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Infocommunication Vector as Generalized ICT Indicator

(ITA-GIS Recommendation A.6)



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**This report is a continuation and extension
of the report "ITA Method of Measure the
Digital Divide in the Information Society"**

Basics:

Infocom Terminal -> Terminal Density -> ICV



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ICV

$$A_j = \sqrt{\sum_{i=1}^n a_{ji}^2}$$

Vector Length in
the n-dimensional
space

a_{ji} — i -th parameter (density) for i -th technology of
 i -th country

$i = 1, 2, \dots, n$ n — number of technologies
 $j = 1, 2, \dots, N$ N — number of countries



BUT!

Various terminals have various technical characteristics:

- Fixed phone
 - Mobile phone
 - Data access terminals
 - Internet
 - Broadband terminals
- } Characterized by information transfer speed Kbit/sec, Mbit/sec
- Personal computer
 - Data processing speed, MIPS





Summarized Information Transfer Speed

$$V = \sum_{i=1}^m v_i m_i$$

v_i – terminal data transfer speed of i -th type
 m_i – data transfer speed per capita

$V_0 = V/P$ – data transfer speed per capita
 P – population



Summarized Information Processing Speed

$$U = \sum_{i=1}^L q_i l_i$$

q_i – PC data processing speed of i -th type
 l_i – number of PC's of i -th type

$U_0 = U/P$ – data processing speed per capita
 P – population





Normalizing

$$\tilde{V}_{0j} = V_{0j} / V_{0 \max}$$

$$\tilde{U}_{0j} = U_{0j} / U_{0 \max}$$

j – number of country

j – 1, 2, ..., N



ICV on Information Transfer and Processing Speed

$$A_j = \sqrt{\tilde{V}_{0j}^2 + \tilde{U}_{0j}^2}$$

It continues like the previous shown program





Goal

It is necessary to transit:

- from 1st stage – only terminals and PC's number
- to 2nd stage – number of terminals and PC's and their transfer and processing speed



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Thank you!