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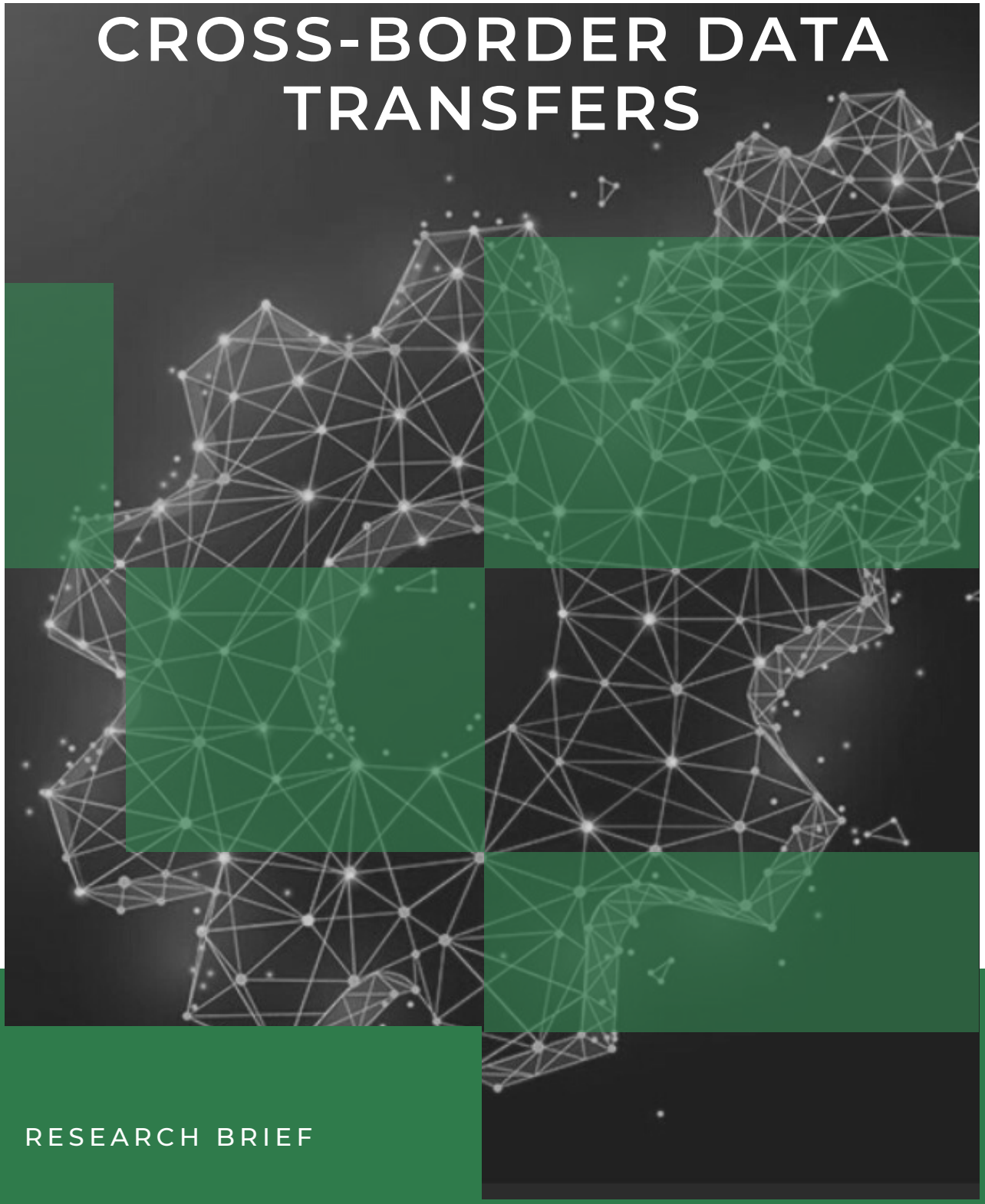
WHAT IS THE VALUE OF CROSS-BORDER DATA TRANSFERS



RESEARCH BRIEF

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WHAT IS THE VALUE OF CROSS-BORDER DATA TRANSFERS

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ABSTRACT

In a globalised world, the internet and technological developments have led to the emergence of data-driven business models that value data in economic terms for carrying out some of the key functions and activities which are an integral part of the business models. In addition to being a value proportion for certain classes of businesses, data goes far beyond becoming the core elements of a business model to provide smart services which use cutting-edge technologies like Artificial intelligence, augmented learning etc. For instance, the internal element which drives the Internet of Things, like smart home devices, is data. As these businesses are globally distributed serving beyond their home countries, dependent on some of the supply chain and technological innovations from other countries etc. through this research brief we discuss the value of cross-border data flow from pragmatic business continuity and trade opportunities perspective.

1. INTRODUCTION

With the rise of the internet economy, technological developments have paved the way for the emergence of data-driven businesses and led to the digitisation of traditional businesses. This has led to improved product quality, reduced cost of operations, enhanced efficiency and service delivery, and developed allied industries, leading to more jobs and growth. The new tech economy is transforming the nature of goods and services trade, which is increasingly digital and dependent on the ability of businesses to aggregate, store and process data across the globe.

While data is becoming a yardstick for international trade, there is a lack of information and international trade economics statistics, which reveals the magnitude of the value of data flows for trade. In addition, as cross-border data transfers are muddled within the package of service sector trade, its value for the traditional trade in terms of various forms of data flow is less captured. Therefore, in this research brief, we provide an indicative analysis of the value of data flow by discussing the positive impact of cross-border data transfers across four different data flow types, i.e., GVC data flow, transactional data flow, commercial services exchange, and digital services delivery.

Box 1: Personal vs Non-Personal Data Flow

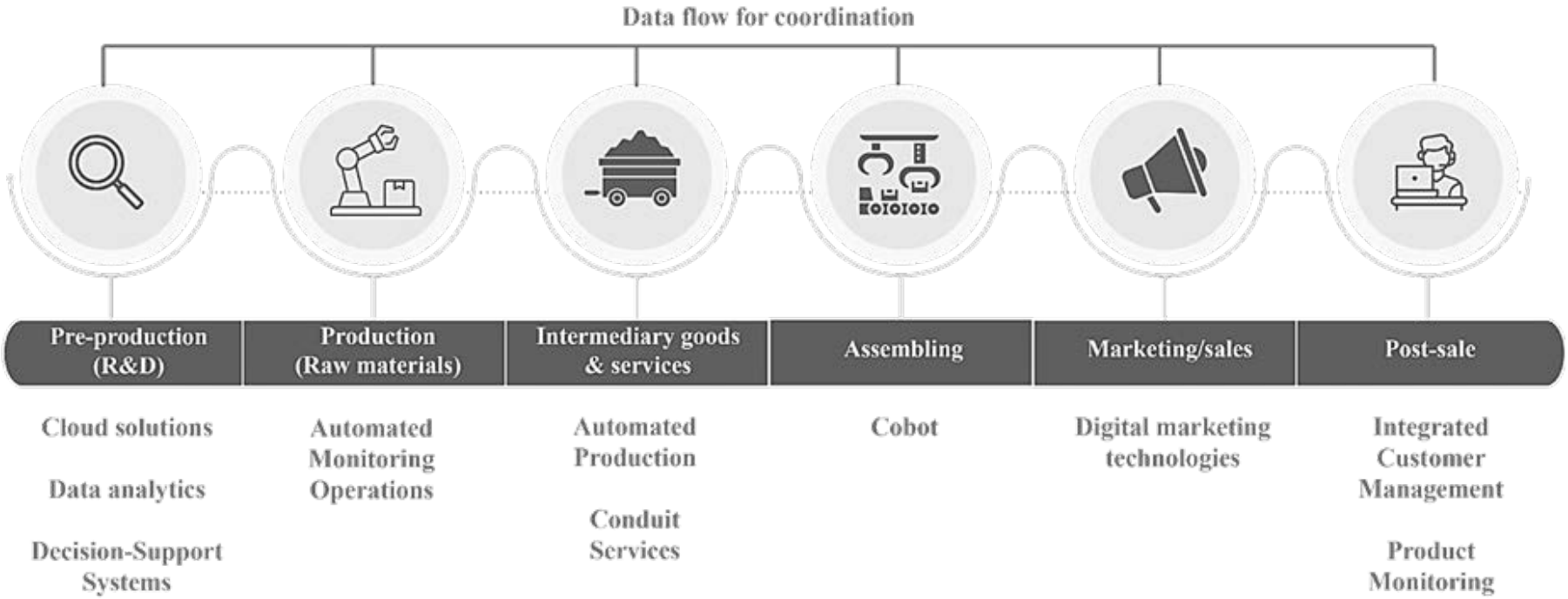
Personal data refers to the information related to an individual, which would reveal that individual's identity. However, non-personal data refers to information that doesn't really contain details that would give away the person's identity. This differentiation between the data is particularly important in the case of cross-border data flows as various forms of non-personal data, like machine-generated data, anonymised data etc., travel across borders as part of the Global Value Chain management. In addition, during our interaction with business representatives, as part of our project on data flow and digital trade, they introduced a new kind of data set called machine-generated personal data, like technologies used in the production process generating personal information on the people who operate the system. They believe this data is crucial for global value chain management hence they suggested this data should be dealt with differently within the legislation.

2. GVC DATA FLOW

Globalisation has made businesses restructure their operations and production processes where they have internationally outsourced and indulge in offshore activities. International production organised within the Global Value Chain is where the different stages of the production process are located across different countries. Every country has its own specialisation, which businesses try to use to their advantage by dividing various processes for production and indulging in international dispersion of value chain activities. Therefore the process of producing goods, starting from raw materials to finished products, is carried out at locations where necessary skills and logistics are available at a competitive cost and of the best quality.

While cross-border production in the form of GVCs may not be new, a key element which propels and transforms the GVCs is the internet and Information Communication Technologies, which make the flow of goods and services from one production level to another seamless. Therefore, the GVC model of trade also highlights that data flow is essential beyond the service sector trade, where data flow is essential for any goods production. The figure below shows how data is crucial across the GVC pipeline and the data flow, which is essential to connect various processes of production.

Figure 1: Data Flow Cross GVC Pipeline



While cross-border data flow is essential for coordinating various processes dispersed across geographies, data flow is also essential at each stage of the production process.

- Pre-Production: The first step in the pipeline within the pre-production stage is R&D which involves various stakeholders like experts, scientists, consumers, researchers, technical experts etc., who reside across various parts of the world. It has been noted that at this stage, businesses use a cloud solution to integrate stakeholders in real-time. Therefore, irrespective of whether the business operates from India or other parts of the world, the free flow of data between these countries is important to connect with the experts residing in these countries. Also, in case businesses service consumers between India and Australia, free data flow is essential for efficient data analytics.

  Moreover, businesses also use Decision-Support Systems at the pre-production stage, where it provides simulation to assist decision-makers in product and process design, tooling and equipment selection etc. One of the key elements which run Decision-Support Systems is up-to-date status data from across the businesses.

- Production: Raw material management is increasingly moving towards digitalisation, where businesses use monitoring systems that make remote operating feasible. These remote operating systems produce machine-generated data, which sometimes consists of personal information like background information on the person operating the systems. If the business has a production unit in India operated by Indian citizens for a foreign company, it is essential for machine-generated data to travel to Australia for business monitoring purposes.

- Intermediary goods and services: The intermediary goods necessary for the final assembling of the goods. Various supply chain management tools try to help businesses track customs procedures of the intermediary goods and coordinate flows by the company governing the GVC. In addition to this, analytics information (which may consist of personal information) may be transferred to the intermediary goods-producing vendors to ensure that they produce the correct product with specifications and quality intact. Therefore, if the vendor of an Indian business resides in a foreign country, analytics data has to travel to that respective foreign country for real-time production of necessary intermediary goods.

  It has been noted that increasingly manufacturing companies use and produce services clubbed within their goods. This phenomenon is coined "Servicification"[1], where

[1] Nilsson, E. (n.d.). Everybody is in Services – The Impact of Servicification in Manufacturing on Trade and Trade Policy. Kommerskollegium. Retrieved September 7, 2022, from https://www.kommerskollegium.se/globalassets/publikationer/rapporter/2016-och-aldre/report-everybody-is-in-services.pdf

services are an important input and output for manufacturing businesses. Besides, services in any form, especially intermediary services important for any business which tries to reap the advantage of GVC to stay interconnected and move up the chain to reap maximum potential. As intermediary services increasingly become digital, cross-border data transfers are essential. This is especially important in the case of India in terms of telecommunication. For instance, Ericsson, a company which provides 40 per cent of the world's mobile traffic, has one of its global Services Centres in India.[2]

- Assembling: In the final stage of production, i.e., assembling, businesses use various forms of digital solutions for packing, assembling various intermediary goods and controlling the process. There have been trends where small to large-scale robots are used to aid humans in the factories, which are called "cobots".[3] Therefore, as businesses operating between India and foreign countries increasingly move toward these digital solutions, the free flow of data would be essential both directly in terms of running these systems and indirectly through enabling services which support these systems like internet, telecommunication etc.

- Marketing/Sales: Businesses increasingly service customers across borders, they tend to have a significant market share in other countries where they are not stationed. Therefore, businesses cater to digital marketing tools for connecting people to the right things at the right time while operating from other countries. Also, when customers interact with digital marketing technologies, they generate personal and non-personal data (behavioural information), which is valuable for businesses to garner analytics. Thus, if the business operates from other countries, customers' data from India must flow seamlessly so that digital marketing technologies are used at their maximum capacity.

- Post-Sale: Again, as businesses increasingly service customers across borders, post-sale technologies like integrated customer management, product monitoring etc., require the free flow of data. These technologies help businesses monitor the sold products, collect data (sometimes real-time data) about maintenance and repairs, and finally provide customer service, which helps them collect feedback. Therefore, post-sales technologies would require a free data flow if a business is stationed in a foreign country and services India.

[2] Mobile network traffic Q1 update – Mobility Report. (n.d.). Ericsson. Retrieved September 7, 2022, from https://www.ericsson.com/en/reports-and-papers/mobility-report/dataforecasts/mobile-traffic-update

[3] Fersman, E. (2020, May 11). What are cobots and how will they impact manufacturing? Ericsson. Retrieved September 7, 2022, from https://www.ericsson.com/en/blog/2020/5/what-are-cobots-and-the-future-of-manufacturing

Box 2: Scenario of GVC Data Flow - Manufacturing sector

Cross-border data exchange in the manufacturing industry is very essential at different stages of production and for different purposes. For example, if the production process is spread across different geographical locations, then in order to organise input flows, work with the subcontractors and suppliers etc., handle HR matters etc., the data needs to be moved within the organisation.[4] Technical data regarding conducting R&D in the pre-production phase, supply chain management, and data related to the post-sales phase to monitor how many items are sold, customer data, etc., all form part of the manufacturing process. The movement of such data is very crucial for the functioning and performance of these industries. Thus, cross-border data exchange should be hassle-free to attract more multinational operations and optimise their supply chain.

3. TRANSACTIONAL DATA FLOWS

It can be said that digital expansion of trade in goods and services can rightly be deemed as the fourth Industrial Revolution, which ultimately will profoundly impact how global trade happens, the economic growth of countries and their social progress.

Earlier, just as international trade used to be measured in terms of imports and exports of tangible goods and services, the advancement in technologies and the 'transfer of data' from one country to another has digitised the manner in which trade takes place. Not only the scope but the scale and speed in which trade happens are also affected by such digitisation.

The growth of the internet has ensured that multiple platforms and sectors of any economy have begun relying entirely on this base. The United Nations Conference on Trade and Development (UNCTAD) noted that 2020 saw the most significant one-year rise in internet traffic (35%) since 2013, owing to the pandemic and the push to go digital in order to continue functioning.[5] The report also established that around 80% of all internet traffic is related to social media, gaming and video streaming.[6] These trends thus establish our growing reliance firstly on the internet and secondly on the cross-border data flows that enable our access to websites hosted through servers across the globe.

Thus, it can be said that the internet has created an entirely new marketplace wholly based on the collection, organisation and processing of data, both personal and non-personal. The internet is basically a network of networks which are interconnected and interdependent on various factors at the logical and application layer, where entity A would be dependent on entity B, who might be offshore. For instance, ***Transaction data flows between buyers and sellers at a market price****, including direct purchases between buyers and sellers, such as in online*

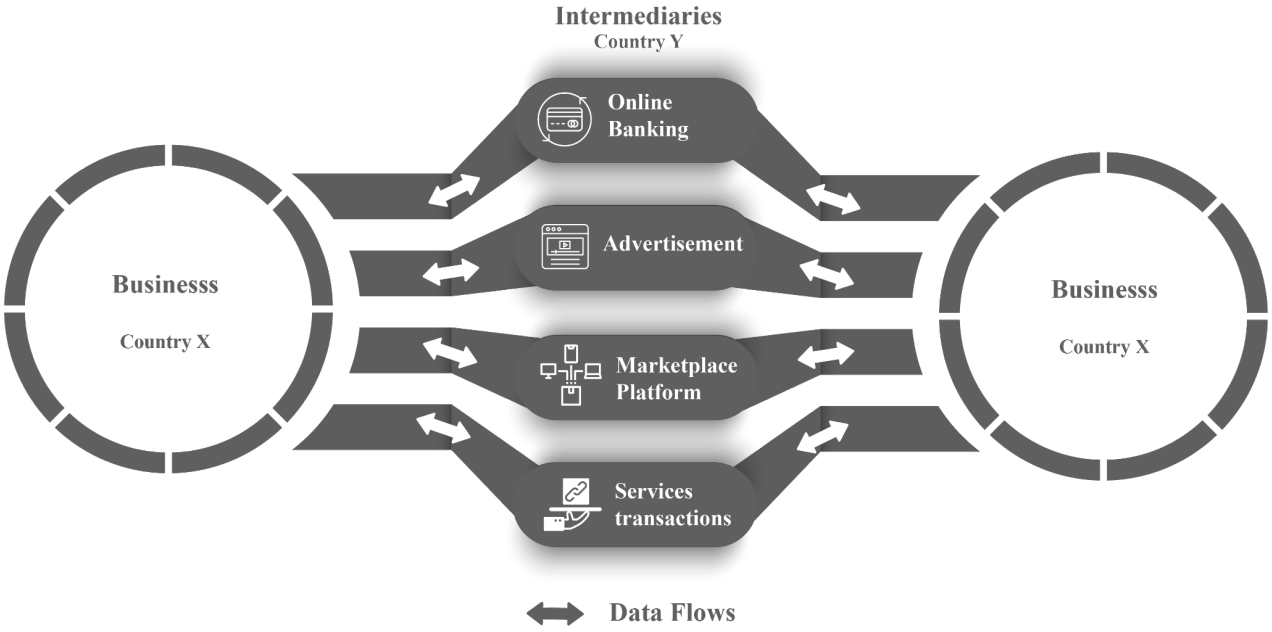
[4] Kommerskollegium, National Board of Trade (2015 March) *No Transfer, No Production - A Report on Cross Border DataTransfers, Global Value Chains and the Production of Goods,* https://unctad.org/system/files/non-official-document/dtl_ict4d2016c02_Kommerskollegium_en.pdf

[5] *New approach needed to make digital data flow beneficial for all.* (2021, September 29). UN News. Retrieved August 3, 2022, from https://news.un.org/en/story/2021/09/1101542

[6] Ibid

banking or advertising, and services transactions that involve digital platforms acting as intermediaries between buyers and sellers, as illustrated in figure 2. These would include the invoice data that a marketplace platform collects when any transactions occur.

Figure 2: Transactional Data Flow



Therefore, the usage of data is not just limited to the ICT sector (information and communication technologies), but sectors like transportation, manufacturing, logistics, utilities etc.

While many factors could affect the Total factor productivity (TFP) of the business, technology plays an important role. TFP is the portion of output not explained by the number of inputs used in production. Therefore, TFP is usually determined by how efficiently and intensely the inputs are utilised in production, for which technology plays a key role.

$$Y = A \times K^{\alpha} \times L^{\beta}$$

Where:

Y= Total output K = Capital Input A = Total-factor productivity L = Labour input

(α and β are the shares of contribution for K and L respectively)

As businesses use various technological solutions across the production cycle geographically dispersed across the global value chain, factor A in the form of technology plays a key roll in enhancing the share of capital and labour input which is exponent α and β. As technology is

increasingly dependent on the internet, the free flow of data is important to ensure the highest efficiency of the same. Also, a recent study[7] showcases that a 1 per cent increase in international internet bandwidth would bring about a 696.71 million dollar increase in the total volume of goods trade for India.

Box 3: Scenarios of Transactional Data Flows

Below, we discuss the importance of the free flow of data for key sectors of trade.

- Financial Services: With the financial services sector being one of the key sectors negotiated as part of the bilateral trade negotiations, we believe the free flow of data for transactional purposes would be essential. For instance, India and Australia are currently negotiating a Comprehensive Economic Cooperation Agreement, with the financial sector being one of the key sectors negotiated. Four Australian banks, namely Commonwealth Bank of Australia, National Australia Bank and Australia and New Zealand Banking Group Ltd., and Westpac Banking Corporation, recently opened their operations in India, marking the importance of cross-border data transfers for transaction purposes. For instance, a representative of Westpac Banking Corporation expressed that their operations in India would primarily focus on funding cross-border transactions of Indian companies, for which we believe the free flow of data is important. Similarly, Indian banks, like the State Bank of India, also provide operations in Australia.

- Agriculture sector: The concomitant effect of the rise in agriculture trade between India and other countries would be the increase in different types of transactions between both countries, for which the free flow of data is essential. Because the agricultural sector uses digital technologies, including mobile internet and IoT-enabled supply chain management etc., extensively. Therefore, to reap the maximum value from the tariff sops arrangement of any trade negotiations, we believe one of the key components of trade, i.e., free flow of data, is to be enabled between India and other countries.

- Infrastructure sector: The Infrastructure sector is another key sector negotiated between India and other countries as part of the trade negotiations. Through these negotiations, infrastructure companies are keen to see an increase in opportunities in the infrastructure and toll roads sector to develop some of the key public infrastructures in India, predominantly national highways. In India, these projects mostly come under Public Private Partnerships. In many cases, the private is allowed to deal with the maintenance of the roads for a period of time and collect toll fees from the users for the same. As India currently uses a digitally-enabled mechanism called FASTag for managing toll-related transactions, we believe the free flow of data between India and other countries is essential as some of the foreign infrastructure companies might be managing the toll roads.

- Healthcare sector: Another key sector of trade between India and other countries highlighted is the healthcare sector. It is noted that India's domestic initiatives, such as Ayushman Bharat Digital Mission, would enhance opportunities technology export opportunities of India, marking the need for the free flow of data across borders.

[7] Kathuria, R., Kedia, M., Varma, G., & Bagchi, K. (n.d.). *Economic Implications of Cross-Border Data Flows*. Indian Council for Research on International Economic Relations. Retrieved September 8, 2022, from https://icrier.org/pdf/Economic_Implications_of_Cross-Border_Data_Flows.pdf

[8] Unnikrishnan, D. (2012, November 15). Fourth Australian bank opens shop in India. Mint. Retrieved August 25, 2022, from https://www.livemint.com/Industry/zyPn0AkJpWKl8pQVpiFa3H/Fourth-Australian-bank-opens-shop-in-India.html

[9] Wadhwa, A. (2022, April 4). India-Australia trade agreement: ECTA will reinforce a strong geoeconomic partnership. The Financial Express. Retrieved August 25, 2022, from https://www.financialexpress.com/defence/india-australia-trade-agreement-ecta-will-reinforce-a-strong-geoeconomic-partnership/2480723/

[10] Healthcare - India - For Australian exporters. (n.d.). Austrade. Retrieved August 25, 2022, from https://www.austrade.gov.au/australian/export/export-markets/countries-and-economies/india/industries/healthcare-to-india

4. COMMERCIAL SERVICE EXCHANGE

Data or data sets have become a crucial resource when it comes to how businesses operate today. Companies collect a wide variety and humongous amount of data and monetise it in running its operation.

In a brick-and-mortar set-up of a retail store, businesses have limitations in terms of space, consumer propensity, and distribution of the goods to provide variety in terms of products and services.[11] For instance, only so much can a business store in a physical space due to spatial constraints; therefore, possibilities for personalisation to target individuals are limited. However, with the emergence of digital spaces, some of these constraints have diminished, paving the way to serve a wide variety of items and choices to individuals/consumers. For instance, one of the largest e-commerce platforms, Amazon, sells about 12 million products.[12] While some factors made this possible, the availability of resources at a modest cost to both individuals/consumers and sellers to access digital spaces has paved the way for this development.[13]

While this development positively impacts the retail sector, this proliferation of products and choices is chaotic and futile without being able to map these products to the appropriate individuals/consumers at the right time. It has been noted that just offering choice and variety doesn't increase demand for a particular product or service.[14] This realisation amongst businesses spurted the development of personalisation and recommendation tools not just as a business value proposition but as an integral element of service delivery. While personalisation and recommendation tools match the demand to the supply[15], businesses use these technologies for many other purposes to nudge prospective individuals/consumers into buying the products or services. This was made possible due to the emergence of retail customer analytics[16] fuelled by the data provided and generated by the consumers. For instance, when consumers use e-commerce platforms to avail of the service, they also leave digital footprints that provide insights on purchase history, choice of products/services, number of visits, etc. These insights collectively aid businesses in matching demand to supply

[11] Heaslip, E. (2019, April 22). *Pros and Cons of Opening a Brick-and-Mortar Store*. U.S. Chamber of Commerce. Retrieved July 27, 2022, from https://www.uschamber.com/co/start/startup/opening-brick-and-mortar-location-for-your-business

[12] *Amazon Statistics: Need To Know Numbers about Amazon [Infographic]*. (2018, January 24). nChannel. Retrieved July 27, 2022, from https://www.nchannel.com/blog/amazon-statistics/

[13] Heaslip, E. (2019, April 22). *Pros and Cons of Opening a Brick-and-Mortar Store*. U.S. Chamber of Commerce. Retrieved July 27, 2022, from https://www.uschamber.com/co/start/startup/opening-brick-and-mortar-location-for-your-business

[14] Anderson, C. (2014). *The Long Tail: Why the Future of Business Is Selling Less of More*. Hachette Books. [15] F.O. Isinkaye, Y.O. Folajimi, B.A. Ojokoh. *Recommendation systems: Principles, methods and evaluation*, Egyptian Informatics Journal, Volume 16, Issue 3, 2015, Pages 261-273, ISSN 1110-8665, https://doi.org/10.1016/j.eij.2015.06.005.

[16] Barasch, R. (n.d.). *The Power of Retail Analytics | Big Data in Retail*. Yodlee. Retrieved July 28, 2022, from https://www.yodlee.com/data-analytics/big-data-retail-analytics

through personalisation and help nudge individuals/consumers to purchase. In addition to personalisation, retail analytics are also used by businesses for the following purposes, which also indirectly help positive transactions.

- Demand forecast: When individual/consumer data is aggregated, it provides insights in terms of forecasting demand for particular products or services.[17] When these insights are combined with other available data like social data, web browsing data can aid platforms in forecasting demand specific to population, location, community etc. This paves the way for businesses to personalise/recommend products and services at a granular level specific to the demand.

- Individual/Consumer journey: The digital footprints left behind by individuals can help businesses to get 360 views of the users within the platform from entering a particular the website until the transaction in terms of purchase of a product/service is complete.[18] This insight helps businesses to get to know what the customer is looking for, where they are looking, exit information etc., to make personalisation better such that their experience is smooth to have the purchase of a product/service complete.

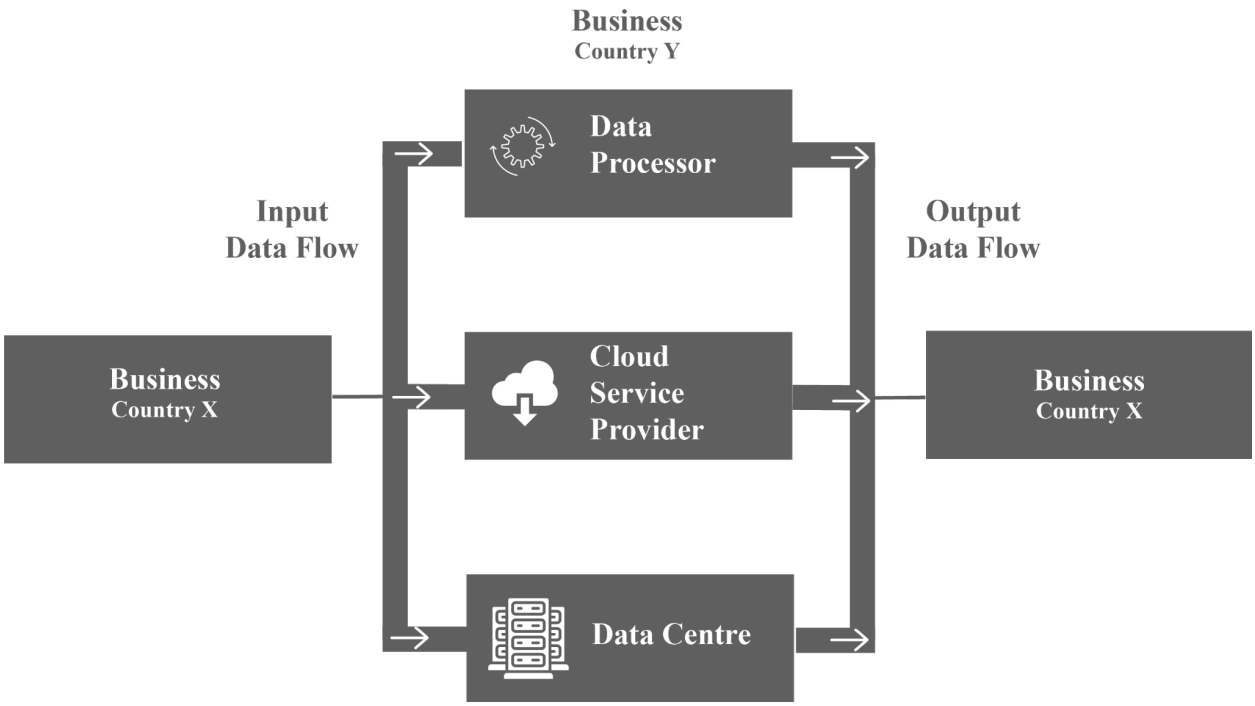
- Purchasing power: The purchasing and search history data of the individuals/consumers provide valuable insight into the purchasing power of the particular individuals/consumers. This insight is essential for businesses in terms of improving their personalisation/recommendations, where they can do the same according to the fiscal capacity of the individuals.

Therefore, this shows that in addition to being a value proportion for certain classes of businesses, data goes far beyond becoming the core elements of a business model to digital platforms which personalise and recommend products and services to (a) map demand to supply (b) have a better conversion rate. However, to extract insights from the data and store the same, businesses indulge in ***commercial data and services exchange between or within businesses or other related parties*** *at a $0 market price, including supply chain, personnel, or design information,* as illustrated in figure 3. This includes the flow of data from data fiduciaries to other data fiduciaries, data processors/cloud service providers, and data centres which may be offshore.

[17] Barnett, W. (n.d.). *Four Steps to Forecast Total Market Demand*. Harvard Business Review. Retrieved July 28, 2022, from https://hbr.org/1988/07/four-steps-to-forecast-total-market-demand

[18] *The Value of Customer Journey Mapping and Unlocking New Approaches with Technology*. (n.d.). OSG Analytics. Retrieved July 28, 2022, from https://www.osganalytics.com/wp-content/uploads/2019/05/White-Paper-Customer-Journey-Mapping_v1.3_Formatted.pdf

Figure 3: Commercial Data Flows



Industry experts, during our engagement for the project on data flows and digital trade, expressed that India and other countries supply-chain depend on each other to avail innovative services like cloud processing, data storage etc. For instance, the Indian Cloud Software Suite company opened a couple of data centres in Australia.[19] Similarly, India's one of the big Business Processing Companies, Tata Consultancy Service, operates across the globe. Therefore, the free flow of data between both countries is crucial such that businesses stationed in both India and other countries can indulge in commercial data and service exchange to extract the above-discussed value.

Besides, industry experts also expressed that it is important to unlock the comparative advantage between India and other countries regarding data flow and trade. In international trade, countries have a comparative advantage in different industries and different forms. Countries engage in bilateral trade with other jurisdictions after calculating the comparative advantage. Basically, comparative advantage is the ability of the country to produce goods and services for lower opportunity costs. In microeconomics, Opportunity cost represents the potential benefits a country could garner by missing out when choosing alternatives. For instance, if X country produces bananas efficiently and Y country produces apples efficiently, both countries could forgo producing apples and bananas respectively and indulge in trade exchange of these products.

[19] Floyd, L. (2019, September 22). *Are you ready, Australia? We've opened two new data centres for the A/NZ region!* Zoho. Retrieved August 25, 2022, from https://www.zoho.com/blog/general/are-you-ready-australia-weve-opened-two-new-data-centres-for-the-a-nz-region.html

Opportunity Cost = FO - CO

Where:
FO = Return on best-foregone option
CO = Return on chosen option

Therefore, in this scenario, FO would be India considering the transfer of data for processing to another country and garnering the benefits from better processing capacity as CO. While India has emerging data processing facilities, our recent study results show that currently, those solutions are not efficient compared to foreign alternatives.[20] Moreover, as data is non-rivalrous and non-excludable, it has been noted that data created[21] in one country and used or processed in another country does not deprive the origin country of reaping the benefits.

5. DIGITAL SERVICE DELIVERY

Digital data and services are delivered to and from end-users at a $0 market price, including free email, search engine results, maps and directions, and information via social media[22], as illustrated in figure 4. However, the value from this transfer is extracted indirectly. The business models of some digital businesses operate at a dual market level, i.e., audience market and advertiser market. The audience market is where the supply-side, i.e., digital businesses, provides a "platform"[23], i.e., medium for exchanging information, services etc., to the demand-side, i.e., individuals/consumers. While the supply side remains the same in the advertiser market, the commodity here is the consumer insights garnered through data extraction, and the demand side is the advertisers.

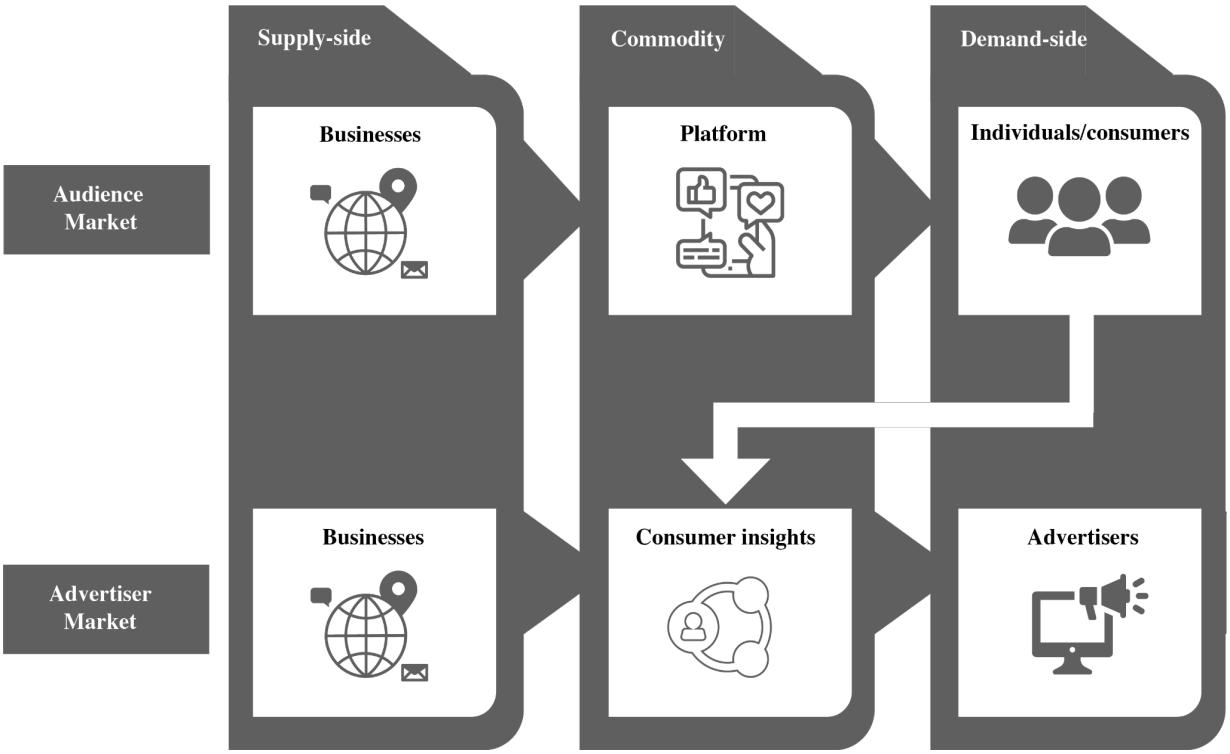
[20] Shekar, K.,Tripathi, A., Birla, B., & Vaidya, E. (2022). Principle-based Framework Towards Cross-Border Data Transfers. The Dialogue

[21] Data, Trade and Growth. (n.d.). Progressive Policy Institute. Retrieved September 7, 2022, from http://www.progressivepolicy.org/wp-content/uploads/2014/04/2014.04-Mandel_Data-Trade-and-Growth.pdf

[22] Nicholson, J. & Noonan, R. (2014) *Digital Economy and Cross-Border Trade: The Value of Digitally-Deliverable Services,* Office of the Chief Economist, Economics and Statistics Administration (ESA), U.S. Department of Commerce. Retrieved on June 25, 2022, from http://www.esa.doc.gov/sites/default/files/digitaleconomyandtrade2014-1-27final.pdf

[23] *Platform Business Model explained…in under 100 words*. (n.d.). Deloitte. Retrieved July 29, 2022, from https://www2.deloitte.com/ch/en/pages/innovation/articles/platform-business-model-explained.html

Figure 4: Dual Market Data Transfer



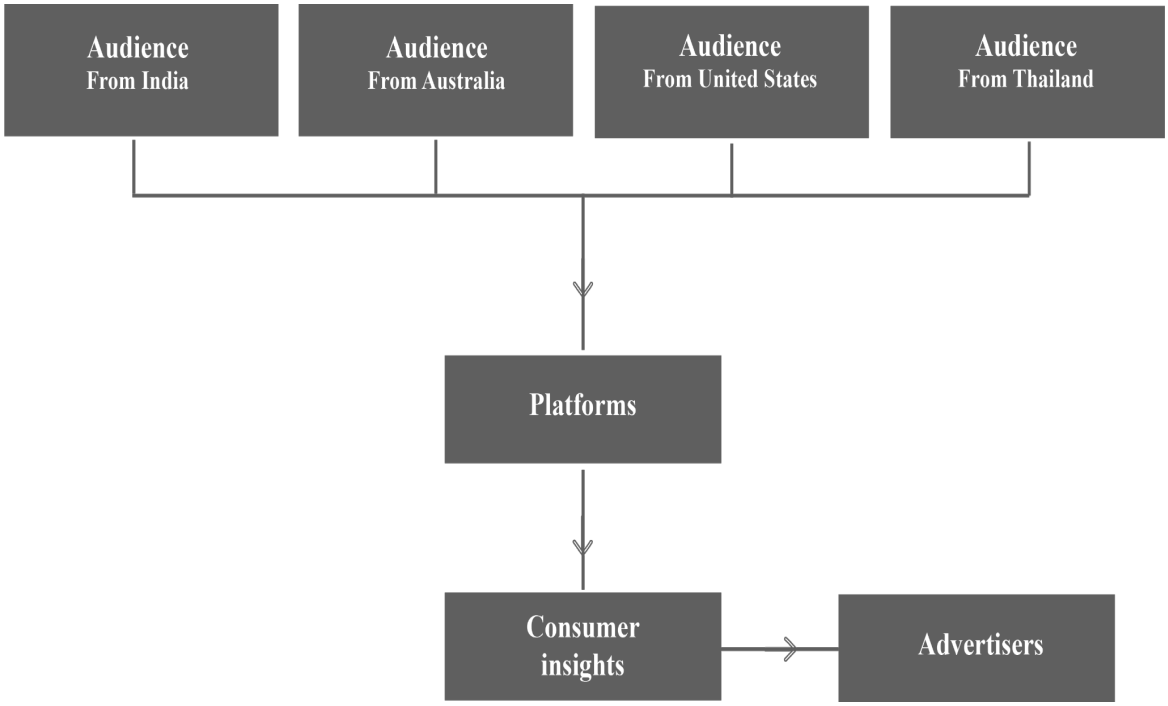
These market structures that instrumentalise some digital businesses' existence also showcase the connections between the markets, i.e., audience and advertiser market. The demand side of the audience market is directly correlated to the commodity produced by the digital platforms in the advertiser market, i.e., consumer insights. The chain and propeller of the relationship between these two markets are the "data".

When individuals share more data on the platform provided by digital businesses, more individuals join the platform to use the service. As most individuals join and use the platform, businesses get access to ample information on individuals/consumers, which is the raw material for the commodity in the advertiser market, i.e., consumer insights. This shows that the chain of reactions between both markets ultimately lets businesses value "data" from a monitory lens as they indirectly (consumer insights) sell the same to the advertisers.

Most digital businesses which provide platforms as a commodity don't charge a monetary fee for the service because the marginal cost of providing the service is near zero, while they incur only fixed costs. Besides, nothing is free in the platform economy as we pay individuals in the form of our personal and non-personal (behavioural) data, which they sell to advertisers.

As the data market depends on the amount of data shared by individuals, horizontally, it depends on the number of individuals using the platforms. With more individuals joining and consuming the platform service, digital businesses can have better consumer insights. One way to achieve this is to expand the market beyond the origin location and serve more users. Besides, aggregating data of customers across the globe is essential for having better insights (like the scenario illustrated in figure 5), where restricting cross-border data transfers will eventually affect the businesses whose key commodity for sale is data and consumer insight.

Figure 5: Scenario of data flow for generating consumer insights



Therefore, it can be understood from the above that in the generation of economic value, cross-border data flows play an important role. The data flow makes the production and distribution of trade in goods much more effective and less costly, but it also allows trading in digital services across the world. A study conducted by Mckinsey & Company found that data monetisation is a very important tool of revenue growth. Monetising data can add 10% or more revenue for 32% of high-performing businesses and 9% of all other businesses. [24]

[24] *Mckinsey & Company (2017), Fuelling growth through data monetisation, Mckinsey & Company, New York, https://www.mckinsey.com/business-functions/quantumblack/our-insights/fueling-growth-through-data-monetization*

6. CONCLUSION

This research brief shows that the concept of digital flows consists of adopting digital technologies, even in traditional sectors such as agriculture (IoT-based devices and precision farming), Manufacturing (Supply-chain management and blockchain technologies), whereas digital exports would comprise virtual goods such as apps, digital content platforms and digitally enabled physical products. It is important to understand that both digital technologies as well as digital export make use of 'cross-border data' wherein transmission of information/data is very relevant. Since there are many overlaps in how exactly cross-border data functions, it becomes difficult to analyse its exact economic impact on trade. But, one can establish that for either of the two things to take place, data needs to be transferred from one place to another across boundaries.

With that, we believe digital trade has various components to it, such as digitally-enabled products, digitally-enabled services and indirect digital services, which require cross-border data flow not necessarily to create monetary value at the start but are important in business transactions like data flows during international banking transactions or data flows between two companies to extract commercial and economic value.

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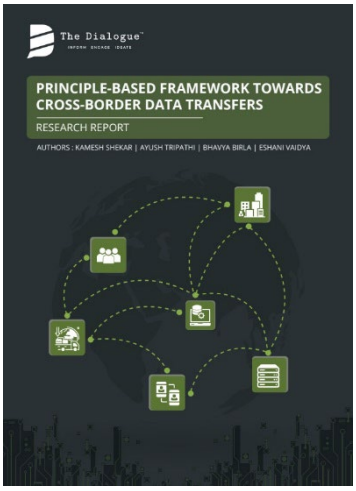
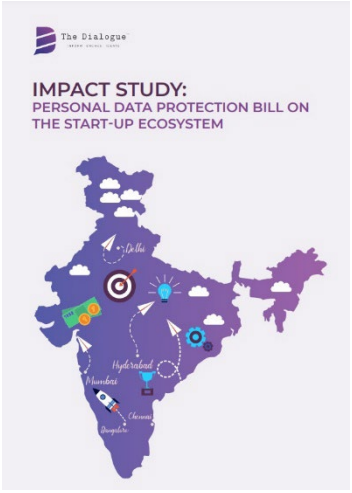
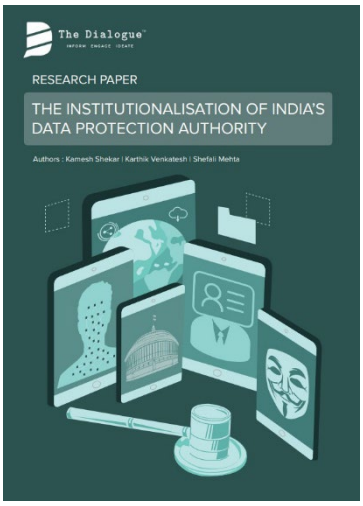


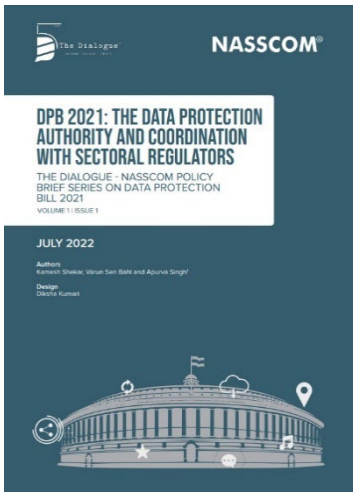
Principle-based Framework Towards Cross-Border Data Transfers



Personal Data Protection Bill on the Start-up Ecosystem



The Institutionalisation of India's Data Protection Authority.



The Data Protection Authority and Coordination with Sectoral Regulators

Building Effective and Harmonised Data Protection Authority - Strategies for Structural Design and Implementation

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