

e-Commerce Statistics Workshop

ULAANBAATAR, 20-23 MARCH 2023

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E-Commerce Statistics Workshop Agenda

DAY 2 – Measuring Digital Economy / e-Commerce

- ❑ *Digital Economy (DE) frameworks, pillars, indicators*
- ❑ *DE classifications and benchmark*
- ❑ *ICT and e-Commerce indicators*
- ❑ *Introduction to International Best Practices*
- ❑ *Discuss Specific e-Commerce Statistics Cases*

Measuring e-Commerce / Digital Economy

Broad definition of e-commerce transactions (OECD):

- *An electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments, and other public or private organizations, conducted over computer-mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or offline.*
- As a guideline for the interpretation of the definition above, the OECD notes that the broad definition includes orders received or placed on any online application used in automated transactions, such as Internet applications, electronic data interchange (EDI) or interactive telephone systems.

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Narrow definition of e-commerce transactions (OECD):

- *An Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments, and other public or private organizations, conducted over the Internet. The goods and services are ordered over the Internet, but the payment and the ultimate delivery of the good or service may be conducted on or offline.*
- As a guideline for the interpretation of the definition above, the OECD notes that the narrow definition includes orders received or placed on any Internet application used in automated transactions, such as web pages, extranets and other applications that run over the Internet such as EDI over the Internet or over any other web-enabled application regardless on how the Web is accessed (e.g., through a mobile phone or a TV set, etc.). The definition excludes orders received or placed by telephone, facsimile or conventional email.

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- The OECD's e-Commerce definitions has been adopted world-wide by the National Statistical Offices
- Notably, ICT use surveys, such as those run by Eurostat, have been successful in measuring the diffusion of e-commerce among individuals and firms
- Collecting information on the value of e-commerce transactions and on the flows of cross-border e-commerce has proven more difficult. For example, individuals find it hard to recollect online expenditure values and do not always know whether they are purchasing from a domestic or a foreign supplier. Furthermore, the accounting systems of many businesses do not differentiate online and offline transactions or identify the location of customers and suppliers.

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Challenges:

- It is also clear that some aspects of the present statistical information system, notably those concerning the classification of firms, products and transactions, have lagged behind the digital transformation. In addition, questions are being raised about the scope of the GDP production boundary to capture, for example, new digitally enabled services produced by households for themselves – such as online content or transport and accommodation services facilitated through online platforms.
- However, the inability to articulate the actual size of the digital economy – through references to actors, products, transactions and so on – in core accounts continues to create questions about what aspects are and are not captured in macro-economic statistics. This in turn fuels a broader mis-measurement hypothesis.
- These challenges have been initially met by a digital satellite account that delineated key digital actors and transactions within the National Accounts Framework

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- In 2020, G20 has undertaken work on indicators and definitions of the digital economy and a *Roadmap toward a common framework for measuring the Digital Economy* was established. The Roadmap outlined how the Digital Economy can be conceptualized and measured.
- The Roadmap recommended a range of already available indicators addressing jobs, skills and growth (The main sources for these indicators include Labour Force Surveys (LFS), National Accounts, Specific ICT surveys, administrative registers (or surveys) on Education, and the OECD surveys through the Programme for International Student Assessment (PISA) and the Programme for the International Assessment of Adult Competencies (PIAAC))

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- In 2020, G20 has undertaken work on indicators and definitions of the digital economy and a *Roadmap toward a common* onal Student Assessment (PISA) and the Programme for the International Assessment of Adult Competencies (PIAAC))
- Additional indicators on the DE are available or being deployed at the international level addressing ICT access and usage.
- From a macroeconomic perspective, the Roadmap included a framework and definitions to assist with measurement of the digital economy consistent with the System of National Accounts (SNA), in proposing the estimation of Digital Supply-Use Tables (D-SUTs) and improvements in the statistical measurement of specific DE components, such as the value of data and of digital platforms.
- <https://www.oecd.org/sti/roadmap-toward-a-common-framework-for-measuring-the-digital-economy.pdf>

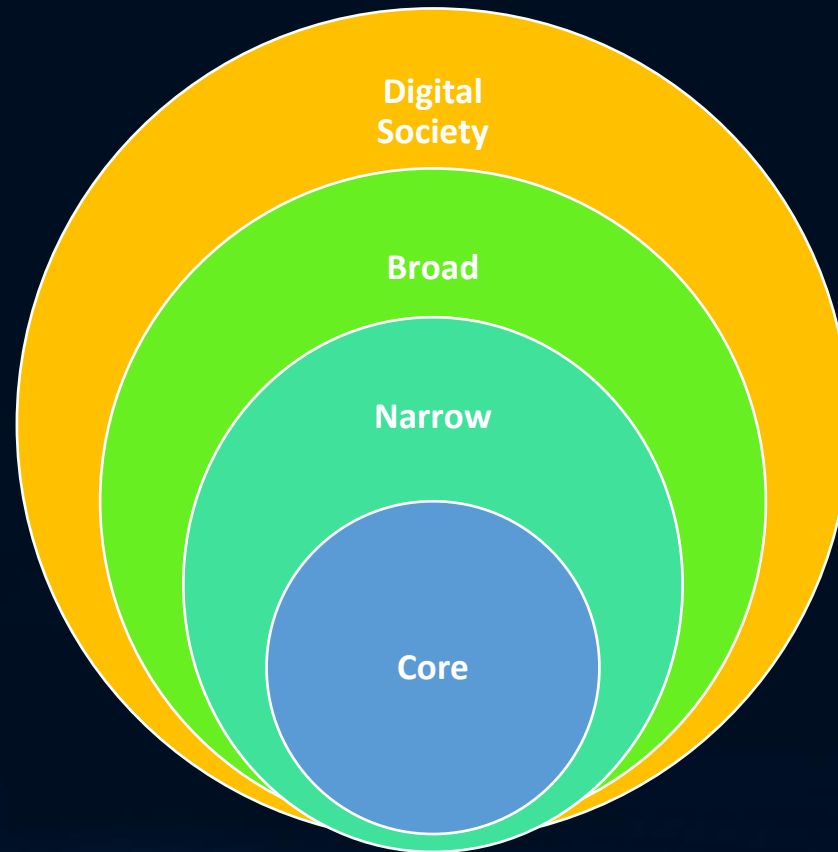
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Digital Economy (OECD definition)

Digital economy incorporates all economic activities reliant or significantly enhanced by the use of digital input.

- **Core:** economic activities from producers of digital content, ICT goods and services
- **Narrow:** economic activities from producers reliant on digital inputs
- **Broad:** economic activities from producers significantly enhanced by digital inputs
- **Digital Society:** other activities incorporate digitalized interactions and activities not included in the GDP production boundaries

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Measuring e-Commerce / Digital Economy

At least 19 DE frameworks exist!

- 1) EU Digital Economy and Society Index - DESI
- 2) International Digital Economy and Society Index - I-DESI
- 3) OECD Going Digital Toolkit
- 4) USAID's System Analytical Framework for Digital Economy (SAF-DE)
- 5) Portolan's Network Readiness Index – NRI
- 6) WIPO Global Innovation Index - GII
- 7) IMD's World Digital Competitiveness Ranking – IMD
- 8) World Bank Digital Adoption Index
- 9) ITU ICT development Index
- 10) UN e-Government Survey – e-Gov
- 11) UN e-Participation Index - e-Part
- 12) OECD Digital Government Index
- 13) Adobe Digital Economy Index
- 14) Huawei Global Connectivity Index (Huawei)
- 15) Cisco Digital Readiness Index
- 16) Tufts University Digital Intelligence Index - TUDII
- 17) Consumers International – Digital Index
- 18) Open Data Barometer
- 19) Dell's Digital Transformation Index

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If we consider those with 3 Y publications

- 1)EU Digital Economy and Society Index - DESI
- 2)International Digital Economy and Society Index - I-DESI
- 3)OECD Going Digital - OGD
- 4)Portolan's Network readiness Index – NRI
- 5)WIPO Global Innovation Index - GII
- 6)IMD's World Digital Competitiveness Ranking – IMD
- 7)UN e-Government Survey – e-Gov
- 8)UN e-Participation Index - e-Part
- 9)Huawei Global Connectivity Index (Huawei)
- 10)Tufts University Digital Intelligence Index - TUDII

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Considering the “production” factors we can identify the following pillars

| Key Pillars | Identified sub-pillars | | | | | | |
|-------------------------------|----------------------------------|-------------------------------------|--------------------------|-----------------------------|--|-----------------------|--|
| National Governance | Ease of doing business | Regulatory quality | Government effectiveness | cyberlaws | Adaptivity od regulations to emerging tech | | |
| Infrastructure & connectivity | Fixed broadband supply | Mobile broadband supply | Broadband affordability | Overall internet access | Other infrastructure (e.g., logistics) | | |
| Digital Talent | Basic digital skill availability | Advanced digital skill availability | education | International talent import | | | |
| Digital Innovation | Innovation linkages | Knowledge creation | Knowledge diffusion | Creative goods and services | Online creativity | entrepreneurship | |
| Digital Investment | R&D expenditures | IT spending | ICT investment | VC availability | Credit financing availability | Government incentives | |

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Considering the “consumption” factors we can identify the following pillars

| | | | | | | | |
|------------------------------------|-------------------|-------------------|----------------------|-----------------------------|-----------------------------|------------------------------|-------------------------|
| Digital adoption in public sector | Online services | Open data | e-participation | Private-public partnerships | | | |
| Digital adoption in private sector | Digital operation | Digital marketing | Big data application | e-commerce | Transformation capabilities | Application of emerging tech | Knowledge absorption |
| Digital adoption of individuals | Internet users | Social network | communication | Online transaction | Digital device possession | Cybersecurity awareness | IP protection awareness |

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DE frameworks benchmarking

For the evaluation results, we adopted the following score system:

Score:

- High = 76%+
- Medium = 51%-75%
- Low = 26%-50%
- Minimal = 1% - 25%
- None = 0%

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DE frameworks benchmarking

| Key pillars | EU-DESI | I-DESI | OGD | NRI | WIPO | IMD | TUDII | Huawei | e-Gov | e-Part |
|-------------------------------|---------|--------|--------|---------|--------|---------|---------|---------|---------|--------|
| National governance | none | none | none | high | medium | low | medium | minimal | none | none |
| Infrastructure & connectivity | medium | high | high | high | low | Minimal | high | high | low | none |
| Digital Talent | low | low | low | low | medium | low | Minimal | minimal | Minimal | none |
| Digital Innovation | none | none | low | minimal | high | minimal | minimal | minimal | none | none |
| Digital Investment | none | none | medium | high | low | medium | minimal | medium | none | none |

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DE frameworks benchmarking

| Key pillars | EU-DESI | I-DESI | OGD | NRI | WIPO | IMD | TUDII | Huawei | e-Gov | e-Part |
|------------------------------------|---------|--------|-----|--------|---------|--------|---------|---------|---------|---------|
| Digital adoption in public sector | medium | medium | low | medium | low | medium | minimal | minimal | Minimal | minimal |
| Digital adoption in private sector | medium | low | low | medium | minimal | low | none | low | none | none |
| Digital adoption of individuals | medium | medium | low | medium | none | low | low | medium | minimal | none |

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| OECD GOING DIGITAL TOOLKIT | | | | | | | |
|-------------------------------|----------------------------------|-------------------------------------|--------------------------|-----------------------------|--|-----------------------|--------------------|
| Key Pillars | Identified sub-pillars | | | | | | Result |
| National Governance | Ease of doing business | Regulatory quality | Government effectiveness | cyberlaws | Adaptivity od regulations to emerging tech | | None 0/5=0 |
| Infrastructure & connectivity | Fixed broadband supply | Mobile broadband supply | Broadband affordability | Overall internet access | Other infrastructure (e.g., logistics) | | High 4/5=80% |
| Digital Talent | Basic digital skill availability | Advanced digital skill availability | education | International talent import | | | Low 2/4=50% |
| Digital Innovation | Innovation linkages | Knowledge creation | Knowledge diffusion | Creative goods and services | Online creativity | entrepreneurship | Low 3/6= 50% |
| Digital Investment | R&D expenditures | IT spending | ICT investment | VC availability | Credit financing availability | Government incentives | Medium 4/6= 67% |

Measuring e-Commerce / Digital Economy

| OECD GOING DIGITAL TOOLKIT | | | | | | | | |
|------------------------------------|------------------------|-------------------|----------------------|-----------------------------|-------------------------------|------------------------------|-------------------------|--------------------|
| Key Pillars | Identified sub-pillars | | | | | | | Result |
| Digital Investment | R&D expenditures | IT spending | ICT investment | VC availability | Credit financing availability | Government incentives | | Medium 4/6= 67% |
| Digital adoption in public sector | Online services | Open data | e-participation | Private-public partnerships | | | | Minimal 1/4 = 25% |
| Digital adoption in private sector | Digital operation | Digital marketing | Big data application | e-commerce | Transformation capabilities | Application of emerging tech | Knowledge absorption | Low 2/7= 29% |
| Digital adoption of individuals | Internet users | Social network | communication | Online transaction | Digital device possession | Cybersecurity awareness | IP protection awareness | Low 3/7 43% |

Measuring e-Commerce / Digital Economy

| EU DIGITAL ECONOMY and SOCIETY INDEX | | | | | | | |
|--------------------------------------|----------------------------------|-------------------------------------|--------------------------|-----------------------------|--|------------------|-------------------|
| Key Pillars | Identified sub-pillars | | | | | | Result |
| National Governance | Ease of doing business | Regulatory quality | Government effectiveness | cyberlaws | Adaptivity od regulations to emerging tech | | None 0/5=0 |
| Infrastructure & connectivity | Fixed broadband supply | Mobile broadband supply | Broadband affordability | Overall internet access | Other infrastructure (e.g., logistics) | | Medium 3/5=60% |
| Digital Talent | Basic digital skill availability | Advanced digital skill availability | education | International talent import | | | Low 2/4=50% |
| Digital Innovation | Innovation linkages | Knowledge creation | Knowledge diffusion | Creative goods and services | Online creativity | entrepreneurship | None 0/6=0 |

Measuring e-Commerce / Digital Economy

| EU DIGITAL ECONOMY and SOCIETY INDEX | | | | | | | | |
|--------------------------------------|------------------------|-------------------|----------------------|-----------------------------|-----------------------------|------------------------------|-------------------------|-------------------|
| Key Pillars | Identified sub-pillars | | | | | | | Result |
| Digital adoption in public sector | Online services | Open data | e-participation | Private-public partnerships | | | | Medium 3/4=75% |
| Digital adoption in private sector | Digital operation | Digital marketing | Big data application | e-commerce | Transformation capabilities | Application of emerging tech | Knowledge absorption | Medium 4/7=57% |
| Digital adoption of individuals | Internet users | Social network | communication | Online transaction | Digital device possession | Cybersecurity awareness | IP protection awareness | Medium 4/7=57% |

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ICT indicators collected in Mongolia (CRC)

(ICT Administrative indicators)

- Fixed-telephone subscriptions
- Fixed-broadband subscriptions
- Mobile-cellular telephone subscriptions
- Active mobile-broadband subscriptions
- Population covered by a mobile-cellular network
- IPTV subscriptions
- Satellite TV subscriptionsCable TV subscriptions
- Traffic
- Quality of service
- Employment, Revenue and Investment

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ICT access and use by households and individuals (1)

- HH1 Proportion of households with a radio
- HH2 Proportion of households with a TV
- HH3 Proportion of households with telephone
- HH4 Proportion of households with a computer
- HH5 Proportion of individuals using a computer
- HH6 Proportion of households with Internet
- HH7 Proportion of individuals using the Internet
- HH8 Proportion of individuals using the Internet, by location
- HH9 Proportion of individuals using the Internet, by type of activity
- HH10 Proportion of individuals using a mobile cellular telephone
- HH11 Proportion of households with Internet, by type of service

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ICT access and use by households and individuals (2)

- HH12 Proportion of individuals using the Internet, by frequency
- HH13 Proportion of households with multichannel television, by type
- HH14 Barriers to household Internet access
- HH15 Individuals with ICT skills, by type of skills
- HH16 Household expenditure on ICT
- HH17 Proportion of individuals using the Internet, by type of portable device and network used to access the Internet
- HH18 Proportion of individuals who own a mobile phone
- HH19 Proportion of individuals not using the Internet, by type of reason

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ICT access and use by enterprises

- B1 Proportion of businesses using computers
- B2 Proportion of persons employed routinely using computers
- B3 Proportion of businesses using the Internet
- B4 Proportion of persons employed routinely using the Internet
- B5 Proportion of businesses with a web presence
- B6 Proportion of businesses with an intranet
- B7 Proportion of businesses receiving orders over the Internet
- B8 Proportion of businesses placing orders over the Internet
- B9 Proportion of businesses using the Internet by type of access
- B10 Proportion of businesses with a Local Area Network
- B11 Proportion of businesses with an extranet
- B12 Proportion of businesses using the Internet by type of activity

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EUROSTAT e-Commerce indicators (individuals-1)

| | |
|---|--|
| Individuals ordering goods or services online | Definition: <i>Individuals carrying out this activity over the internet in the last 12 months, for private use.</i> |
| Individuals ordering goods or services online, from sellers from other EU countries | Definition: <i>Individuals that ordered goods or services for private use over the Internet in the last 12 months from sellers from other EU countries</i> |
| Individuals ordering physical goods online | Definition: <i>Individuals that have ordered online any of the following physical goods: food/groceries, household goods, medicine, clothes/sports, computer hardware, electronic equipment.</i> |
| Individuals ordering services online | Definition: <i>Individuals that have ordered online any of the following services: telecommunications services, share/insurance/financial, holiday accommodation, travel arrangements, tickets for events.</i> |

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EUROSTAT e-Commerce indicators (individuals-2)

| | |
|---|---|
| Individuals ordering content or software that were delivered or upgraded online | Definition: <i>The online content and software include films, music, books, magazines, e-learning material, computer software, video games, that were ordered/bought over the Internet in the last 12 months, for non-work use.</i> |
| Individuals ordering content or software delivered online or offline | Definition: <i>Online purchases: films/music or books/magazines/e-learning material or computer software</i> |
| Individuals selling goods or services online (e.g., via auctions) | Definition: <i>Individuals have used Internet, in the last 3 months, for selling goods and services (e.g., via auctions)</i> |
| Individuals who did not encounter problems when buying/ordering goods or services over the internet for private use | Definition: <i>Individuals who had no problems buying/ordering goods or services over the internet for private use</i> |

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EUROSTAT e-Commerce indicators (enterprises-1)

Enterprises using any computer network for sales (at least 1%)

Definition: The sales realised, during the previous calendar year, via any computer networks should represent at least 1% of the total turnover value (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed e-mails.

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-2)

Total electronic sales by enterprises, as a % of their total turnover

Definition: The value of sales realised, during the previous calendar year, via any computer networks in % of the total turnover value (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed e-mails.

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-3)

Enterprises having done electronic sales to other EU countries in the last calendar year

Definition: *The sales have been realised, during the previous calendar year, via any computer networks (in monetary terms, excluding VAT). Computer networks include websites, EDI-type systems and other means of electronic data transfer, excluding manually typed e-mails.*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-4)

Enterprises exploiting the "Business to Consumers" opportunities of web sales

Definition: *Enterprises where web sales are more than 1% of total turnover and B2C web sales more than 10% of the web sales*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-5)

Sells via own website or apps as a percentage of turnover

Definition: *The value of sales made during the previous calendar year, via their own website or apps in % of the total turnover value (in monetary terms, excluding VAT).*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-6)

Enterprises using e-Commerce marketplace for sales

Definition: *Share of enterprises that, during the previous calendar year, received orders for goods or services via an e-Commerce marketplace*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-7)

Enterprises using their own website or apps for sales

Definition: *Share of enterprises that, during the previous calendar year, received orders for goods or services via their own website or apps.*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-8)

Sells via marketplace as a percentage of turnover

Definition: *The value of sales made during the previous calendar year, via an e-Commerce marketplace in % of the total turnover value (in monetary terms, excluding VAT).*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-9)

Enterprises selling via a website or apps by geographical location of the customer

Definition: Share of the enterprises that, during the previous calendar year, received orders by customers located in the own country, other EU countries or the rest of the world

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

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EUROSTAT e-Commerce indicators (enterprises-10)

Enterprises selling over 50% via a website or apps

Definition: *The sales made via website or apps, during the previous calendar year, should represent at least 50% of the total turnover value (in monetary terms, excluding VAT).*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

Measuring e-Commerce / Digital Economy

EUROSTAT e-Commerce indicators (enterprises-11)

Enterprises selling over 25% via a website or apps

Definition: *The sales made via website or apps, during the previous calendar year, should represent at least 25% of the total turnover value (in monetary terms, excluding VAT).*

Notes: Enterprises with 10 or more persons employed. All manufacturing and service sectors, excluding the financial sector. Breaks in series because until 2008 economic activities according to NACE Rev 1.1 and from 2009 data are based on NACE Rev.2. Since 2010 data include also sector S 95.1-Repair of computers and communication equipment.

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Discussion, Questions / Answers

- Discuss the situation on Mongolia