APCTT-CSIR Workshop on Technology Commercialization and Transfer

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Knowledge Networks for Technology Transfer and Commercialization

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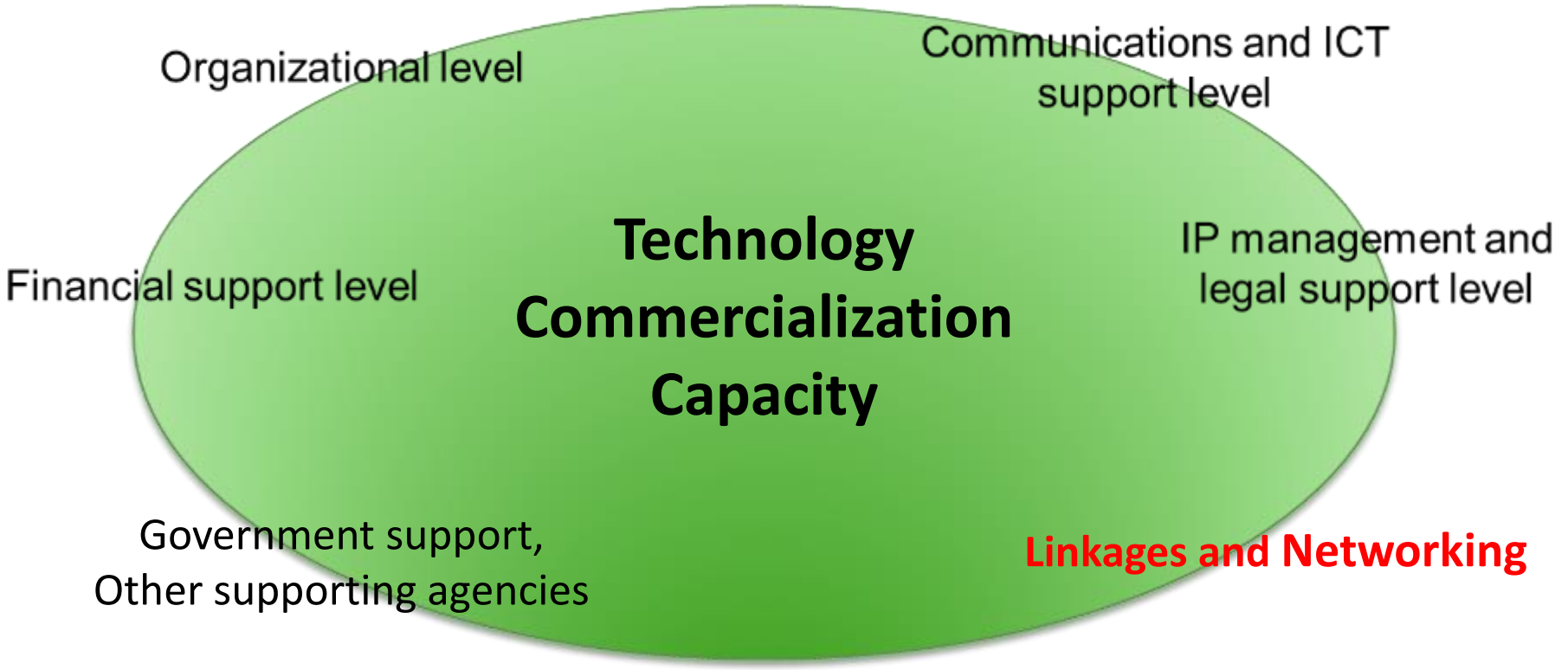
Outline

- Networking for technology transfer
- University-Industry partnerships
- Networking channels and linkages
- Knowledge transfer and knowledge networks
- International participation and networking
- Web-based tools and platforms for networking
- Concluding remarks

Networking in the Context of Technology Transfer

- Technology Transfer is a complex and long drawn-out process
- Issues related to administration, planning, management, marketing and implementation
- The problems are generally attributed to the **lack of systematic planning, control, monitoring, decision-making and Networking.**

Strengthening Technology Commercialization Capacity



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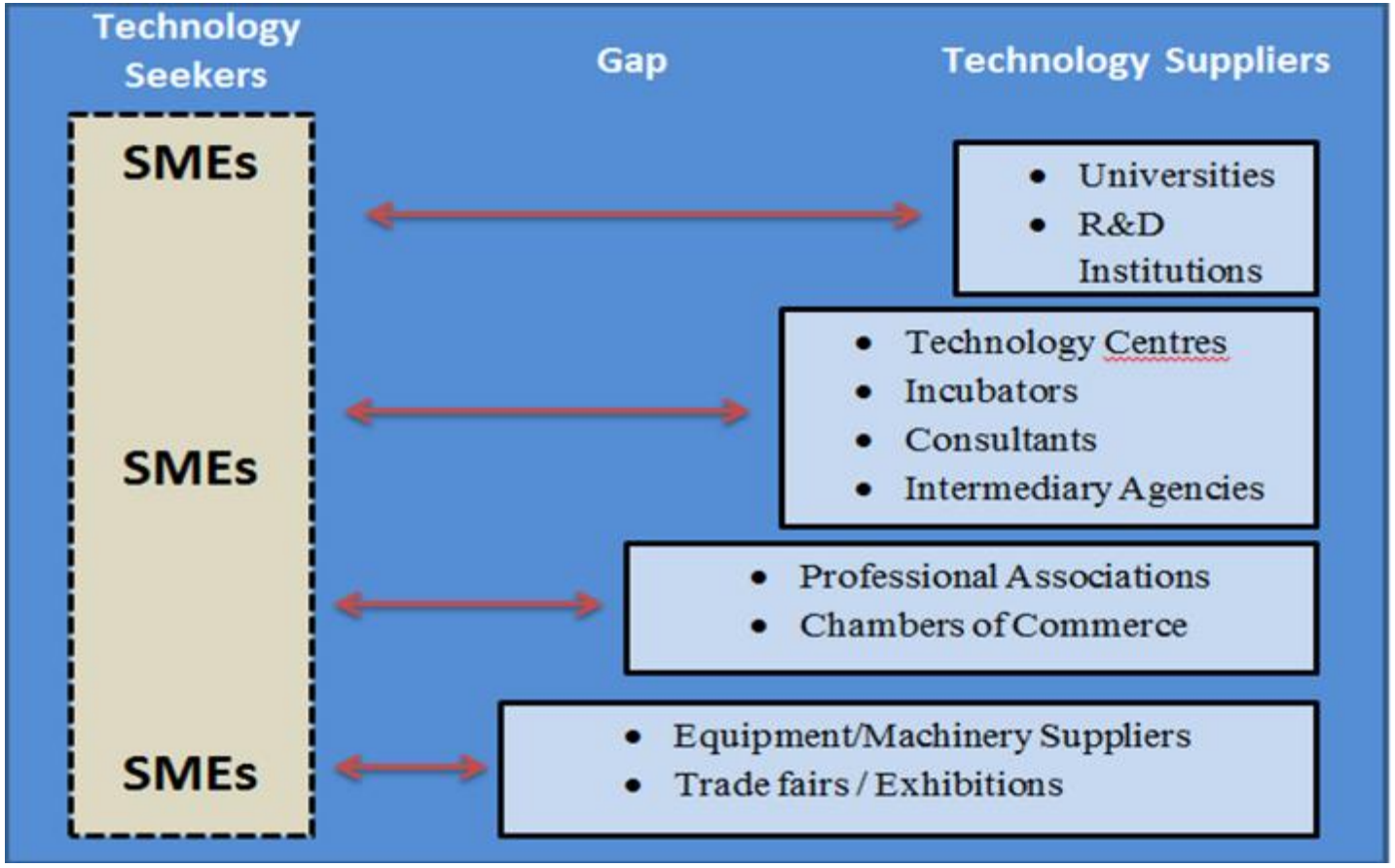
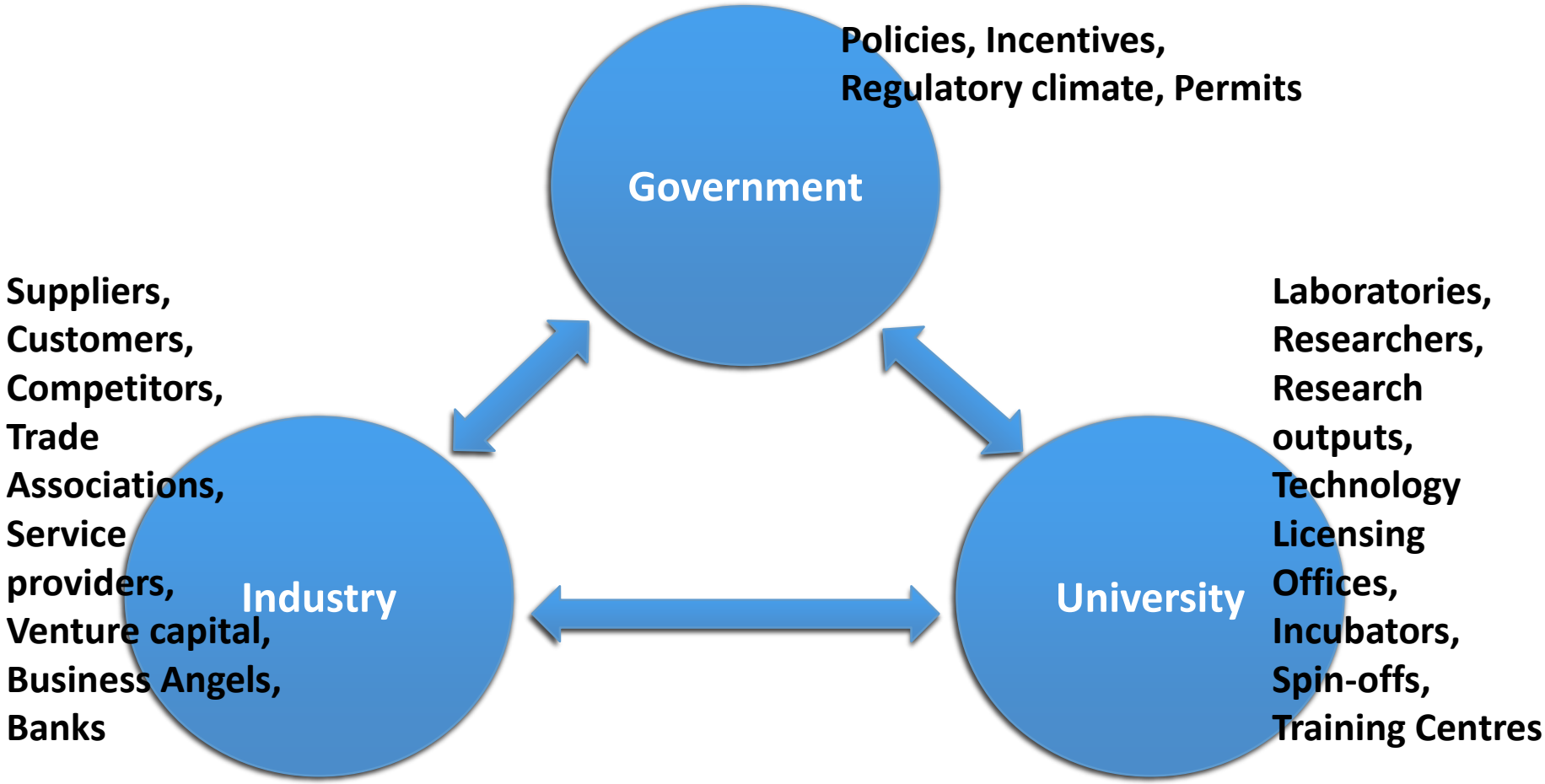
Networking to Bridge the Gap



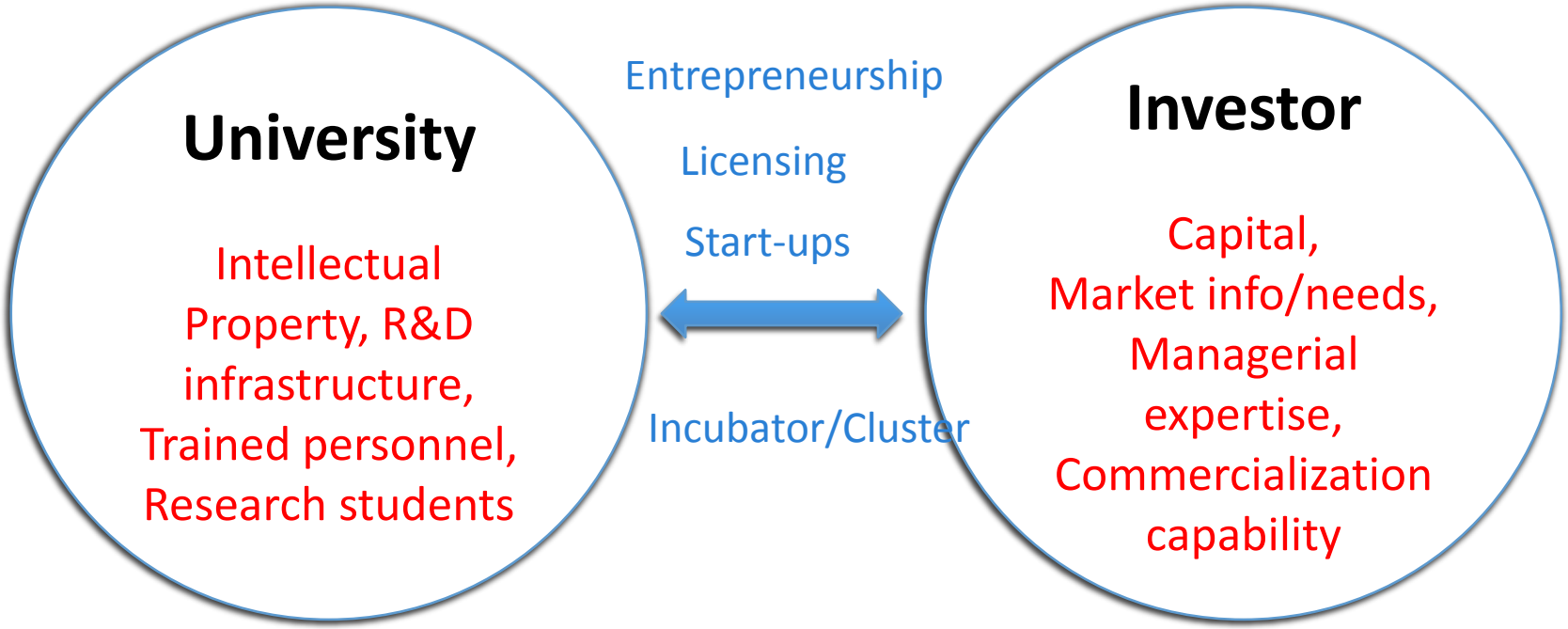
Networking in the Triple Helix



Networking Channels and Linkages

- Membership of associations, networks (online, offline)
- Technology Business Incubators – Science parks, Innovation centres, Technology incubators, etc
- Technology Transfer / Licensing Offices
- Conferences, Seminars, Workshops, Field visits, Study tours
- Technology data banks
- Strategic alliances at national, regional and international levels
- Availing services of Tech Transfer and Innovation promotion agencies

Academic/University Entrepreneurship



Stanford, Purdue, MIT and Cambridge have been particularly successful in commercializing research and nurturing start-ups**.**

Towards More Entrepreneurial University

Recruit star faculty – (a) Engaged in activities beyond research and teaching; (b) Possess strong publications and citation records; (c) Command a position in the university hierarchy; (d) Display qualities of a role model; (e) Possess business education and experience

Develop links with industry – (a) Research projects sponsored by industry; (b) Industry consulting; (c) Setting up university startups for commercial exploitation of research; (d) Licensing of patents

Create an appropriate incentive structure - Appropriate rewards and incentives to motivate faculty and students to innovate, network and connect with industry.

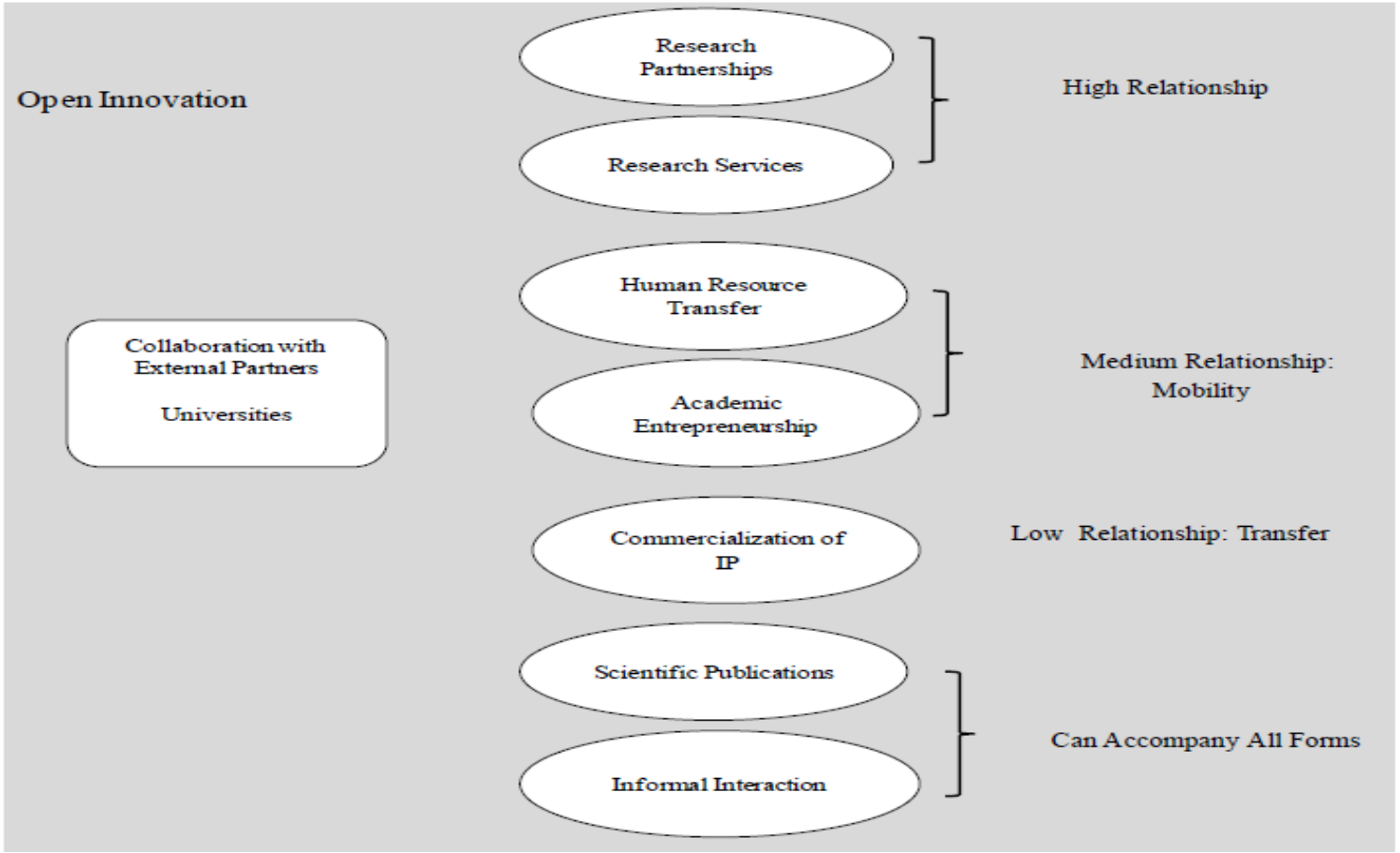
Source: https://link.springer.com/article/10.1057/jcb.2011.22

University-Industry Partnerships

- **Research partnership:** performing collaborative R&D
- **Research services:** contract research, consulting, financing of university research by firms
- **Human resource transfer:** Personnel requirement of industry, training industry employees, internships
- **Training**: Joint training with industry
- **Academic entrepreneurship:** Development and commercial exploitation of technological innovations by university faculty and students through forming startups
- **Commercialization of IP:** Patents licensing to the industry
- **Informal interaction:** Social relationship, networking, conferences
- **Scientific publications:** Joint publications in journals

Perkman & Walsh, 2007

University-Industry Collaboration - An MIT Case Study



CIRRELT, 2015-22

Knowledge Transfer – Key to Networking

Knowledge is a Critical Asset

*"**Knowledge transfer** (KT) is a term used to **encompass a very broad range of activities to support mutually beneficial collaborations between universities, businesses and the public sector**." (University of Cambridge)*

The University of Cambridge supports knowledge transfer to make the most of research using a multi-pronged strategy through:

- People – Research personnel, students, student projects
- Publications and events
- Collaborative research projects
- Consultancy
- Licensing of research outputs
- Formation of new businesses

Knowledge Networks

- **Key drivers** in today's dynamic business settings
- **Link multiple institutions** such as universities, R&D laboratories, industry, technology promotion institutions, policy makers, industry, venture capital agencies, business angels, govt. funding agencies
- Primarily involve **linking students and faculty with industry** to undertake industry-driven commercialization projects
- **Incorporate private sector inputs** into the technology transfer process
- **Tools and platforms** to encourage creation, dissemination and use of knowledge productively
- **ICT-driven** for seamless access to valuable data and information.

Purpose of Knowledge Networks

- Bridge the information gap
- Exchange valuable information
- Form partnerships
- Foster interaction among users
- Enhance personal learning and collective knowledge
- Make it easier for the private sector to access IP

Benefits of Knowledge Networks

- **Accelerated Knowledge Transfer** - Creating, sharing and applying knowledge
- **Enhance accessibility** - Easier and quicker access to relevant knowledge
- **Cost minimization** - Costs associated with sourcing, and leveraging knowledge are minimized
- **Fostering Linkages** - Brings together people towards achieving a common goal (e.g. technology transfer, licensing, startup creation, joint research projects, etc)

International Knowledge Networks for Technology Transfer

Some examples:

- BRICS Technology Transfer Network (BRICS TTN) - http://brics-ttn.org
- Climate Technology Centre and Network (CTCN) - https://www.ctc-n.org
- Global Innovation & Technology Alliance (GITA) - https://www.gita.org.in
- WIPO GREEN Database https://www3.wipo.int/wipogreen/en/
- Climate Business Innovation Network (CBIN), The World Bank

Strategies for International Participation

Effective participation and use of international knowledge networks would require:

- Establishing a robust and dynamic outreach strategy (online and offline)
- Building and promoting **innovation clusters, technology licensing/transfer offices and TBIs with international operations**
- Capitalizing on **self-advantages** to find a position in the global value chain – **low manufacturing cost**
- Improving technology innovation and **shifting to the high end of value chain**
- Learning from **international experiences** and continuing to improve **managerial skills and expertise**

Source: Tech Monitor, Jul-Sep 2012

Knowledge/Data Sources for Networking

- **S&T databases** – Thompson Reuter's Web of Science, Scopus database, Google Scholar (open source database), specialized databases in medicine, environmental science, materials, etc
- **Patent/Tech databases** – Sources of patents, technology information
- **Technology updates** and periodicals
- **Trade journals** – Source of new product announcements
- **Business databases**
- **Corporate websites**
- **Online and Offline networks**

APCTT's Web-based Platforms and Tools for Networking

- Asia-Pacific Online NIS Resource Centre (http://apctt.org/nis/)
- Technology4SME Database (www.apctt.org)
- Global Technology Databases (www.apctt.org)
- Renewable Energy Technology Database (www.apctt.org)
- Tech Monitor Website (www.techmonitor.net)
- Asia-Pacific Nanotechnology R&D Management Network (http://apctt.org/nanotech/)

Asia-Pacific Online NIS Resource Centre

http://apctt.org/nis/

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Asia-Pacific Online NIS Resource Centre…

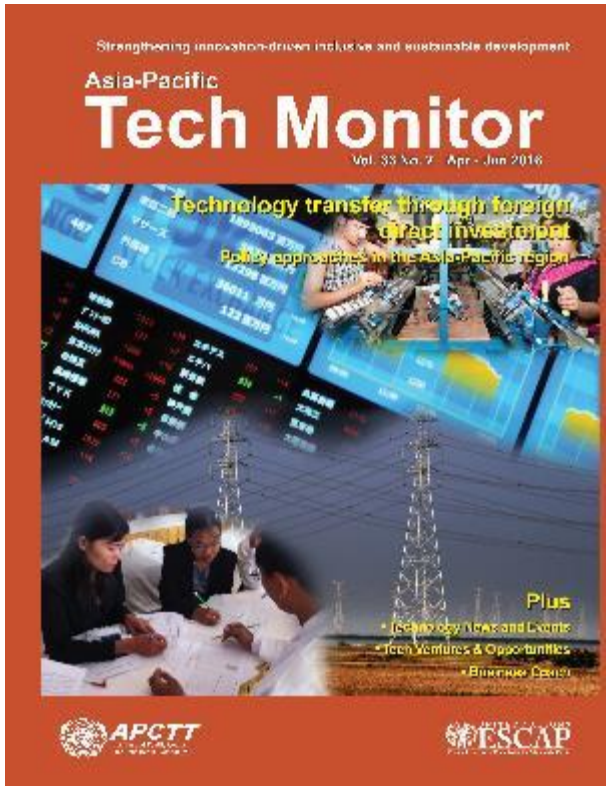
- Provide access to information on government policies and support mechanisms that would help NIS actors in transforming their innovations to commercial products or processes.
- Organize training of partner institutions and stakeholders
- Support in designing, developing, managing and maintaining country-specific Online NIS Resource Centres

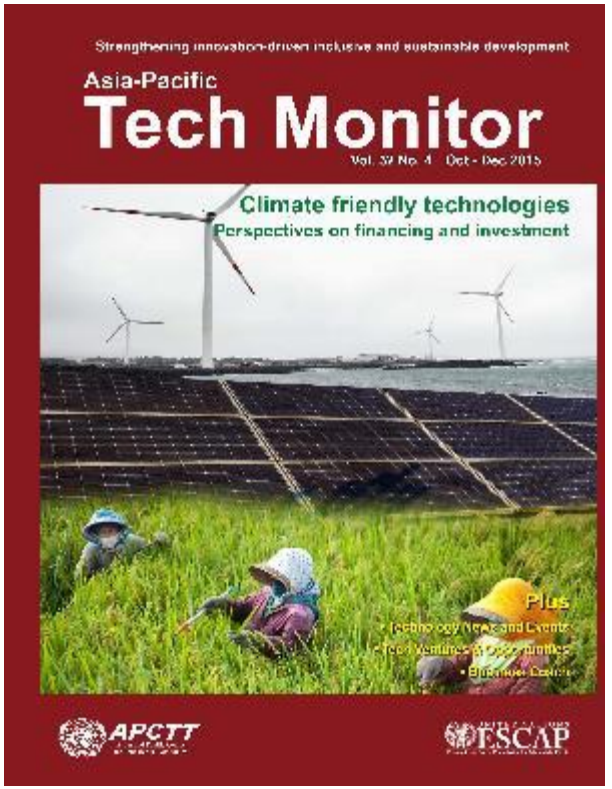
Technology Intelligence Services of APCTT

http://www.techmonitor.net

- **Asia-Pacific Tech Monitor journal**
- **Value Added Technology Information Service (VATIS) Updates** on Waste Management, Food Processing, New and Renewable Energy, Ozone Layer Protection and Biotechnology
- **Focus** – Innovative technologies, Technology trends, Policies, Market, IPR, Innovation management, Technology events, Technology opportunities, etc
- **Target audience** – Policy makers, SMEs, Technology transfer intermediaries, Policy analysts, Researchers, Academia

Asia-Pacific Tech Monitor





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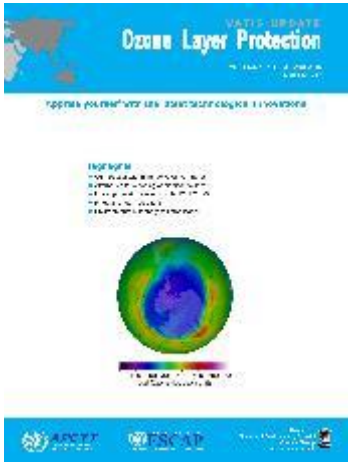
VATIS Updates



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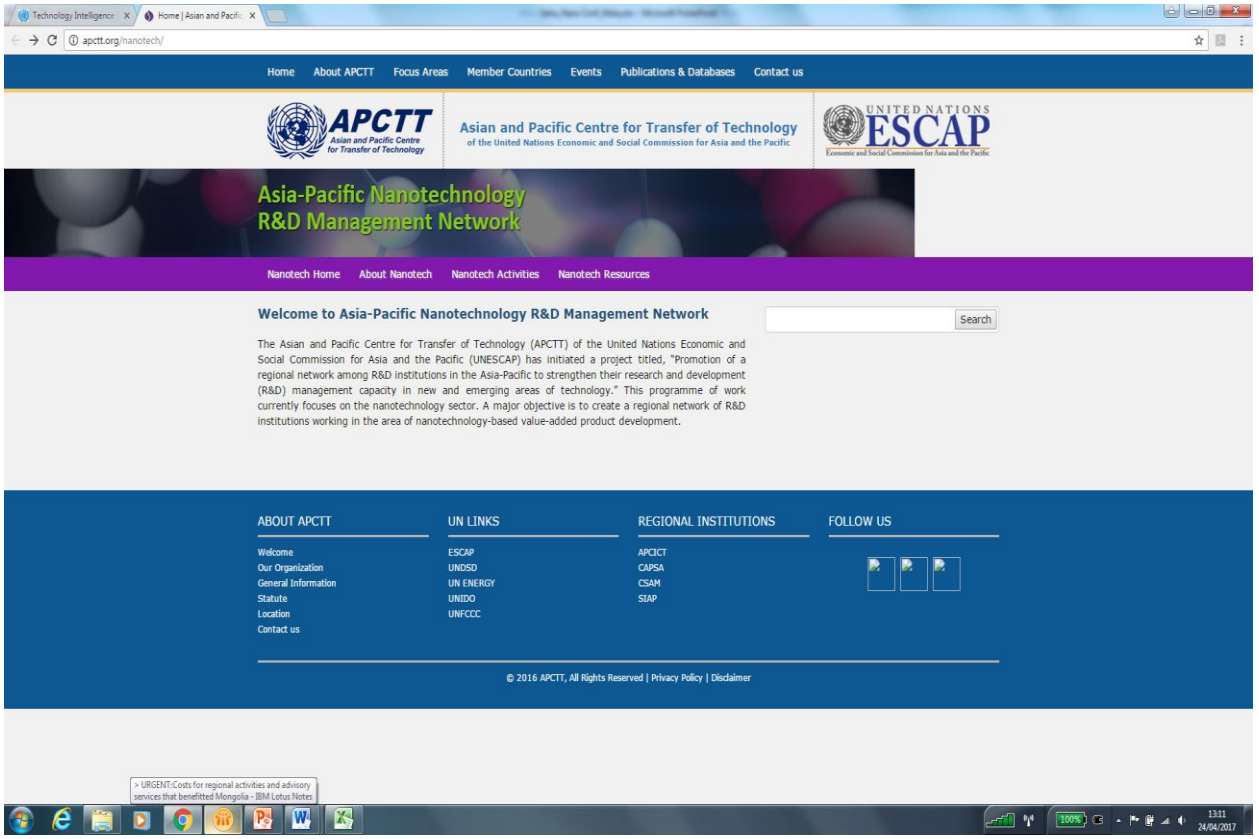
http://www.techmonitor.net

Facilitates visitors to:

- ✓Network with potential partners
- ✓Explore technology and business opportunities
- ✓Know latest technological developments and events
- ✓Read articles on technology trends, markets and technology transfer
- ✓Gain knowledge on innovation management, start-up venture creation, green productivity, etc.

Asia-Pacific Nanotechnology R&D Management Network
http://apctt.org/nanotech/



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Focus of Nanotechnology Network

- Nanotechnology-based value added products
- Capacity building on critical aspects of R&D management
- collaboration between R&D institutes and
- Networking among R&D institutions
- Commercialization of research results
- Information exchange / sharing
- Sharing of experience / best practices
- Lessons learned from case studies

Promoting Regional Cooperation and Networking in Nanotechnology

- APCTT's workshop on nanotechnology R&D management held in 2014 in Tehran, Islamic Republic of Iran led to the **establishment of a tripartite programme** on 'Nanoparticle characterization comparison on nanoparticle size activity' between **Iran, Thailand and Taiwan province of China** under the aegis of Asia Nano Forum (ANF).

- Establish an online Nano-safety Networking Platform for stakeholders in the ASEAN countries in partnership with a national or regional institution

- Facilitate **cross-border sharing of methodologies and testing procedures** related to safety of nano-products

- A key partner institution, the Asian Institute of Technology (AIT) has expressed interest to discuss with APCTT on the formation of an **ASEAN Nanotechnology Association**.

Concluding Remarks

- Participating in knowledge networks is key to acquire up-to-date information and establish linkages and partnerships for innovation and technology commercialization.
- The complex challenges of research commercialization and technology transfer could be addressed through wider networking with stakeholders.
- Universities and research laboratories need to strengthen their industry outreach programmes to bridge the gap with industry
- Participation in international knowledge networks can boost the chances of cross-country technology transfer.
- Web-based platforms and online tools are effective and faster means to facilitate networking and linkages for research commercialization and technology transfer.

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Thank you

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