Proposed E-commerce Disciplines @ WTO: Implications for Government Programmes and Digital Initiatives in India

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Executive Summary

E-commerce is the new buzz world in the international trade arena. It is widely discussed at various international organizations and multilateral forums, be it WTO, G-20 or OECD. E-commerce is also a part of new age agreements such as Trans Pacific Partnership (TPP), Trade in Services Agreement (TiSA) and Regional Comprehensive Economic Partnership (RCEP) agreement. These agreements also contain disciplines very much similar to what is being proposed in the US non-paper.

Government of India has recently started a number of programmes that explicitly or implicitly have digital elements. The proposed e-commerce disciplines are likely to affect these digital initiatives in two ways. First, the proposed e-commerce disciplines would prohibit the Government and curtail the flexibilities to implement the existing policies. Second, these disciplines may adversely affect the future potential and outcome of Government's initiatives by limiting the market structure, technology choice and development of domestic capacities. As the digital economy of India is in an evolving state, the government requires flexibility and policy space to tailor these constituent policies to cater to the needs of an emerging economy. The proposed disciplines on e-commerce at the WTO would reduce/eliminate this policy space.

Even without multilateral rules, global e-commerce market, including cross-border ecommerce, has shown impressive growth and will continue to grow at a faster pace in the coming few years. There is little in the proposals on e-commerce at the WTO, which could impart significant additional momentum to an already dynamic market. On the contrary, the proposed disciplines may adversely affect the growth of domestic industry by creating multinational oligarchs in the virtual world.

1. Introduction

E-commerce is the new buzz world in the international trade arena. It is widely discussed at various international organizations and multilateral forums, be it WTO, G-20 or OECD. Recently, there is a flurry of submissions proposing various disciplines for e-commerce at the WTO. Some of these proposals include submission by the US, China, EU etc. The US non-paper[1] contains 16 elements for flourishing of trade through electronic and digital means. These elements are prohibiting digital customs duties; securing basic non-discrimination principles; enabling cross-border data flows; promoting a free and open internet; preventing localization barriers; barring forced technology transfers; protecting critical source code; ensuring technology choice; advancing innovative authentication methods; safeguarding network competition; fostering innovative encryption products; building an adaptable framework for digital trade; preserving market-driven standardization and global interoperability; ensuring faster, more transparent customs procedures; promoting transparency and stakeholder participation in the development of regulations and standards; and recognizing conformity assessment procedures. The EU paper discusses how common principles on consumer protection, unsolicited messages, authentication and trust services and electronic contracts would contribute to a better integration, especially of SMEs, in the world economy and enhance trust and confidence of consumers online.

E-commerce is also a part of new age agreements such as Trans Pacific Partnership (TPP), Trade in Services Agreement (TiSA) and Regional Comprehensive Economic Partnership (RCEP) agreement. These agreements also contain disciplines very much similar to what is being proposed in the US non-paper.

There are increased attempts by some WTO members to seek negotiating mandate for e-commerce at the forthcoming Ministerial Conference of the WTO (MC 11) to be held in December 2017. As most of the proposals contain elements very much similar to as proposed in the US non-paper on e-commerce and the TPP chapter on e-commerce, it could be assumed that if negotiations on e-commerce start, it would be along the lines of these elements. It must also be noted that not only the elements of the e-commerce chapter but also the disciplines of some of the related chapters such as Telecommunications Services and Intellectual Property may slip into any future agreement on e-commerce. Therefore, it is important to assess the implications of these elements for digital initiatives and programmes that have been undertaken by the Government of India in recent years.

Government of India has recently started a number of programmes that explicitly or implicitly have digital elements. The proposed e-commerce disciplines are likely to affect these digital initiatives in two ways. First, the proposed e-commerce disciplines would prohibit the Government and curtail the flexibilities available to it to implement the existing policies. Second, these disciplines may adversely affect the

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[1] US non-paper on 'Work Programme on Electronic Commerce'; Job/GC/94; 04 July 2016. https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/JOBs/GC/94.pdf

future potential and outcome of Government's initiatives by limiting the market structure, technology choice and development of domestic capacities.

This paper attempts to analyze the implications of the proposed e-commerce disciplines on various digital initiatives undertaken by the government. It first discusses some of the key digital initiatives of the government and then outlines the policies governing these initiatives. It analyses these policies against the provisions of US non-paper on e-commerce and the relevant chapters of TPP.

2. Government Initiatives and Programmes

2.1 Digital India[2]

Digital India programme is a flagship programme of Government of India with a vision to transform India into a digitally empowered society and knowledge economy. Government of India launched National e-Governance Plan (NeGP) in 2006. Despite the successful implementation of many e-Governance projects across the country, e-Governance as a whole has not been able to make the desired impact and fulfill all its objectives. It has been felt that a lot more thrust is required to ensure e-Governance in the country to promote inclusive growth that covers electronic services, products, devices and job opportunities. Moreover, electronic manufacturing in the country needs to be strengthened.

The Digital India programme is centred on three key vision areas: Digital Infrastructure as a Core Utility to Every Citizen; Governance and Services on Demand; and Digital Empowerment of Citizens. The elements of these three vision areas are listed as below-

2.1.1 Digital Infrastructure as a Utility to Every Citizen

A well connected nation is a prerequisite to a well served nation. Once the remotest of the Indian villagers are digitally connected through broadband and high speed internet, then delivery of electronic government services to every citizen, targeted social benefits, and financial inclusion can be achieved in reality. One of the key areas on which the vision of Digital India is centred is "digital infrastructure as a utility to every citizen". A key component under this vision is high speed internet as a core utility to facilitate online delivery of various services. It is planned to set up enabling infrastructure for digital identity, financial inclusion and ensure easy availability of common services centres. It is also proposed to provide citizens with "digital lockers" which would be sharable private spaces on a public cloud, and where documents issued by Government departments and agencies could be stored for easy online access. It is also planned to ensure that the cyberspace is made safe and secure. (Digital India Vision Area 1: Digital infrastructure as a utility to every citizen infrastructure).

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[2] Based on the information available at http://www.digitalindia.gov.in

2.1.2 Governance & Services on Demand

Over the years, a large number of initiatives have been undertaken by various State Governments and Central Ministries to usher in an era of e-governance. Sustained efforts have been made at multiple levels to improve the delivery of public services and simplify the process of accessing them. E-governance in India has steadily evolved from computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation and transparency. The ultimate objective was to make all government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realise the basic needs of the common man.

Six elements are crucial for ensuring that governance and services are made available on demand to all citizens and other stakeholders in the country. These are: seamlessly integrated services across departments or jurisdictions; availability of services in real time from online & mobile platforms; all citizen entitlements to be portable and available on the cloud; digitally transformed services for improving ease of doing business; making financial transactions electronic & cashless; and leveraging Geospatial Information Systems (GIS) for decision support systems & development. (Digital India Vision Area 2: Governance and Services on Demand).

2.1.3 Digital Empowerment of Citizens

Digital connectivity is a great leveller. Cutting across demographic and socio-economic segments, Indians are increasingly connecting and communicating with each other through mobile phones and computers riding on digital networks. The Digital India programme itself promises to transform India into a digitally empowered society by focusing on digital literacy, digital resources, and collaborative digital platforms. This also places emphasis on universal digital literacy and availability of digital resources/services in Indian languages. (Digital India Vision Area 3: Digital Empowerment of Citizens).

2.2 Make in India[3]

The 'Make in India' initiative was launched by the Prime Minister in September 2014 as part of a wider set of nation-building initiatives. Devised to transform India into a global design and manufacturing hub, Make in India represents a comprehensive and unprecedented overhaul of out-dated processes and policies. Most importantly, it represents a complete change of the Government's mindset – a shift from issuing authority to business partner, in keeping with Prime Minister's tenet of 'Minimum Government, Maximum Governance'.

In a short space of time, the obsolete and obstructive frameworks of the past have been dismantled and replaced with a transparent and user-friendly system that is helping drive investment, foster innovation, develop skills, protect Intellectual

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[3] Based on the information available at http://www.makeinindia.com/home/

Property (IP) and build best-in-class manufacturing infrastructure. The most striking indicator of progress is the unprecedented opening up of key sectors – including Railways, Defence, Insurance and Medical Devices – to dramatically higher levels of Foreign Direct Investment.

For the Make in India campaign, the government of India has identified 25 priority sectors that shall be promoted adequately. These are the sectors where likelihood of FDI (foreign direct investment) is the highest and investment shall be promoted by Government of India.

Table 1: Sectors Highest Likelihood for FDI

Automobiles	Food Processing	Renewable Energy
Automobile Components	IT and BPM	Roads and highways
Aviation	Leather	Space
Biotechnology	Media and Entertainment	Textiles and garments
Chemicals	Mining	Thermal Power
Construction	Oil and Gas	Tourism and Hospitality
Defence manufacturing	Pharmaceuticals	Wellness
Electrical Machinery	Ports	
Electronic Systems	Railways	

Source: http://www.makeinindia.com/home/

2.3 Start-up India[4]

Startup India is a flagship initiative of the Government of India, intended to build a strong eco-system for nurturing innovation and Startups in the country that will drive sustainable economic growth and generate large scale employment opportunities. The Government through this initiative aims to empower Startups to grow through innovation and design.

In order to meet the objectives of the initiative, Government of India announced the Action Plan on 16th January 2016 that addresses all aspects of the Startup ecosystem. The Action Plan includes a shift-

- From digital/ technology sector to a wide array of sectors including agriculture, manufacturing, social sector, healthcare, education, etc.; and
- From existing tier 1 cities to tier 2 and tier 3 citites including semi-urban and rural areas.

Intellectual Property Rights (IPR) are emerging as a strategic business tool for any business organization to enhance industrial competitiveness. Startups with limited resources and manpower, can sustain in this highly competitive world only through continuous growth and development oriented innovations; for this, it is equally crucial that they protect their IPRs. The scheme for Startup Intellectual Property Protection (SIPP) shall facilitate filing of Patents, Trademarks and Designs by innovative

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[4] Based on the information available on http://startupindia.gov.in

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Startups. Various measures being taken in this regard include (Based on Startup Benefits as mentioned on the Startupindia website)):

- Fast-tracking of Startup patent applications: The valuation of any innovation goes up immensely, once it gets the protective cover of a patent. To this end, the patent application of Startups shall be fast-tracked for examination and disposal, so that they can realize the value of their IPRs at the earliest possible.

- Panel of facilitators to assist in filing of IP applications: For effective implementation of the scheme, a panel of "facilitators" shall be empanelled by the Controller General of Patents, Designs and Trademarks (CGPDTM), who shall also regulate their conduct and functions. Facilitators will be responsible for providing general advisory on different IPRs as also information on protecting and promoting IPRs in other countries. They shall also provide assistance in filing and disposal of the IP applications related to patents, trademarks and designs under relevant Acts, including appearing on behalf of Startups at hearings and contesting opposition, if any, by other parties, till final disposal of the IPR application.

- Government to bear facilitation cost: Under this scheme, the Central Government shall bear the entire fees of the facilitators for any number of patents, trademarks or designs that a Startup may file, and the Startups shall bear the cost of only the statutory fees payable.

- Rebate on filing of application: Startups shall be provided an 80% rebate in filing of patents vis-a-vis other companies. This will help them pare costs in the crucial formative years.

In order to promote Startups, Government shall exempt Startups (in the manufacturing sector) from the criteria of "prior experience/ turnover" without any relaxation in quality standards or technical parameters. The Startups will also have to demonstrate requisite capability to execute the project as per the requirements and should have their own manufacturing facility in India.

2.4 Smart Cities[5]

Government of India has launched the Smart Cities Mission on 25 June 2015. The objective is to promote sustainable and inclusive cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a lighthouse to other aspiring cities. The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country.

Some of the core infrastructure elements in a Smart City would include adequate water supply, assured electricity supply, sanitation, including solid waste

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[5] Based on the information available at http://moud.gov.in/cms/smart-cities.php

management, efficient urban mobility and public transport, affordable housing, especially for the poor, robust IT connectivity and digitalization, good governance, especially e-Governance and citizen participation, sustainable environment, safety and security of citizens, particularly women, children and the elderly and health and education.

The strategic components of the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned human settlements, thereby, improving liveability of the whole cities. Development of well-planned and fully serviced new areas (Greenfield) will be encouraged around cities in order to accommodate the rapidly expanding population in urban areas. Application of Smart Solutions will enable cities to use technology to improve infrastructure and services. Comprehensive development in this way will improve quality of life, create employment and enhance incomes for all, especially the poor and the disadvantaged, leading to inclusive cities.

3. Policies Governing Government's Programmes and Initiatives

Though the programmes and initiatives discussed above have different elements, there are a number of government policies that form an integral part of all these programmes and initiatives. Some of these policies relevant from the perspectives of the proposed disciplines of e-commerce are discussed as below.

3.1 Open Source Software Policy[6]

Organizations worldwide have adopted innovative alternative solutions in order to optimise costs by exploring avenues of 'Open Source Software'. Government of India has also been promoting the use of open source technologies in the e- Governance domain within the country in order to leverage economic and strategic benefits. The National Policy on Information Technology, 2012 has also mentioned, as one of its objectives, to 'adopt open standards and promote open source and open technologies'.

The Policy on Adoption of Open Source Software for Government of India (Para 3: Policy Statement) states that Government of India shall endeavour to adopt Open Source Software in all e-Governance systems implemented by various Government organizations, as a preferred option in comparison to Closed Source Software (CSS). The Open Source Software shall have the following characteristics-

- The source code shall be available for the community / adopter / end-user to study and modify the software and to redistribute copies of either the original or modified software and;
- Source code shall be free from any royalty.

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[6] Based on 'Policy on Adoption of Open Source Software for Government of India'; Ministry of Communication & Information Technology

The policy shall be applicable to all Government Organisations under the Central Governments and those State Governments that choose to adopt this policy (Para 5: Applicability). All Government Organizations, while implementing e-Governance applications and systems must include a specific requirement in Request for Proposal (RFP) for all suppliers to consider OSS along with CSS while responding. Suppliers shall provide justification for exclusion of OSS in their response, as the case may be. Government Organizations shall ensure compliance with this requirement and decide by comparing both OSS and CSS options with respect to capability, strategic control, scalability, security, life-time costs and support requirements (Para 6: How to comply).

3.2 Internet of Things/Machine to Machine (M2M) Learning Policy[7]

The Internet of Things (IoT)/Machine to Machine Learning (M2M)[8] ecosystem is composed of a large number of diverse players, deploying innovative services across different networks, technologies and devices. Internet of Things involves three distinct elements:

- The sensors which collect data (including identification and addressing the sensor/device);
- An application which collects and analyzes this data for further consolidation and;
- Decision making and the transmission of data to the decision-making server. Analytical engines, actuators and Big data may be used for the decision making process.

With traditional revenue streams getting saturated in most markets around the world, M2M holds the promise of generating new avenues for revenue generation for Telecom Service Providers (TSPs)/ Internet Service Providers (ISPs) as well as opening new business opportunities for new service providers. Machine to Machine communication will challenge companies to be innovative in the same way as mobile internet did. Given the diverse nature of M2M applications, some sectors will be more successful/ innovative and emerge as winner than other sectors. Current applications of M2M cover many areas and can be broadly grouped as below:[9]

(a) Transportation & Automotive: Possible M2M applications in the transportation and automotive sectors include Fleet management Services, Vehicle driver performance, fuel consumption, Container/ Cargo management, GPS tracking, E-Toll, Vehicle information to third parties, Prevention of Vehicle Theft, Traffic control, Smart Parking, Emergency call (eCall) etc.

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[7] Based on 'Draft Policy on Internet of Things- 2015'; Ministry of Communication and Information Technology, Government of India

[8] Machine-to-Machine (M2M) communications and Internet of Things (IoT) are terms used interchangeably. However, M2M is only a subset of IoT. IoT is a more encompassing phenomenon because it also includes Human-to-Machine communication (H2M).

[9] Based on National Telecom M2M Roadmap, May 2015, Department of Telecommunications, Government of India

(b) Utilities: M2M applications in this domain will be used to monitor and control the generation, transmission, distribution and consumption by employing intelligent devices. The utility companies (electricity, water, gas etc.) deploy intelligent/prepaid metering services by installing M2M communication modules on metering devices which can send information automatically or on demand to a server application. Smart meters – water, energy & fuel consumption for home & industry, smart grid - monitor load in real time, Electric Vehicle Charging Infrastructure are a few examples under this category.

(c) Financial Transactions in Retail: In the case of remote located wireless/wired Point of Sale (PoS) terminals i.e. ATM machines (cash replacement, repair diagnostics, paper availability etc.), M2M modules are installed to provide communication for credit or debit card on-line financial transactions. A number of countries are using PoS integrated with government taxation system to monitor real time sales to stop possible leakage of Tax revenue.

(d) Home/Buildings: Home /Building Automation deploy M2M modules & sensors in various utilities available in Home to measure/ control energy, home health monitoring, HVAC, lighting, solar energy, wind energy and Building alarms - security, fire, intrusion, emergency.

(e) Security and Surveillance: Applications in use are Alarm System Monitoring, Video Surveillance, real time monitoring, video analytics, in banking, retail, buildings in addition to smart cards and Facility management.

(f) Manufacturing: Widely used Customized solutions in Asset management, smart sensors, Monitor/ diagnostics for industrial controllers, Tank Monitoring, Data collection, diagnostics for managed print services.

(g) Healthcare: Smart body sensors, Remote patient monitoring of residential/ institutional, communicate with smart phone and central server. M2M can be used in primary health centres in rural areas to enable speedy diagnosis and timely treatment.

(h) Consumer Electronics: Use cases include Remote monitor and control, interoperability between e-Readers, Gaming Devices, Picture Frames, TVs and Refrigerators etc.

(i) Other Sectors: Provision of services for public sector and transportation such as traffic monitoring, parking permit machine, traffic signalling, street light control, Public Distribution System, Agriculture & Animal Husbandry, Mining, Conservation of wild life, Conservation of forests, pollution monitoring of water bodies, weather stations, disaster management, etc.

The Indian Government's plan of developing 100 smart cities in the country could lead to a massive and quick expansion of IoT in the country. The launch of the Digital India Programme of the Government, which aims at 'transforming India into digital empowered society and knowledge economy' will also provide the required impetus for development of the IoT industry in the country. The various initiatives proposed to be taken under the Smart City concept and the Digital India Programme to setup

Digital Infrastructure in the country would help boost the IoT industry. Some of the key aspects of a smart city will be: Smart parking; Intelligent Transport System; Smart urban lighting; Waste management; Smart city maintenance; Tele-care; Citizen safety; Smart Grid; Smart Energy; and Water Management (Para 1.4 of the Draft IoT Policy, 2015).

To facilitate the development of IoT in India, the government has released a draft policy in 2015.The salient points of this draft policy (Para 5.3: Standards and Para 5.5: Incentives and Engagements) are enumerated as under-

- To facilitate global and national participation of industry and research bodies with relevant global SSOs (Service Setting Organizations) for promoting standards around IoT technologies developed in the country.
- To appoint relevant nodal organization for driving and formalizing globally acceptable standards relating to technology, process, interoperability and services like: IoT standardization; spectrum energy communication protocols standards; standards for communication within and outside the cloud; international quality/integrity standards for data creation, data traceability; standards for energy consumption; device security and safety standards (for example: protection to humans from EMF and other health hazards); data privacy, data accuracy & integrity and security standards. The privacy laws to be made congruent with the evolving IoT paradigm.
- To promote venture funds specifically directed to support companies in IoT related domains like memory, processor, sensors, low power devices and solar electronics. This will be in the form of low/ zero cost funding of eligible projects, giving priorities to start-ups.
- To launch a program to be driven by an existing/ new society through promotion of exports from the IoT products and services by facilitating space requirement and strengthening the communication infrastructure at a subsidized rate for setting up IoT development Centers in the country. This program would aim at providing the following benefits:
    - Imports of capital goods/ raw materials required for manufacturing IoT products imported with a duty benefit of up-to 100%.
    - Capital goods/ raw materials purchased from domestic market will be entitled for reimbursements of excise duty and CST.
    - For developing IoT centers, space & Internet would be made available at subsidized rates
- Government of India's incentives on IoT products in its M-SIPS policy[10] to continue as an independent initiative over and above this policy.

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[10] Modified Special Incentive Package Scheme (M-SIPS) was notified on 27.7.2012 to offset disability and attract investments in Electronic manufacturing. The scheme is available for both new projects and expansion projects. It provides capital subsidy of 20% in SEZ (25% in non-SEZ) for units engaged in electronics manufacturing. It also provides for reimbursements of CVD/ excise for capital equipment for the non-SEZ units. For some of the high capital investment projects, it provides for reimbursement of Central Taxes and Duties. The incentives are provided on reimbursement basis. Units all across the

- Preferential market access will be extended to domestic manufacturers of IoT solutions mutatis-mutandis.
- To facilitate development of IoT solutions with relevant changes in telecom policies for ensuring robust security and privacy.

It must be noted that M2M/IoT is in evolving stage in India. Various M2M architectures may have different kinds of implementations and devices may have various connectivity arrangements like SIM-based, wireline-based & wireless arrangements. Each of these may have different policy and regulatory implications. The National Telecom M2M Roadmap of May 2015 (Para 4.2.7: Location and Connectivity Guidelines) stated that from security perspective, there is a strong case for all M2M Gateways and application servers, servicing the customers in India, to be physically located in India. But M2M service Provider (MSP) with small customer base in the country may find it difficult to have complete back-end technical setup due to lack of economy of scale. Also, trade reciprocity, privacy, non-disclosure conditions etc. may require us to have view based on practices adopted by other countries in this regard. Decision regarding location of servers in various other services i.e. e-mail, social media etc. is likely to have a bearing on M2M services as well. All such relevant factors need consideration and physical location shall be in consonance with decisions in other services.

3.3 Cyber Security Policy[11]

The cyber security policy caters to the whole spectrum of ICT users and providers including home users and small, medium and large enterprises and Government & non-Government entities. It serves as an umbrella framework for defining and guiding the actions related to security of cyberspace. It also enables the individual sectors and organizations in designing appropriate cyber security policies to suit their needs.

The policy provides an overview of what it takes to effectively protect information, information systems & networks and also gives an insight into the Government's approach and strategy for protection of cyber space in the country. It also outlines some pointers to enable collaborative working of all key players in public & private to safeguard country's information and information systems. The salient points of this policy are enumerated as under (Para IV A: Creating a Secure Cyber System and Para IV C: Encouraging Open Standards) -

- Encourages all organizations to develop information security policies duly integrated with their business plans and implement such policies as per international best practices. Such policies should include establishing standards and mechanisms for secure information flow (while in process, handling, storage & transit), crisis management plan, proactive security posture assessment and forensically enabled information infrastructure.

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manufacturing value chain are covered under the scheme. The scheme was initially opened for 3 years till 26-07-2015. The scheme was amended on August 3, 2015 and the term of the scheme has been extended upto 27-07-2020.

[11] Based on 'National Cyber Security Policy -2013'

- To provide fiscal schemes and incentives to encourage entities to install, strengthen and upgrade information infrastructure with respect to cyber security.
- To encourage entities to adopt guidelines for procurement of trustworthy ICT products and provide for procurement of indigenously manufactured ICT products that have security implications.
- To create infrastructure for conformity assessment and certification of compliance to cyber security best practices, standards and guidelines (Eg. ISO 27001 ISMS certification, IS system audits, Penetration testing / Vulnerability assessment, application security testing, web security testing).
- To encourage use of open standards to facilitate interoperability and data exchange among different products or services.
- To develop a dynamic legal framework and its periodic review to address the cyber security challenges arising out of technological developments in cyber space (such as cloud computing, mobile computing, encrypted services and social media) and its harmonization with international frameworks including those related to internet governance.
- To encourage research & development to produce cost-effective, tailor-made indigenous security solutions meeting a wider range of cyber security challenges and target for export markets.

3.4 Policy on Open Standards for e-Governance[12]

The Policy on Open Standards for e-Governance provides a framework for the selection of standards to facilitate interoperability between systems developed by multiple agencies. It provides organizations the flexibility to select different hardware and software for implementing cost-effective e-Governance solutions. It, therefore, promotes technology choice, and avoids vendor lock-in. It aims for reliable long-term accessibility to public documents and information in Indian context (Para 1: Objective).

They shall be applicable at interface and data archival level of all systems used for e-Governance. They shall be applicable to all prospective e-Governance systems including businesses (G2G, G2B, G2E and G2C) from the date they come into effect.

According to this policy, Government of India shall adopt Single and Royalty-Free (RF) Open Standard progressively for a 'specific purpose with in a domain' to meet the laid down objectives of the Policy. The Open Standard shall have the following characteristics:

- Specification document of the identified standard shall be available with or without a nominal fee.
- The patent claims necessary to implement the identified standard shall be made available on a royalty-free basis for the life time of the standard.

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[12] Based on 'Policy on Open Standards for e-Governance', Version 1.0, November 2010; Ministry of Communication and Information Technology, Government of India

- Identified standard shall be adopted and maintained by a not-for-profit organization, wherein all stakeholders can opt to participate in a transparent, collaborative and consensual manner.
- Identified standard shall be recursively open as far as possible.[13]
- Identified standard shall have technology-neutral specification.[14]
- Identified standard shall be capable of localization support, where applicable, for all Indian official languages for all applicable domains.

3.5 Policy on Universal Electronic Accessibility[15]

The National Policy on Electronic Accessibility recognizes the need to eliminate discrimination on the basis of disabilities and to facilitate equal access to electronics & ICTs. The National Policy also recognizes the diversity of differently-abled persons and provides for their specific needs. The Policy covers accessibility requirements in the area of Electronics & ICT. It recognizes the need for ensuring that accessibility standards and guidelines and universal design concepts are adopted and adhered to.

The scope of the policy covers technological aspects including access to electronics & ICTs products (both hardware & software) and services by differently-abled persons in the areas of universal design, assistive technology and independent living aids.

Some of the key features of the policy are enumerated as below (Para 6.4: Accessibility Standards, Para 6.7: Procurement Strategy and Para 6.8: Affordable Access) -

- Accessibility Standards and Guidelines be formulated or adapted from prevailing standards in the domain including W3C accessibility standards and guidelines such as given below amongst others:
  - o ATAG (Authoring Tools Accessibility Guidelines)
  - o WCAG 2.0 (Web Content Accessibility Guidelines)
  - o UAAG (User Agent Accessibility Guidelines)
- In addition to the government web sites and those dealing with the disabilities issues, accessibility compliance of citizen centric sites shall be monitored and due diligence shall be maintained by thoroughfare traffic and consumer transaction sites of high impact to the public.
- Electronics & ICTs procurement guidelines and processes to be evolved to confirm to this Policy. Incentives to be provided to facilitate procurement of Universal accessibility products and solutions.
- Schemes to be formulated for affordable access to electronics & ICTs for differently-abled persons in rural as well as urban areas.
- Open source usage to be promoted.

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[13] It means that the mandatory characteristics are applicable recursively to the normative references of the Identified Standard i.e. standards which are essential for the implementation of the Standard of a particular version of the Standard.

[14] Technology neutral specifications are platform independent, where platform can be Operating System/Hardware/Data transmission devices, etc.

[15] Based on 'National Policy on Universal Electronic Accessibility'

3.6 Policy on Cloud Services

In order to utilize and harness the benefits of Cloud Computing, Government of India has embarked upon a very ambitious and important initiative – 'GI Cloud' which has been coined as MeghRaj. The focus of this initiative is to evolve a strategy and implement various components including governance mechanism to ensure proliferation of Cloud in government.

Ministry of Electronics and Information Technology (MeitY) has announced MeghRaj Policy to provide strategic direction for adoption of cloud services by the Government. The aim of the cloud policy is to realize a comprehensive vision of a government private cloud environment available for use by central and state government line departments, districts and municipalities to accelerate their ICT-enabled service improvements. MeghRaj policy of MeitY states that "Government departments at the Centre and States to first evaluate the option of using the GI Cloud for implementation of all new projects funded by the government. Existing applications, services and projects may be evaluated to assess whether they should migrate to the GI Cloud."

At the same time, taking demand into consideration, MeitY proposed empanelment of the cloud service offerings of service providers that the end-user departments can leverage in addition to the National Cloud services offered by NIC for their e-governance solutions. The cloud service providers offerings, data centers and their deployment models should be in adherence to the requirements as set out in the May 2017 document 'Invitation for Application/Proposal for Empanelment of Cloud Service Offerings of Cloud Service Providers (CSPs)' of MeitY. Three important requirements (Para 5.7: Data Center Facilities Requirements) from the perspective of this paper are listed as below-

- CSP should adhere to the relevant standards published (or to be published) by MeitY or any standards body setup / recognized by Government of India and notified to the CSP by MeitY as a mandatory standard.
- The data center facilities and the physical and virtual hardware should be located within India.
- The Network Operations Center (NOC) and Security Operations Center (SOC) facility must be within India for the Cloud Environments.

4. Interface of Proposed E-commerce Disciplines with Government's Policies and Programmes

As mentioned earlier, there is a flurry of proposals on e-commerce at the WTO that propose various elements for e-commerce discussions and negotiations. These elements have direct or indirect interface with the government policies discussed in the previous sections, and hence may affect the implementation of programmes and digital initiatives of the government. This section analyses the interface of the proposed e-commerce disciplines with the policies governing various programmes and digital initiatives of Government of India. It may be noted that while analyzing

such interface, relevant disciplines in TPP chapters on e-commerce, telecommunications, and intellectual property have also been taken into consideration as these elements are also likely to slip through negotiations on e-commerce, if they happen.

4.1 Source Code

The US non-paper on e-commerce mentioned that innovators should not have to hand over their source code or proprietary algorithms to their competitors or a regulator that will then pass them along to a State-owned enterprise. It further stated that it is important to ensure that companies do not have to share source code, trade secrets, or substitute local technology into their products and services in order to access new markets, while preserving the ability of authorities to obtain access to source code in order to protect health, safety, or other legitimate regulatory goals. TPP also has the similar kind of obligations for protecting source code.

Though some carve outs are available from these provisions for government procurement, it is nullified by the provisions of the TPP chapter on Intellectual Property. The Article 18.80 (2) of the Intellectual Property chapter states that each Party shall adopt or maintain appropriate laws, regulations, policies, orders, government-issued guidelines, or administrative or executive decrees that provide that its central government agencies use only non-infringing computer software protected by copyright and related rights, and, if applicable, only use that computer software in a manner authorised by the relevant licence. These measures shall apply to the acquisition and management of the software for government use.

The Open Source Industry Australia Ltd (OSIA) has raised concerns with respect to implications of the Article 18.80 (2). In its submission to the Senate Standing Committee on Foreign Affairs, Defence & Trade, the OSIA asserted that by requiring that "central government agencies use only non-infringing computer software protected by copyright and related rights", Article 18.80(2) effectively prohibits governments from using any software that is in the public domain (since, by definition, works in the public domain are no longer subject to copyright).[16]

The non-infringing computer software could be understood as Closed Source Software, though it is not explicitly mentioned in the TPP chapter on Intellectual Property. It is evident that the provisions on source code would prohibit Government of India to implement its policy of promoting and adopting open source software. Not only the Policy on Open Source Software but also other policies pertaining to digital economy, such as Policy on Universal Electronic Accessibility, have provisions that direct use of open source software. Thus, the proposed elements on e-commerce on source code will undermine the Government of India's objective of promoting open source software in various aspects of digital economy, be it Digital India, Make in India, or Smart Cities.

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[16] Open Source Industry Australia Ltd (OSIA), 'Submission to the Senate Standing Committee on Foreign Affairs, Defence & Trade regarding the Trans Pacific Partnership', October 26, 2016, http://www.osia.com.au/drupal7/sites/default/files/default/osia_sub_201610_sscfadt.pdf

4.2 Localization of Servers

The US non-paper intends to prevent localization barriers as it requires that companies and digital entrepreneurs relying on cloud computing and delivering Internet-based products and services should not need to build physical infrastructure and expensive data centers in every country they seek to serve. TPP also has provisions on this aspect and states that no Party shall require a covered person to use or locate computing facilities in that Party's territory as a condition for conducting business in that territory.

Economists from London School of Economics, Azmeh and Foster (2016) have argued that it is important to consider not only the direct investment benefits of hosting data centers, but also their wider economic and technological impacts. While there may be some economic costs to countries of adopting "data localization" rules, investments in the sector has direct benefits to the economy in terms of FDI, skilled and relatively highly paid job opportunities, and taxes. Developing a data industry is as an important part of the development of a digital industry. Investments by leading firms in a location can lead to virtuous circles of new data centers alongside connectivity, skilled staff which support clustering effects that can support the emergence of hi-tech capacity in nations.

Though the central Government does not have any specific policy that mandates localization of servers, forgoing government's right to mandate localization may be detrimental to 'Make in India' programme. If such flexibility is foregone by the government, it may not be able to impose localization as a condition for foreign companies to operate in India in the domain of e-commerce. As most of the big foreign e-commerce companies are interested in tapping Indian market, server localization could be a good option for domestic economic activities and employment generation.

It must be noted that the MeitY terms and conditions for the empanelment of Cloud Service Offerings of Cloud Service Providers (CSPs), as highlighted in the previous section, require that the data center facilities and the physical and virtual hardware of CSPs should be located within India. The Network Operations Center (NOC) and Security Operations Center (SOC) facility must also be within India for the Cloud Environments. Thus, the proposed discipline that prevents governments from mandating localization of servers would prohibit MeitY to enforce these terms and conditions.

Apart from this, localization may also be required in future for national security or consumer protection purposes as well as from a dispute resolution perspective. Cloud computing is rapidly gaining popularity among service providers, which raises important questions regarding accountability of service providers having servers outside India. Any dispute pertaining to data/server will be subject to the rules of the territory where the server is located. It implies that if a member's data is stored in servers located outside its territory, it is subject to the jurisprudence of that country where the server is located. For instance, Smart Cities use real time traffic data for

smooth management of traffic on roads (See Box-1). This data is stored in a centralized server which may be located out of country. Having no control or only a limited control over such data in the absence of localization requirements may be detrimental to national security. It is a question that needs to be pondered upon that if a breach of data security happens from servers located outside the territory of India, how the government will ensure its cyber security policy. It is to be noted that the policy on cyber security intends to protect information, information systems & networks and cyber space in the country and not out of the country.

Box 1: Smart Cities and Traffic Management System

- Sensors connected to traffic signal keep sending information to a central server on number of vehicles piling.
- Analytics platform gets real-time data from sensors, traffic signals within 2km of intended junction & GIS mapping of roads.
- When a threshold is reached, analytics software sends a message to traffic display 1km before the signal.
- Motorists driving towards signal are asked to divert to another road.
- When number of vehicles at signal decrease below threshold, message flashed on display stops urging drivers to drive towards signal.
- Installing similar system across city makes all signals congestion free.

Source: Smart Traffic Management With Real Time Data Analysis;
http://www.cisco.com/c/en_in/about/knowledge-network/smart-traffic.html

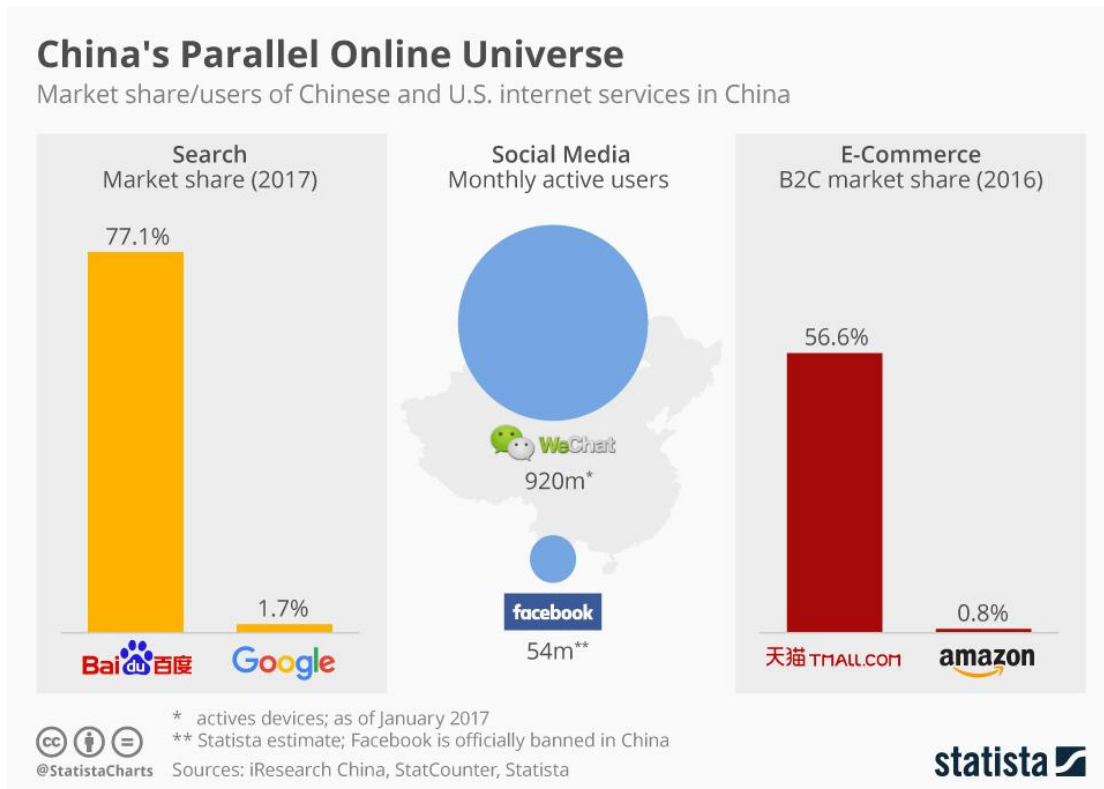## 4.3 Non-Discriminatory Treatment

The US non-paper argues that rules that make clear that the principles of national treatment and MFN apply to digital products can contribute directly to stability in the digital economy. TPP also includes a provision that requires no Party shall accord less favourable treatment to digital products created, produced, published, contracted for, commissioned or first made available on commercial terms in the territory of another Party, or to digital products of which the author, performer, producer, developer or owner is a person of another Party, than it accords to other like digital products.

According to Data Journalist Felix Richter, U.S. companies such as Google, Facebook and Amazon are so dominant in their respective fields, that most people consider them global market leaders. However, one major market where the internet looks entirely different and hardly anyone uses the services that are ubiquitous in the Western world is China. This is a result in part of discriminatory censorship practices by the Chinese government and in part by cultural differences. The following graph shows some of the companies that dominate the Chinese internet economy and how they compare to their counterparts from Silicon Valley and other parts of the United States.[17]

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[17] Felix Richter (2017), 'Internet services in China: China's Parallel Online Universe', August 16, 2017, https://www.statista.com/chart/10706/online-services-in-china/

Graph 1: China's Parallel Online Universe

Source: Reproduced from https://www.statista.com/chart/10706/online-services-in-china/

The digital industry in India is in a nascent and evolving stage. In order to promote the digital economy and innovation, the government may be required to give preferential treatment to domestic players. This is also evident from various policies of Government of India that explicitly mention giving preferential treatment and incentives to domestic players. For instance, Draft IoT policy has mentioned that capital goods/ raw materials purchased from domestic market for IoT will be entitled for reimbursements of excise duty and CST. For developing IoT centers, space & Internet would be made available at subsidized rates and preferential market access will be extended to domestic manufacturers of IoT solutions. Similarly, the cyber security policy intends to produce cost-effective, tailor-made indigenous security solutions meeting a wider range of cyber security challenges and target for export markets.

Similarly, in order to promote startups, Government gives preferential treatment and incentives to startups by bearing facilitation cost and providing rebate on filing of patent application. Manufacturing sector startups are exempted from the criteria of "prior experience/ turnover" without any relaxation in quality standards or technical parameters. However, the startups should have their own manufacturing facility in India.

An important but relatively less explored aspect of e-commerce is the payment system. The card network segment of the payment system is dominated by Visa,

MasterCard and AMEX in India and RuPay (an Indian brand launched in 2012), is a new incumbent to this group. In a communique to banks in June 2014, the government urged CEOs of public sector banks to issue RuPay cards to all existing customers who do not have debit cards as well as to new clients. Banks have also been told to encourage merchant establishments to install point of sale terminals for RuPay cards. While banks have not been instructed to refrain from issuing cards where transactions are processed by Visa or MasterCard, there is a clear direction to promote RuPay.[18]

As the proposed discipline on non-discriminatory treatment erodes policy space available with the government for giving preference to indigenous products and suppliers in the sphere of digital economy, the government may not be able to promote domestic industry in various segments of e-commerce in future if such disciplines come into existence.

4.4 Cross-Border Data Flows

The US non-paper stipulates that companies and consumers must be able to move data as they see fit. It further states that many countries have enacted rules that put a chokehold on the free flow of information, which stifles competition and disadvantages digital entrepreneurs. Appropriately crafted trade rules can combat such discriminatory barriers by protecting the movement of data, subject to reasonable safeguards like the protection of consumer data when exported. TPP e-commerce chapter also requires that each member shall allow the cross-border transfer of information by electronic means, including personal information, when this activity is for the conduct of the business of a covered person.

Azmeh and Foster (2016) argued that erecting barriers which prevent access and cross-border flows of data can provide potential for local firms to grow without early competition from mature international firms, and may helpful in nurturing infant industries in the digital sector. Based on Chen (2015) work, they highlighted the example of China's restrictions on access to a large number of websites (Facebook, Twitter, YouTube, Instagram, Dropbox, amongst others) that led to the rapid rise of Chinese web- giants - such as Ali Baba and TaoBao (e-commerce sites), Weibo (Twitter-like service), Baidu (Search engine), and Tencent (social networking).

These provisions would grant businesses the freedom to locate data storage and processing to any other jurisdiction without any limitation. This may undermine the flexibilities and policy space available under the existing cyber security policy which intends to develop a dynamic legal framework and its periodic review to address the cyber security challenges arising out of technological developments in cyber space (such as cloud computing, mobile computing, encrypted services and social media)

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[18] Based on 'Government asks PSU banks to issue RuPay debit cards to customers, install POS terminals', July 04, 2014,
http://economictimes.indiatimes.com/industry/banking/finance/banking/government-asks-psu-banks-to-issue-rupay-debit-cards-to-customers-install-pos-terminals/articleshow/37736237.cms

and its harmonization with international frameworks including those related to Internet governance.

In this context, it must be noted that the Supreme Court of India has set-up five-judge bench in April 2017 to decide on the petition challenging the privacy policy of WhatsApp on sharing data with its parent company Facebook. Under WhatsApp new privacy policy, the company will share some user data, including phone number of the user, with its parent company Facebook.[19]

The Telecom Regulatory Authority of India (TRAI) in its consultation paper on 'Privacy, Security and Ownership of the Data in the Telecom Sector'[20] also mentioned that the issues of cross-border transfer of data and exercise of jurisdiction over service providers that do not have a direct presence in the country are becoming increasingly relevant in the context of digital data. According to this consultation paper, the rationale for government intervention in this sphere arises on account of three key reasons to prevent harm to consumers. First, there is often an information asymmetry between the consumer and the data user on account of the under-estimation by consumers about the value of their personal data and ignorance about the scale and use of the data being collected and its use. The ability of data collectors to unilaterally change their privacy policies also contributes to this asymmetry. Second, is the problem of bounded rationality, which often leads consumers to underestimate the long term consequences of their actions while consenting to share their personal information in the course of availing specific products or services. Third is the problem of a data monopoly. Since the service providers, through the provision of service generate and hold the data, it gives them an advantage, which they can use to get into adjacencies (and thus extending their monopoly).

Apart from the data privacy and cyber security issues, there also exist commercial issues that should not be overlooked by the government. In the present age, almost each action of individuals, businesses, and governments, whether a simple online search, a social media activity, an online transaction, or a movement on road with GPS enabled device, generates data. According to the IBM report '10 Key Marketing Trends for 2017 and Ideas for Exceeding Customer Expectations', ninety percent of the data in the world today has been created in the last two years alone with new data being added to this pool at the rate of approximately 2.5 quintillion bytes of data every day.[21]

This data contains important information for business decisions. For instance, Smart Cities will generate a huge amount of data from the entire city eco-system, such as on air pollution and resource depletion, public transport and last mile para-transport

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[19] Based on 'WhatsApp privacy: Supreme Court sets up 5-judge bench to hear plea challenging the policy', http://indiatoday.intoday.in/story/supreme-court-whatsapp-facebook-privacy-policy-challenged/1/920824.html; last accessed on May 03, 2017

[20] Telecom Regulatory Authority of India (TRAI) (2017), 'Privacy, Security and Ownership of the Data in the Telecom Sector', August 09, 2017

[21] IBM (2017), '10 Key Marketing Trends for 2017 and Ideas for Exceeding Customer Expectations', https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=WRL12345USEN

connectivity, playgrounds and recreational spaces in order to enhance the quality of life of citizens. If servers are located outside India, such data need to be processed outside India. The pertinent questions in this regard are - Should data having such high commercial value be transferable freely across borders? Will this benefit only multinational companies operating across borders or are there any gains to Indian companies from such free cross-border transfer of data?

The proposed provisions in the US non-paper and TPP would undermine the ability of governments to secure their citizens' data against unauthorized or unlawful processing or accidental loss or destruction of, or damage to, personal data in these contexts. By agreeing to allowing free flow of cross-border data, the government would not be able to impose any restrictions on cross-border data flows, whether business to business (B2B) or business to consumer (B2C).

4.5 Spectrum Allocation

TPP chapter on telecommunication services requires that each Party shall administer its procedures for the allocation and use of scarce telecommunications resources, including frequencies, numbers and rights-of-way, in an objective, timely, transparent and non-discriminatory manner.

On the other hand, spectrum allocation by the Government of India requires that an applicant for spectrum allocation must be an Indian company, which seems to be a de facto discriminatory requirement.[22] The Notice Inviting Application (NIA) document for auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz & 2500 MHz Bands required that any foreign applicants will need to form or acquire an Indian company, to obtain a Unified License. However, they are allowed to participate in the auctions directly and apply for a Unified License subsequently through an Indian company, where they hold equity stake, with a maximum foreign equity up to 100% as per extant guidelines.[23] Similarly, the guidelines for grant of unified license to Virtual Network Operators (VNOs) require that the applicant must be an Indian company registered under the Indian Companies Act, 2013.

This requirement of being an Indian company could also be relevant for the implementation of the IoT policy in India as Machine to Machine Learning (M2M) is based on the use of both the licensed and the unlicensed spectrum. Spectrum management is an important issue for ensuring availability and capacity for M2M/IoT communications. IoT devices communicate using a range of different protocols, based on their connectivity requirements and resource constraints. These include short-range radio protocols such as ZigBee, Bluetooth and Wi-Fi; mobile phone data networks;

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[22] It could be noted that a foreign /offshore legal entity or person can act as a founder of the Indian company which will be owned 100% by the foreign citizens or companies. There is no legal requirement for one shareholder or director to be Indian citizen but the Companies Act, 2013 makes it mandatory for every company to have a Director who has stayed in India for a total period of at least 182 days in the previous calendar year.

[23] Based on 'Notice Inviting Applications For Auction of Spectrum in 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz & 2500 MHz Bands', Government of India.

and in more specialised applications such as traffic infrastructure, longer-range radio protocols such as Ultra-Narrow Band (UNB). Various spectrum bands which can be optimally used for M2M communication could be in unlicensed frequency range and/or in the licensed frequency range. If the required spectrum bands are to be in the licensed frequency rage, the foreign service providers need to be an Indian company, which is a de facto discriminatory requirement.

The requirement of being an Indian company for spectrum allocation by the Government of India is imposed for having some control on the spectrum obtaining entity. The proposed provision on spectrum allocation will curtail this flexibility available to the Government and hence it would be difficult for the Government to exercise any control on an entity which is entirely foreign based without any presence in India.

4.6 Standards

The US non-paper advocates preserving market-driven standardization and global interoperability. It mentioned that innovators should not have to design products differently for each market they seek to serve; that is why we have the global standards process, where industry leads and the best technologies win. Trade rules can help to ensure that countries cannot arbitrarily demand that less competitive national standards be forced into innovative products.

In a report published by the Centre for International Governance Innovation and Chatham House, Breznitz and Murphree (2016) highlighted that the Chinese government has attempted to set rules for technology standardization that weaken the norm of hard IP protection. China's government encouraged standards- development organizations to include standards-essential patents (SEPs) offered on a royalty-free or nominal basis before considering patented technologies or SEP-relevant protocol submissions from firms interested in maximizing the returns from licensing. The objective was to encourage firms to offer their IP inexpensively in exchange for broad promotion of the technology standards — with the idea that a larger user base would ensure both licensing revenues and income from sales of standards-compliant products. The example of China may equally be relevant for India.

Market driven standards may not be in consonance with the Government of India Policy on Open Standards. As mentioned earlier, the Open Standard shall have the characteristics such as the patent claims necessary to implement the identified standard shall be made available on a royalty-free basis for the life time of the standard; identified standard shall be adopted and maintained by a not-for-profit organization, wherein all stakeholders can opt to participate in a transparent, collaborative and consensual manner; identified standard shall be recursively open as far as possible; identified standard shall be capable of localization support, where applicable, for all Indian official languages for all applicable domains; etc. These characteristics are at variance with the market driven standards, which are profit based and would require royalty payment. Moreover, such provisions curtail the freedom of

the government to implement national standards, generally more amenable to localization support as required in the Open Standards Policy.

The Department of Telecom of the Government of India is in the process of developing 5G technology and related standards with its expected commercial launch in 2020. Some other countries such as Japan, Korea, China, EU etc. have also started working on developing 5G technology. 5G is not fully standardised yet but its key specifications and technological building blocks are already being developed and tested. 5G is considered as the core technology to enable the digital transformation of India and to further support the mission mode project such as Digital India, Smart Cities, Make in India, Swaccha Bharat etc. Therefore, it is important to develop and enforce India specific 5G standards based on the research and innovation. In accordance with this objective, MeitY is funding a collaborative research project on 5G, which is being undertaken by premier academic institutions across the country. Under the project, the partner institutes are expected to conduct advanced R&D solutions in various areas of 5G technologies. They are also expected to jointly develop advanced simulators and technology prototypes. The intellectual property rights developed in this project will be contributed for the 5G standardisation.[24]

The proposed discipline would not allow the Government to enforce these national standards even if national standards are better suited to serve various digital initiatives of the Government unless it is proved that national standards are better than the market driven standards.

4.7 Technology Transfer

The US non-paper also advocates barring forced technology transfers. It stated that requirements that make market access contingent on forced transfers of technology inhibit the development of e-commerce and a flourishing digital economy. Trade rules may be developed to prohibit requirements on companies to transfer technology, production processes, or other proprietary information. It also stated that new and innovative digital products and services should be protected against future discrimination.

Azmeh and Foster (2016) have highlighted that a key approach taken in China has been technological transfer requirements on international firms in exchange for market access, including in some areas the transfer of source code as a condition to sell to the government or to gain the relevant licenses to trade in the country. They argued that while such restrictions may be imposed for security purposes, they also drive technology transfer by forcing the seller to disclose and transfer the technology of production.

Prohibiting requirements on technology transfers is contrary to the reality present in many developing countries including India. Technology transfer and preferential

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[24] Source: 'Future of mobile telephony: With officers' training in China, India gearing up for 5G tech', Indian Express, August 09, 2017, http://indianexpress.com/article/technology/mobile-tabs/future-of-mobile-telephony-with-officers-training-in-china-india-gearing-up-for-5g-tech4788367/

treatment to domestic industry is required for the development of domestic capacity in new services and emerging technologies. It is also required to prevent market concentration in the hands of a few service providers who hold the new technologies. For instance, smart cities use a number of technology driven applications based on IoT to resolve civic problems, such as waste collection (See Box-2). At present, such technologies and services are prevalent only in a few developed countries, such as the US, the EU, and Australia etc. In the absence of technology transfer and preferences and incentives to domestic industry, smart cities in India will be perpetually dependent on foreign service providers and domestic capacity will not be built over time. Therefore, the government will be disadvantaged if it is prevented from requiring technology transfer.

Box 2: Sensor Technology and Route Optimization for Waste Collection

The ultrasonic level sensor is one type of sensor that IoT companies have put to good use. Initially designed to measure slurries and liquids, a number of businesses and municipalities are applying the sensor to measure solid waste as well. Ultrasonic level sensors work by emitting acoustic waves and then listening for an echo. Upon reaching a level surface, the waves will reflect back to the sensor with a measurement reading – similar to the process of echolocation. It could be considered as a radar system that tracks the amount of garbage in a trash can.

SmartBin, an IoT company that specializes in remote monitoring systems, is using ultrasonic level sensor technology to help Australia-based Corio Waste Management reduce unnecessary collection trips. Corio's haulers collect trash from bins spread across distances that range from six to nine miles. After a few months on the job, Corio realized they were wasting a significant amount of financial and environmental resources by sending trucks out to trash bins that were partially full or, at times, entirely empty.

To make Corio's routes more efficient, SmartBin installed fill-level sensors into the lids of waste containers across the region, giving them the tools to track the amount of garbage in each bin. With this information, Corio planned their pickup routes around the bins that were near-full and needed pickup, reducing their travel times, costs and fuel expenditure.

Source IoT and waste management: Revolutionizing an old industry; https://readwrite.com/2016/07/22/iot-and-waste-management-revolutionizing-il2/

4.8 Unsolicited Commercial Electronic Messages

An unwarranted aspect of a digital economy is unsolicited commercial electronic messages. Though the US non-paper does not have any provision on unsolicited commercial electronic messages, TPP does have such provisions. The EU Text Proposal for 'An Enabling Environment To Facilitate Online Transactions' also has such provisions and requires that Members shall adopt and maintain measures that protect consumers against unsolicited commercial electronic messages. It further requires that Members shall provide recourse against suppliers of unsolicited commercial electronic messages who do not comply with its measures and Members

shall ensure that unsolicited commercial electronic messages are clearly identifiable as such and clearly disclose on whose behalf they are made.

At present, India has a policy only for unsolicited SMSs. To regulate unsolicited commercial calls and messages, the Telecom Regulatory Authority of India (TRAI) has notified "The Telecom Commercial Communication Customer Preference Regulations, 2010". Customers (landline and mobile) who do not want to receive commercial communications can dial or SMS to 1909 (toll free) and register in either of the two categories: Fully Blocked Category- stoppage of all commercial Calls/SMS and Partially Blocked Category- stoppage of all commercial Calls/SMS except SMS from one of the opted preferences. India does not have any policy for protecting consumer against unsolicited commercial electronic messages. It must be noted that enforcement of any such policy would be a big challenge as India is not able to enforce even unsolicited commercial calls and messages policy that too sent from within India. Enforcing an all pervasive unsolicited commercial electronic messages policy that may have jurisdiction out of India would be really difficult.

6. Conclusion

The Government of India has launched a number of programmes and initiatives to make India a digital economy. It has also issued various policies and guidelines that constitute the backbone of these programmes and digital initiatives. As the digital economy of India is in an evolving state, the government requires flexibility and policy space to tailor these constituent policies to cater to the needs of an emerging economy. The proposed disciplines on e-commerce at the WTO would reduce/eliminate this policy space.

There may not be any positive impact on Indian service providers and e-commerce players from the proposed e-commerce provisions. Whatever gains can accrue to Indian players from the exponential growth of e-commerce world over will accrue even without these provisions as there is a difference between gains from e-commerce per se and the impact of WTO negotiations on e-commerce. Even without multilateral rules, global e-commerce market, including cross-border ecommerce, has shown impressive growth and will continue to grow at a faster pace in the coming few years. There is little in the proposals on e-commerce at the WTO, which could impart significant additional momentum to an already dynamic market. On the contrary, the proposed disciplines may adversely affect the growth of domestic industry by creating multinational oligarchs in the virtual world.

As discussed in the previous sections, the proposed e-commerce provisions would prohibit Government of India to implement many of its policies pertaining to digital economy. The government should not accede to any demand for starting negotiations on e-commerce given the fact that the proposed e-commerce disciplines would curtail the flexibilities available to the Government to enforce its digital policies that are formulated based on national considerations and the present status of digital economy in India.

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