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**SADC's Regional Value Chains: *Need for Cooperation
Framework for Digital Industrialisation***

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*Need for Cooperation Framework for
Digital Industrialisation*

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Presentation covers:

- SADC's Industrial Development Policy Framework-
needs a new dimension to prepare for the Industry 4.0
- Growing digitisation and new challenges
 - *Demystify Digital Economy*
 - *Implications of Digitisation for GVCs/ RVCs*
- SADC's existing digital capacity and its losing trade competitiveness
- SADC's Cooperation Framework for Digital Industrialisation- A 5 Step Approach at the regional level.

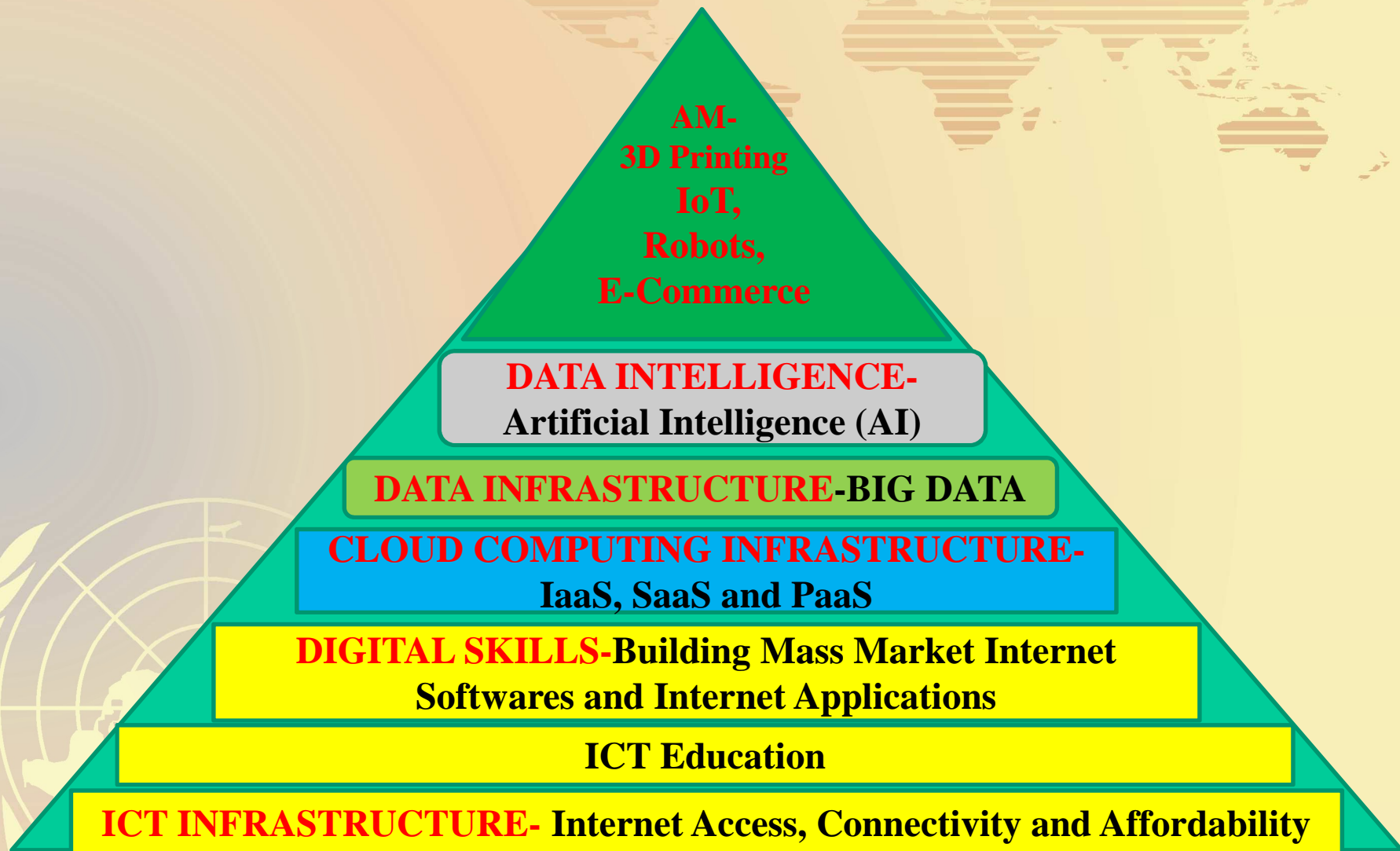
SADC's Industrial Development Policy Framework

- The framework seeks to build regional market as well as address the common challenge of industrialization through development of strategies coordinated at regional level.
- *Industrial Upgrading and Modernisation Programme (IUMP)* adopted in 2009 -objective is to promote regional value chains in 9 sectors with 3 priority sectors identified as *agro-food processing; processing of mineral products and pharmaceuticals*
- SADC together COMESA and EAC have also adopted industrial development as one of the pillars underpinning regional cooperation under the Tripartite Arrangement
 - However there is **no mention of Digital industrialization/Cooperation**

Growing Digitisation: The Fourth Industrial Revolution

- Digitization is being termed as a revolution as it affects the entire value chain of production, i.e., what to produce, how to produce and where to sell. It is also changing the way consumers take their decisions.
- It is affecting labour and capital markets disrupting the existing patterns of production, consumption, investments and international trade.
- **Governments have no choice but to act**
 - Companies have become global leaders in providing car services without owning a single car (uber), accommodation services without owning a single hotel (AirBnB) and retail services without holding any stocks (Alibaba).
 - **Digital economy is built on digital infrastructure.**

What is Digital Infrastructure?



Digital Infrastructure (DI).

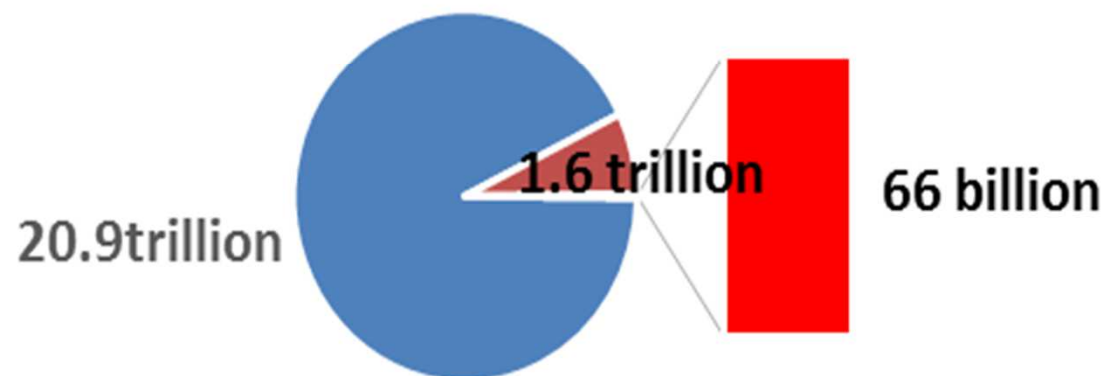
- **ICT infrastructure**;
 - internet access, connectivity and affordability forms the base upon which the digital economy is built. This is complemented by ICT education and skills.
 - The next step is building/using mass market 'internet softwares' (e.g., operating systems, office suites, etc) and 'internet applications' (e.g., search engines and social media).
- **Cloud computing infrastructure** - a soft infrastructure which can remotely provide computing services as a general utility to all internet users
 - Infrastructure as a service (IaaS),
 - Software as a service (SaaS) and
 - Platform as a service (PaaS).
- **Data Infrastructure**
 - 'Big data' and
 - 'data intelligence'

- **Digital infrastructure builds Digital Economy** as it enables transforming big data into information and knowledge that can be converted into value.-UBER
- This value which is generated from data is unique and forms the basis of 'Artificial Intelligence (AI)' producing unique products and services which are more efficient and less costly to produce and consume.
- Rise of Monopolies- GAFAA- (Google, Apple, Facebook, Amazon and Alibaba)- Ownership of data and capability of intelligently transforming Big Data into unique products which generate monopolistic power.
- **Digital Products**

Digital Products

- **DPs into three categories-** category (a) *e-commerce products*, (b) *electronically transmitted products (ET products)*; defined at the WTO as those “content-based products that were formerly delivered in tangible form but now can be delivered in electronic form via internet download” (c) remote *additive manufacturing products (AM) products* -3-D printing.
- There are no official estimates on the size of digital economy. UNCTAD has estimated the size of the e-commerce market as \$23 trillion in 2015, which amounts to around **32% of global GDP.**

Market Size of E-Commerce Products and ET Products- \$22.5 Trillion (2015)



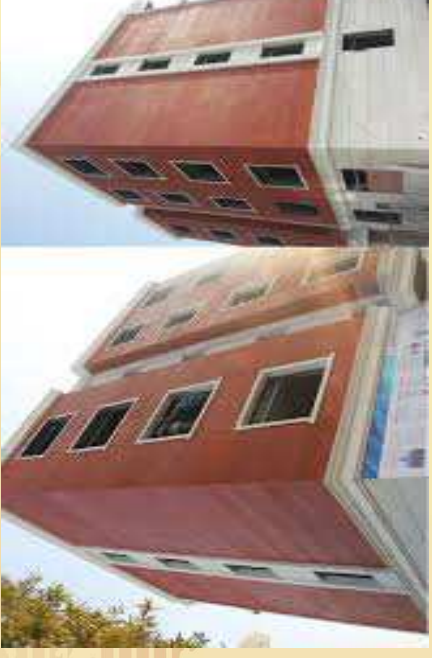
- Domestic E-Commerce
- Cross Border E-Commerce
- Trade in Digitalised Products through Electronic Transmission

These estimates do not include AM products or AI products.

Additive Manufacturing (3D Printing)

Digital Products of the Future

- A Chinese company based in Suzhou has built 10 full-sized eco-friendly houses in just one day using 3D printing, costing \$4,800 USD each. The architectural plan was in a CAD file.
- 98% of hearing aids worldwide are being manufactured using 3D printing.
- Other 3-D printing products include- cars; a working Gun; guitar; camera lens; i-phone cases; i-pad cases; lamps; clocks; coffee cups; high heel shoes; printed fabrics (source: <http://www.hongkiat.com/blog/3d-printings>)
- Amazon, is building a fleet of drones to deliver products.



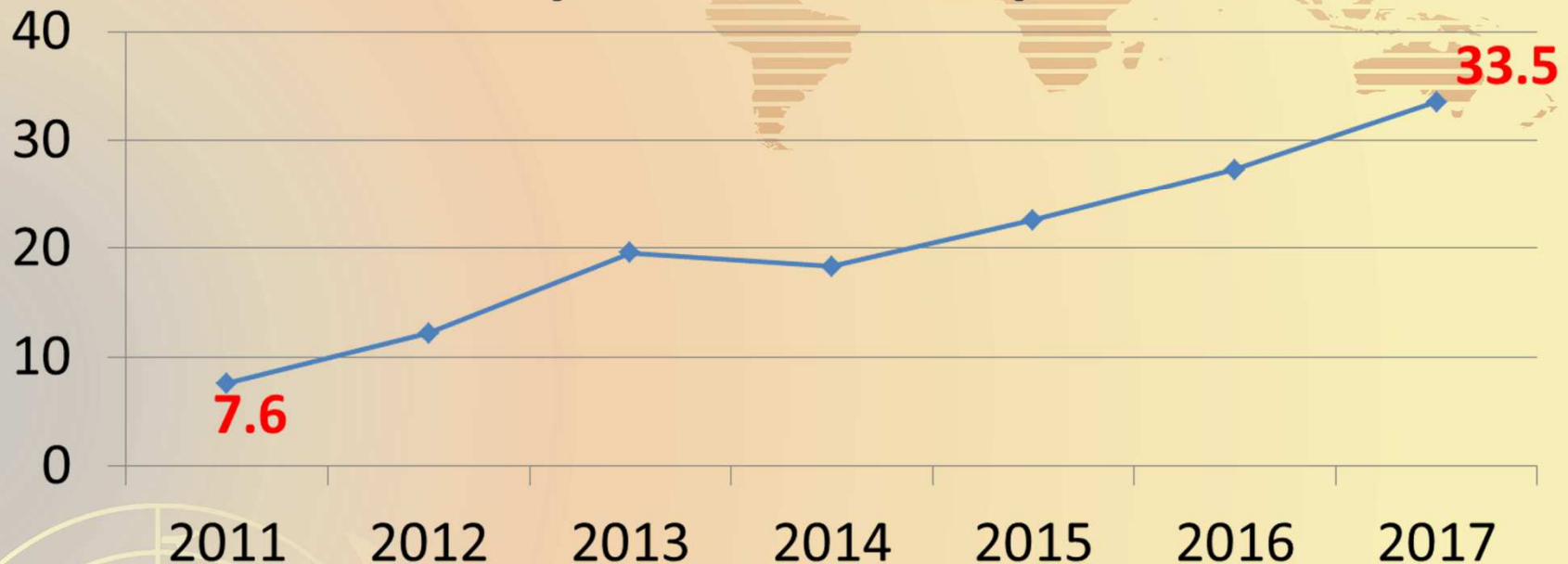
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How big is the Digital Economy: *Who is Leading?*

- USA leads the global digital economy. According to Accenture (2016), the digital economy in the USA was valued around \$6 trillion in 2015, which equals 33% of its GDP with 43% of employment in the USA's workforce being digital.
- This is followed by UK with size of the digital economy being 30% of GDP,
- Australia (28% of GDP),
- France and Germany (25% of GDP).
- Amongst the 11 countries analysed, the compound growth rate in digitalisation is predicted to be highest in China for the period 2015 to 2020.

'Big Data' Market Revenue (in Billion USD)

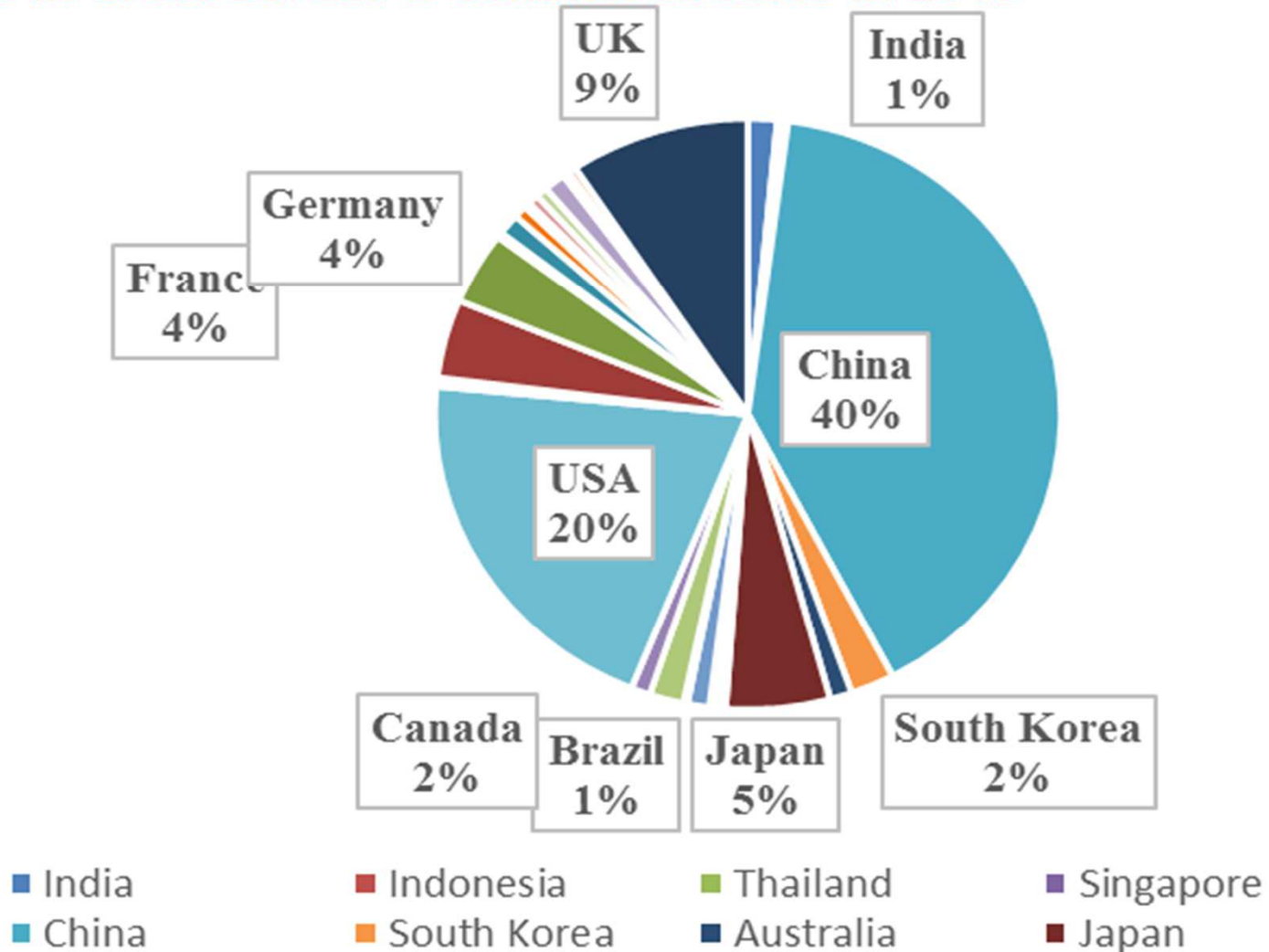


Source: Statista 2017

According to Universal Parcel Services CBEC is growing faster than global GDP, global retail sales and domestic e-commerce; growing at a rate of 26% p.a!

Growing Cross Border E-Commerce: *Who Benefits?*

Share in Cross Border E-Commerce Sales in 2015



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Digital Competitiveness of SADC Countries

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Electronically Transmitted Products (ET)

- UNCTAD (2000) identified these products in HS1996 codes under the chapters- HS37 (films); HS49 (printed matter); HS8524 (sounds and media); HS8524 (software); HS9504 (video games).
- Using the concordance matrices between HS1996-2007-2012-HS 6-digit codes have been identified for DPs (**38 products identified**).

Exports and Imports of ET Products in 2015 (in 1000 USD)

Reporter Name	Imports2015	Exports2015	Net Exports
South Africa	294,955	82,521	-212,433
Botswana	20'747	707	-20'040
Madagascar	28'556	5'645	-22'911
Malawi	70'009	768	-69'240
Mauritius	14'129	23'422	9'293
Mozambique	48'522	989	-47'533
Seychelles	4'180	46	-4'134
Tanzania	21'794	1'225	-20'569
Zambia	30'846	54'216	23'370
Zimbabwe	35'546	237	-35'309

E Commerce (B2C) Preparedness Index

- Out of 144 countries, most of the SADC members are less competitive than 100 countries

Angola	120
Botswana	72
Congo	131
Lesotho	121
Madagascar	137
Malawi	128
Mauritius	57
South Africa	54
Swaziland	109
Tanzania, United Republic of	102
Zambia	107
Zimbabwe	101

S.No	Internet Penetration Rate 20% to 40%	Internet Penetration Rate 10% to 20%	Internet Penetration Rate Less than 10%
1	Guyana	Algeria	Solomon Islands
2	Grenada	Nicaragua	Liberia
3	El Salvador	Uganda	Congo
4	Bhutan	Zambia	Togo
5	Mongolia	Tajikistan	Comoros
6	India	Cameroon	Afghanistan
7	Kyrgyzstan	Pakistan	Malawi
8	Egypt	Nepal	Mozambique
9	Cuba	South Sudan	Benin
10	Micronesia	Mauritania	Tanzania
11	Vanuatu	Gambia	Central African Republic
12	Syria	Laos	Madagascar
13	Sri Lanka	Namibia	Ethiopia
14	Samoa	Turkmenistan	DR Congo
15	Ghana	Bangladesh	Guinea-Bissau
16	Swaziland	Iraq	Chad
17	Guatemala	Kiribati	Myanmar
18	Sudan	Rwanda	Sierra Leone
19	Sao Tome and Principe	Mali	Niger
20	Yemen	Haiti	Guinea
21	Senegal	Papua New Guinea	Somalia
22	Angola	Djibouti	Burundi
23	Côte d'Ivoire	Cambodia	Timor-Leste
24	Honduras	Gabon	Eritrea
25	Botswana	Burkina Faso	
26	Libya		
27	Zimbabwe		
28	Equatorial Guinea		
29	Lesotho		

Implications of Product Digitisation on GVCs/RVCs

- **Traditional definition and measures of competitiveness no longer applies in Digitisation Phase**
- **Digitisation reduces number of lead firms as it encourages monopoly** power in the hands of few firms which decides on the level of participation of each country in the value chains based on their digital capacity.
- **Digitisation can change the nature of production**
 - shift production from mass manufacturing to *distributed manufacturing, i.e., distributed to smaller localised production units for mass customisation*
 - From distributed manufacturing to *redistributed manufacturing- AM and AI is leading to Reshoring* -For example-ADIDAS Shoes and "Speed Factories"

➤ **DigitisedGVCs (GVCs based on digital technology) will become shorter in length**

- Production moves closer to consumers-Customized production- consumers participate in production (3D printing)
- Evidence- based on WIOT, World Bank (2017) estimated that the production length of complex GVCs has declined in almost all countries, regardless of whether its GDP grew or declined post 2011.
- **but more in number** as they tend to cover larger number of markets as access to more markets leads to access to more data. Further, bigger markets are a prerequisite for more profitable use of cloud computing.
- **Direction of DigitisedGVCs will change** towards countries with higher digital skills and lower cost of internet and higher connectivity

Implications for GVCs/RVCs

- **In Agro-processing products-** Producers are becoming more competitive with the rise of digital agriculture. In USA an Initiative *FarmView*- researchers are working to combine sensors, robotics and artificial intelligence to create a fleet of mobile field robots which will improve plant breeding and crop-management practices.
- More countries are selling agro-products to USA, UK and Canada by e-commerce (e.g., India)
- **In Mineral products-** A digitally enabled global economy is likely to have a lower metal and mineral consumption intensity (per unit of per capita GDP)- circular economy
- From 3D printing, the mining and metals industry should anticipate an increase in *material substitution* (WEF White Paper 2017).

Linking and Upgrading in *DigitisedGVCs*

- Developing ICT infrastructure will enable countries to be reached by these *DigitisedGVCs*, but to capture value in *DGVCs*, countries will have to develop their digital infrastructure step by step
 - beginning with strengthening their ICT infrastructure and Digital skills
 - building cloud-computing infrastructure and
 - further maturing into developing data infrastructure.
 - Using data intelligence on big data and complementing it with IoT, automation and AM can help them to upgrade.

Need for Digital Industrial Policies

- SADC's industrial Policy development framework needs to include a new dimension - *SADC Cooperation framework on Digital Industrialization* to face the common challenges to the region from disruptive technologies and increased competition
 - May not be possible for countries to leap frog on their own to digitise

SADC Cooperation on Digitisation

Five Step Approach

1. **Building a data economy** -deciding on way forward in managing big data, regulations for sharing data as well as for protecting personal data at the regional level. (free flow of data?, data privacy?)

2. **Strengthening broadband infrastructure** in the region to develop cloud computing infrastructure

3. **Adopting Similar Regulations at the national level on**

- ✓ Consumer Protection
- ✓ Cybersecurity
- ✓ tackling unjustified Geo-blocking

4. **Building capacities of SMEs** for domestic e-commerce as well as preparing them for digitisation- digital payments, etc.

5. **Building digital trade statistics for designing digital industrial policies** to promote digital connectivity

- Learnings from experiences of other countries- China and India

ECIDC's UN Development Account Project: Development policies for sustainable economic growth in Southern Africa (2016-19)

- **Objective:** Fostering Structural Transformation and Development through productive integration (SDG 8 and 9)
- **Three Pillars- *Research, Policy Coordination and Capacity Building* to:**
 - Foster the development of specific RVCs (Agro processing and Mining)
 - Improve energy sustainability through regional integration
 - Encourage coordination of industrial (and trade policies)
 - Increase policy capacity in 4 economies
 - Support the SADC industrialization strategy and roadmap (2015 - 2063)
- ***Fourth pillar on Digital cooperation framework can be added?***

Three Pillars

- Research
 - Desktop research (product space)
 - Field work on RVCs (Agro-processing and Capital equipment for mining)
 - Energy provision and sustainability
- Policy coordination
 - 2 Regional workshops (jointly organized with South African DTI and Tanzanian Ministry of Industry, Trade and Investment)
- Capacity Building
 - National capacity building workshops (Mozambique, Tanzania, Zambia and Mauritius)

Concluding Remarks

- **Digitisation is revolutionalising entire value chain of production and also changing consumer behaviour** thereby affecting the factors which determine the competitiveness of Regional and Global value chains
- This is leading to a paradigm shift in existing patterns of Production, Consumption, Investments and International trade.
- Cooperation among developing countries is needed at the regional level- *Not just for industrialisation but for Digital Industrialisation*
- **Preserving Policy space in international rule making is critical** to develop national digital industrial policies tailored to the existing level and pace of development of different countries.

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Thank You

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