

Technology development support models

Anand Patwardhan

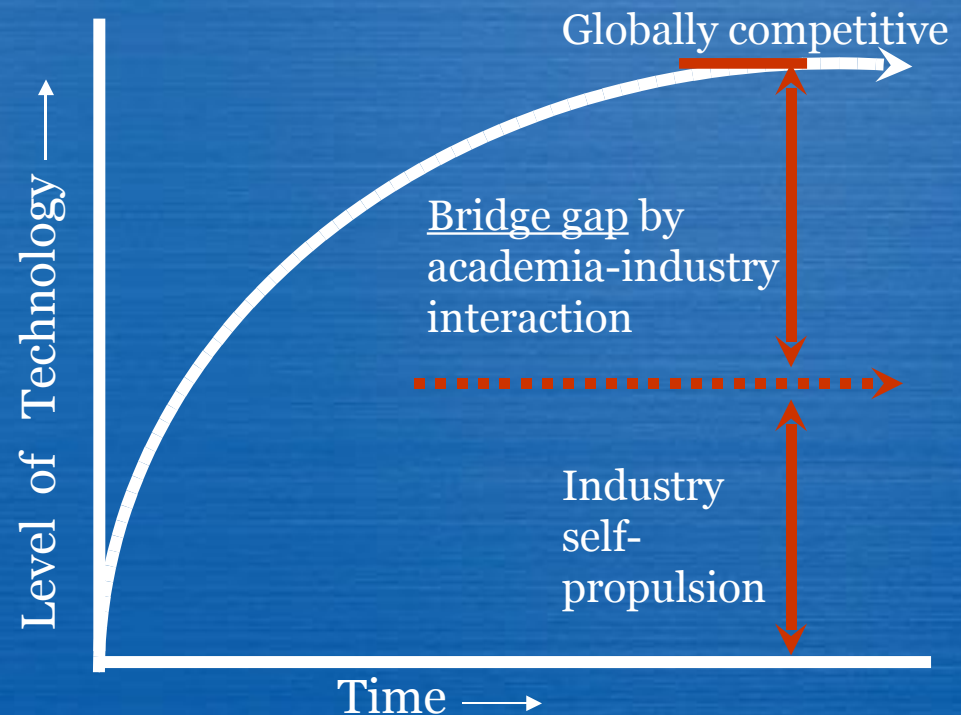
Executive Director

Technology Information, Forecasting
and Assessment Council

Challenges for industry

- To succeed in today's environment you need to be competitive, but that is not enough – innovation is key
- In many sectors, Indian companies are competitive in cost and quality, SME's are no exception; but we have to go beyond
- How can we help create and support innovation-driven companies?

*Indian companies are smaller
So, research collaborations are necessary.
Long term research is best done
by academia.*





Match support systems to the stages of technology development

- Basic research:
 - Academia/R&D institution led, with or without industry involvement
- Applied research, including idea generation and proof-of-concept:
 - Academia/R&D institutions, perhaps with industry involvement in consortium mode (pre-competitive)
- Prototype / pilot plant, first stage of technology development:
 - Collaborative R&D (joint), with IPR sharing, perhaps competitive
- Scaling up / development of a production-ready prototype, beta release, pre-market introduction:
 - Typically industry-led, perhaps with some form of knowledge institution involvement



Pre-competitive R&D consortia

- Where might they work
 - Capability acquisition in areas of general interest to the industry (catch-up)
 - Areas that are not in the immediate product development pathway for industry
 - Generations ahead (long-term)
 - Not in core automotive disciplines but in complementary fields or industries with unanticipated crossover possibilities
- Approaches
 - Industry-led and academia supported (Japanese)
 - Academia-led with industry involvement (US)
- Regardless...
 - Companies collaborate with each other and with academia, and contribute
 - IPR and know-how created by the consortia is available to all members
 - Typically an open process is followed for Consortia formation
 - We expect consortia to have upwards of 6-8 members
 - Some examples follow

Light weight automobile body: **High Strength Steel & modern metal-forming processes**

- Consortium lead by ARCI, Hyderabad. Members: IIT Bombay, Tata Motors, Mahindra & Mahindra, Tata Steel, ProSIM
- Objective is to come up with material selection and process design for max. weight reduction & enhanced performance.
- Components: Door inner for TWB (10-15% wt reduction) & Chassis long member for Hydroforming (15-20% wt reduction)
- Laser welding at ARCI, formability studies at IIT-B & simulation studies at ProSIM Bangalore.
- Project cost ~Rs 5 crores. Duration - 24 months.

Engine Management System project

- **Industry- academia consortium project.** Partners : IIT Bombay , IIT Madras representing academia and TVS Motors and UCal fuel Systems representing industry.
- **Objective** is to develop of electronically controlled four – stroke direct injection engine for a two/ three wheelers.
- **Deliverables** will be a validated engine model for sample 4S DI engine of low-cost, low-emission, with engine management systems and fuel delivery systems
- IIT Bombay & IIT Madras as implementing agency, and TVS Motors and UCal fuel Systems as system providers.
- Project cost ~Rs 1.70 crores. Duration - 18 months.
- Project complete - now moving towards commercialization



Telematics Project

Vehicle Tracking and Control (VTC) system

Consortium lead by IIITB, Bangalore. Members: Ashok Leyland, Ashley Transport Services Ltd. HCL Technologies, Harita Infoserve Ltd, PTCS TTK Maps.

Department of Heavy Industries will fund this project for implementation.

Objective is to design and develop telematics system and creating intelligence infrastructure for the functional management of Koyambedu Bus Terminus at Chennai.

Deliverables will be a Bus information on Arrival and Departure Fleet Management, Driver information and assistance, Ticket Status and emergency information and assistance.

Project cost ~Rs 3crores. Duration - 22 months.



In conclusion

- Consortia approaches can be used for different objectives: technology development, technology transfer, capacity-building
- Structure and financing will depend on objective
- Flexibility with regard to IPR arrangements and commercialization
- Private sector can be users and / or technology providers:
 - Support to private sector routed through public institutions