



Effective Use of the Resources of the WIPO Project on the Establishment of Technology and Innovation Support Centers (TISCs): A Key to a Further Technical and Scientific Development

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1 – 5 June 2015

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I. The TISC Project: Objective

The objective is to *increase the level of technical and scientific knowledge* in Developing and Least-Developed Country members of WIPO in order to enable them to reduce the *existing gaps in the fields* between them and *industrialized* countries

Therefore, WIPO establishes TISCs in its member states in order to reach the above-mentioned goal

Example of Technical and Scientific Gaps in 1990

- USA, Europe and Japan (20% of the world population)
 - 90% of researchers and engineers
 - 97% of computers
 - 220 billion U\$ per year for R&D
 - 90% of patent applications
- Source: Global Outlook 2000, an economic, social and environmental perspective, New York, United Nations, 1990, p. 139*
- Third World (80% of the world population)
 - 10% of researchers and engineers (Asia: 7%, Latin America: 1, 8%, Arab Countries: 0, 9%, Africa: 0,3%)
 - 3% of computers
 - 3 billion U\$ per year for R&D
 - 10% of patent applications

Example of Reduction of Gaps: 2006-2012

- 2012: Patent Applications: USA, Europe, Japan (*end of 100 year monopoly*)
- 2009: *1.43 million* researchers (USA), *1.36 million* (European Union)
- 330 billion U\$ for R&D (USA, 2006)
- 2008: 70 000 *Engineers/year* (USA)
- 2012: China (Patent Applications: Number 1 in the world)
- 2009: *1.74 million* de researchers (China)
- 198 *billion* U\$ in 2012 for R&D and 136 *billion* U\$ in 2006 (China)
- 2008: 214 000 *Engineers/year* (China)

II. TISC Resources: A. 90 Million Technologies

- *Described in patent documents and generally classified as follows :*
 - **SECTION A — HUMAN NECESSITIES** (agriculture, foodstuffs, pharmaceuticals, cosmetics, tobacco, etc.)
 - **SECTION B — PERFORMING OPERATIONS; TRANSPORTING** (vehicles, boats, airplanes, roads, houses, machine tools, grinding, polishing, hand tools, hand cutting tools, etc.)
 - **SECTION C — CHEMISTRY; METALLURGY** (treatment of water, waste water, glass, mineral or slag wool, cements, concrete, artificial stone, ceramics, refractories, fertilizers, petroleum, gas, sugar industries, etc.)
 - **SECTION D — TEXTILES; PAPER** (natural or artificial threads, spinning, weaving, ropes, paper-making, treatment of textile, lace-making, knitting, sewing, etc.)
 - **SECTION E — FIXED CONSTRUCTIONS** (building, construction of roads, railways or bridges, hydraulic engineering, foundations, soil-shifting, water supply, locks, keys, window or door, etc.)
 - **SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING**
 - **SECTION G — PHYSICS**
 - **SECTION H — ELECTRICITY**

B. 40 000 Scientific Publications

■ HINARI (WHO)



■ AGORA (FAO)



■ OARE (UNEP)



■ ARDI (WIPO)



Cont'd: ARDI: Journal list (20 000 publications: cost about 1 million U\$ per year; Rwanda has free access)



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A

[AASRI Procedia](#) (Elsevier) 2012 - Present

[Academic Pediatrics](#) (Elsevier) January/February 2009 - Present

[Academic Radiology](#) (Elsevier) January 1995 - Present

[ACC Current Journal Review](#) (Elsevier) January/February 1995 - December 2005

FEEDBACK

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OMPI

ORGANISATION MONDIALE
DE LA PROPRIÉTÉ
INTELLECTUELLE

C. WIPO Publications

- Upon request, a TISC network can receive free-of-charge any WIPO publication

D. Social Forum: powered by WIPO

- Communication tool to facilitate exchange between TISCs and participants
- Launched in November 2012 (currently more than 1100 participants from more than 80 countries; 45% of participants are Africans)

- Main features:
 - ▶ discussion forums
 - ▶ e-groups
 - ▶ webinars
 - ▶ e-tutorial
 - ▶ helpdesk and more

III. Effective Use of TISC Resources

- TISC trainings and seminars should go beyond mere **awareness-raising activities**
- Awareness-raising activities should **increase** the *number of participants (attention: please do not change participants in every activity)*
- Participants should **practice** *the acquired knowledge in their fields (e.g. technical schools should **practice** technology found in patent documents; practice acquired also through incubators and laws/regulations on offset*
- *Practice of acquired knowledge in each field would* **generate** personal and **institutional**/**behavioral change**
- Personal and institutional change would *produce big* **impacts** *on the lives of people (for instance, technical, economic and social change)*
- *The above-mentioned is a key to a further development*

IV. Examples of Effective Use

- When the Agro-Industrial Revolution broke out in England in the mid-18th Century, European countries were attracted by the phenomenon and decided to provide not ONLY INFORMATIVE but ALSO FORMATIVE/PRACTICAL ANSWERS
- HUGE and ONGOING campaigns on INFORMATION and TRAINING emerged throughout Europe, often organized by the central authorities (governments); all over Europe, in increasing numbers and large-scale printing appeared not only treatises on «modern» agriculture, but also reviews and journals devoted to these questions
- Emergence of diverse types of associations focusing on the diffusion, encouragement and USE of «new» agricultural techniques, improved seeds, new races of more productive domestic animals, more refined tools

Examples of Effective Use (Cont'd)

- Creation of INNOVATION CENTERS through which «new» techniques were IMPOSED on a major part of the population
- Establishment of concentrated communications networks all over Europe which facilitated information exchanges between European countries and rapid dissemination of British technology
- Encouragement of REVERSE ENGINEERING (tools or machines were exhibited and studied in order to be manufactured); COPYING PROCESS from designs taken from British factories (there are nowadays over 90 million technologies **available and free of charge**)
- Technology Transfer
- CONSEQUENCE: Agro-industrial revolution spread all over Europe generating huge socio-economic development

Examples of Effective Use (cont'd)

- CONSEQUENCE: It took only DECADES and NOT centuries for Western countries to reproduce British technology and disseminate it throughout their local industries
- Example in the field of transportation, *crucial for the development of trade notably in the agriculture sector*. When the railway was started in England in 1825 following the steam engine by James Watt in 1783, it took only 5 years for the USA to *reproduce locally* the technique in 1830, 7 years for France (1832), 10 years for Belgium (1835), 11 years for Germany and Canada (1836), and 12 years for Russia (1837) and between 1838 to 1848, thirteen countries were added to that list among which Australia and Italy

V. Role of the TISC

- *A Digital Library.* The local TISC will manage an on-line collection of over 90 million technologies and 40 000 scientific publications (more than 15 000 papers and 22 000 e-books), and distribute them to **all local users** (Technical Schools, SMEs, inventors, universities, research centers, etc.)
- *A Technical and Scientific Support.* By providing the above-mentioned information *to local stakeholders*, the local TISC will play an important role for the establishment of a sound and viable technological base from which all sciences could be effectively “mastered” (primarily those mentioned in the national development objectives)
- *A Training Center.* The local TISC to provide training to individuals and groups *on searching technologies and scientific publications*

TISC as a Digital Library

Physical Library



Digital Library



TISC Possible Locations

- Ministries (appropriate)
- Industrial/Intellectual Property Offices
- Scientific Information Centers
- Libraries
- Research Centers
- Science and Technology Parks
- Chambers of commerce
- Universities/Institutions of Higher Education
- Specialized Training Schools or Colleges
- Technology, Innovation and/or Business Incubators
- Inventors' associations, etc.

TISC Networks

- *National Network*

- Central Focal Point: Ministry of Trade and Industry (just as an example)

- Peripheral Focal Points: Institutions coordinated by the Ministry

- *Regional Network*

- Designated National Institutions of the region coordinated by WIPO

- *WIPO Network*

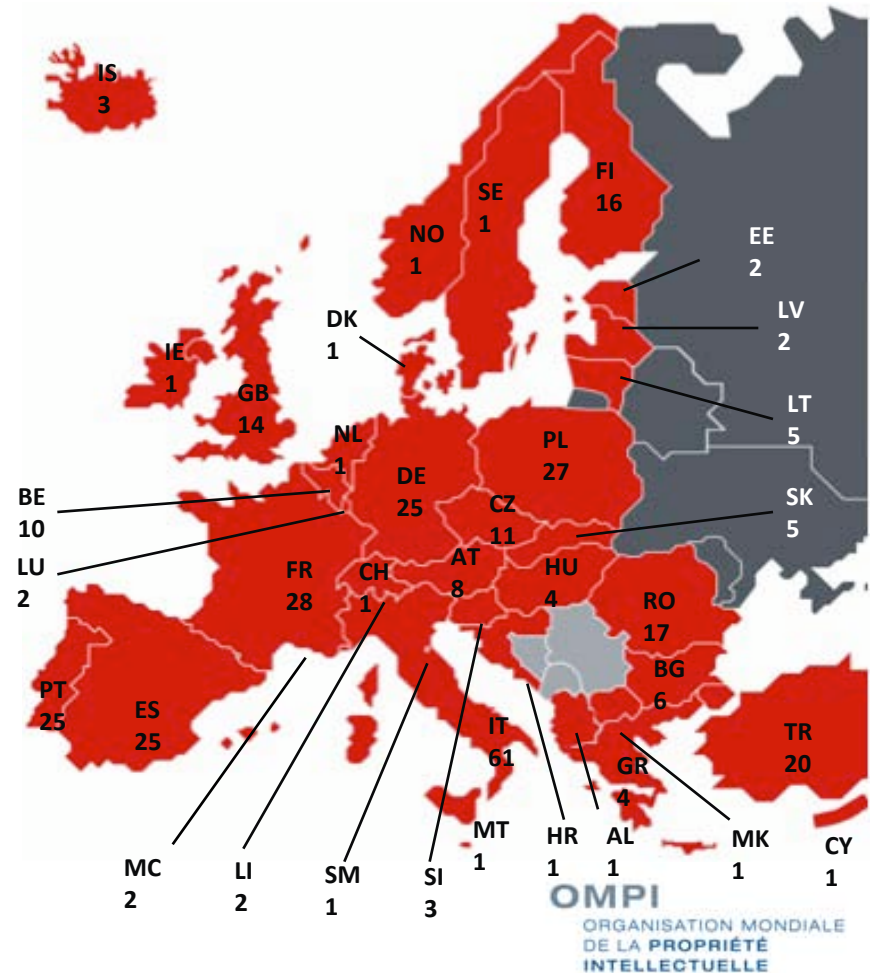
- WIPO and other organizations in the world

VI. WIPO Support

- While a member state is requested to ONLY provide *staff and facilities*, WIPO's support will be the following:
 - Facilitating access to databases
 - Providing training of trainers and of local users
 - Supporting awareness-raising activities
 - Organizing sub-regional and regional conferences as experience-sharing platforms
 - Providing Distance Learning Courses (WIPO Academy)
 - Providing IP materials
 - Providing other resources (mentioned above)

VII. TISCs in Europe : Location

- 340 centers (including patent information units in national offices) in 37 member states of the European Patent Office (EPO)



VIII. TISCs in the Sub-Saharan Africa

- **Mozambique** (July 2011): National focal point: *Ministério da Ciência e Tecnologia* (Ministry of Science and Technology)
- **Madagascar** (May 2012): National focal point: Ministry of Higher Education and Scientific Research
- **Togo** (August 2012): National focal point: Ministry of Industry, of the Free Zone and of the Technological Innovation
- **Niger** (November 2012): National focal point: Ministry of Mining and Industrial Development
- **Nigeria** (December 2012): National focal point: Ministry of Trade & Investment
- **Cameroon** (January 2013): National Focal Point: Ministry of Scientific Research and Innovation
- **Rwanda** (March 2013): National Focal Point: Ministry of Trade and Investment
- TISCs were also launched in 2013 in **Uganda, Zambia, Sao Tomé and Tanzania**

IX. Conclusion

- Through the TISC Project, technical and scientific gaps between industrialized countries and DCs as well as LDCs *have already been considerably reduced in theory* since the latter countries, in particular Rwanda, *have gained free access to 90 million technologies in all fields, and to 40 000 scientific publications (R4L programs among which ARDI)*
- In this regard, TISC places DCs and LDCs, particularly Ghana, on more equal footing (at least as regards access to technical and scientific information) with industrialized and emerging countries
- Through the TISC Project, DCs and LDCs, in particular Rwanda, *will not need to reinvent the wheel* in that they will **ONLY** use and adapt existing technical solutions **to solve local problems**; this will enable them, little by little, to **concretely** reduce gaps between them and industrialized countries and to ensure **their effective takeoff in all fields** (technical, scientific, economic, social, etc.)

Thank you for your attention!

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