was associated with a 15% increase in the number of patents filed.

Enabling investors and innovators to reap rewards

So far, I have focused on how diplomacy can facilitate innovation by providing access to knowledge and business models. Now I would like to turn to the second point of my talk – how diplomacy shapes the distribution of rewards from investment and innovation.

With any innovation come thorny questions about who should capture the commercial as well as the public benefits of the new technology or model. There are tricky questions about individual rights versus collective interests as well as balancing the internal and external imperatives. This is not to

¹² Jandhyala, S., A. Phene. 2015. The Role of Intergovernmental Organizations in Cross-border Knowledge Transfer and Innovation. *Administrative Science Quarterly* 60(4) 712-743.

suggest that innovation or indeed investment is a zero-sum game – far from it – but recent experience has shown the varied stakeholders involved have different priorities. What I will argue is that diplomacy plays a key role in the patterns of reward distribution.

The classical example relates to this – what is commonly known as turmeric or pasupu. In 1995, a patent was issued by the United States Patent Office on the use of powdered turmeric for wound healing. But India fought to have that contentious patent revoked. After a year-long battle in which India's Council of Scientific and Industrial Research (CSIR) hired US patent lawyers and spent USD 15,000 to argue that turmeric is a native Indian plant which had been used for centuries by its people for wound healing, the USPTO revoked the patent in 1997.¹³ The then director of the Council of Scientific and Industrial Research noted that India fought the turmeric patent not for financial reasons, but to uphold “national pride” and to dispel unfounded fears that India was incapable of protecting its traditional knowledge base.

Or take the more-timely examples that stem from big data, machine learning, and AI. These are no fads; innovations in these domains are here to stay. And we will hear much more about them later in the conference. At the core, these advances rely on data. We – as a society – have been collecting a very large magnitude of data in the past few years. And increasingly, the data we generate flowing internationally. According to one study, between 2005 and 2017, the proportion of internet traffic crossing national borders rose from roughly 10% to 26%.¹⁴

As governments, companies, and individuals understand and comprehend the scale of data collection and use, we are adopting new approaches to regulate the transfer of data. Take, for instance, the recently issued guidelines by the Reserve Bank of India on data localization. The RBI reiterated the need to store all financial data, including by multinational companies, on servers in India.¹⁵ India is not alone in efforts like this. One study found that by 2017, 18 countries blocked the global flow of accounting, tax, and financial information.¹⁶ One argument is that localization will help law enforcement access data as and when needed. Another is that it would protect Indians against foreign attacks and surveillance. But there is another view related to this, that “data is the new oil”. At the recently concluded G20 summit in Japan, India's foreign secretary affirmed the role of data for development and argued that data is a new form of wealth.¹⁷ Data is currency and having access to it can generate new businesses, services, and economic activity. Some have argued that data localization offers a way to spur high-tech economic activity in the country although it is not clear how that would work if data ownership rules are not clarified. Other stakeholders have suggested that data localization is a way of asserting Indian sovereignty and a remedy for “data colonialism”.¹⁸ Domestic companies have pushed for these rules because (a) they do it anyway, (b) it increases the costs for their competitors, and (c) they believe it creates a more level playing field in terms of taxation as foreign technology firms would be forced to open more substantive subsidiaries in India.

¹³ Jayaraman, K.S. (1997). US patent office withdraws patent on Indian herb. *Nature*, 389:6. <https://www.nature.com/articles/37838>

¹⁴ DHL Globalization Index 2019, Figure 1.11 (pp 24-25)

¹⁵ <https://www.thehindu.com/news/national/on-5g-and-data-india-stands-with-developing-world-not-us-japan-at-g20/article28207169.ece>

¹⁶ <http://www2.itif.org/2017-block-global-data-flow-960.jpg>

¹⁷ <https://economictimes.indiatimes.com/tech/internet/data-new-form-of-wealth-needs-to-take-into-account-developing-nations-needs-india/articleshow/69988888.cms>

¹⁸ The localization gambit: Unpacking policy measures for sovereign control of data in India, Report of the Center for Internet and Society, India: 19 March 2019. <https://cis-india.org/internet-governance/resources/the-localisation-gambit.pdf> accessed 1 July 2019

Not surprisingly, many US companies such as Google, MasterCard, Visa, and Amazon have lobbied against these regulations. They have raised concerns about the impact on their operational cost as they would have to set up fresh infrastructure in the country. They have also argued that data localization would keep new innovations out of the Indian market; if foreign companies had to exclude Indian data from their operations and analysis, it could potentially limit the functionality of services offered in the country.

But this is not merely an economic or technical issue; the rules for who controls data – and therefore harnesses their value – are part of a bigger geopolitical competition. The US government has called India's data localization rules a major non-tariff barrier.¹⁹

But it doesn't end there. Data localization is just one of the sticking points in the current trade frictions between India and the US. Over the past year, the Indian government has also adopted new e-commerce rules that work against the long-term commercial interests of foreign online retailers. Amazon and Walmart have opposed these new rules; and it is easy to see why. The Indian market is crucial for American e-commerce firms. Having been shut out of China, they view the untapped potential of India's e-commerce market as an important source of growth in the coming years. This has spurred about \$5 billion in investment from Amazon, and a \$16 billion investment by Walmart into the local player Flipkart. So, any rules that restrict their potential operations in India might be seen a significant challenge. Media reports indicate that Nasdaq listed Amazon and NYSE listed Walmart lost a combined \$50 billion in market cap when the policy came into effect.²⁰

With so much at stake, it is not inconceivable that they would lobby their home government to intervene diplomatically. And, when combined with the other sticky trade issues on the US-India agenda, the US government has responded by revoking India's trade benefits under the Generalized System of Preferences.

In our research, we examined investment disputes between developing country governments and foreign (American) investors.²¹ We found that firms often requested diplomatic assistance in investment disputes and in many cases the US government responded by intervening to some degree. In some cases, they provided information to the firm, for example on local attorneys, judicial system and dispute resolution procedures, and ways to contact host government officials. They also represented the firm by writing official letters of complaints or protests, convening meetings with representatives of the firm and home/host country officials, mediating in disputes, lobbying regulators, reminding appropriate officials about their obligations and the importance of transparency. In a few instances, they escalated the dispute all the way to the Prime Minister or President's office or explicitly linked the resolution to the dispute to issues such as aid or trade or other priorities of the bilateral relationship. We find that such escalation depends on two factors.²² First, the dispute characteristics allow the issues to be framed on normative grounds. That is, the firm was claims to be discriminated against, treated unfairly, or otherwise singled out. Second, the dispute aligns with the US foreign policy objectives in the foreign country. In the current e-

¹⁹ <https://www.thehindu.com/news/national/on-5g-and-data-india-stands-with-developing-world-not-us-japan-at-g20/article28207169.ece>

²⁰ <https://qz.com/india/1539834/amazon-flipkart-adapt-as-indias-new-e-commerce-rules-kick-in/>

²¹ Gertz, G., S. Jandhyala, L.N.S. Poulsen. 2018. Legalization, diplomacy, and development: Do investment treaties de-politicize investment disputes? *World Development* **107** 239-252.

²² Gertz, G., S. Jandhyala, L.N.S. Poulsen. 2019. Firms' political strategies abroad: Opening the black box of commercial diplomacy. Working Paper

commerce cases, these conditions appear to have been met; thus, the US responded aggressively by revoking India's trade benefits and threatening further actions.

Conclusion

I've talked for a long time, so I'll wrap up my comments by summarizing the three main points of my talk.

- First, the innovative solutions that we need in today's challenging world are going to be as much a function of political and social factors as they are going to be technological and scientific.
- Second, diplomacy plays an important role in determining when innovation occurs, what forms it takes, which standards get adopted, how businesses evolve, and when it is a force for good.
- Third, diplomatic efforts are key to innovation outcomes as they generate access to diverse knowledge and information, and determine the distribution of rewards

I'll leave you with this final thought. If you have walked with me this far, and see diplomacy as a key tool to enabling innovation and securing returns from it, what would you make of the fact that India – with 1.3 billion people – has barely any more diplomats than tiny Singapore or New Zealand?