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Nuclear New Horizons: Fueling our Future
October 21-25, 2019 - Santos, SP, Brazil

Technology Transfer: The Case Of The Centro de Desenvolvimento da Tecnologia Nuclear (Nuclear Technology Development Center)

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CDTN
CENTRO DE DESENVOLVIMENTO DA TECNOLOGIA NUCLEAR

CNEN
Comissão Nacional de Energia Nuclear

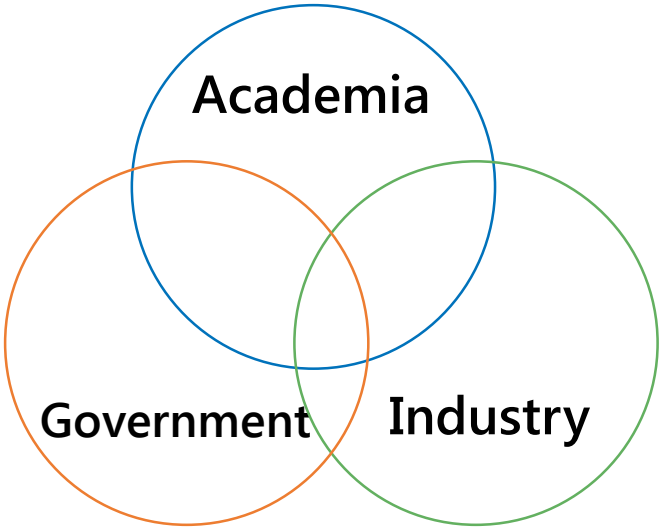
Introduction

Innovation Management and Technology Transfer

Developed countries - 1980s and 1990s

Brazilian ICT

The triple helix model proposed by Henry Etzkowitz and Loet Leydesdorff



INNOVATION

Introduction

Federal Innovation Law – Law 10,973/04

Article 16 - creation of Technological Innovation Centers (NITs) in ICTs

Technology Transfer:

(i) Licensing;
(ii) Publications;
(iii) Meetings;
(iv) Cooperative R & D projects.

The ICT-industry relationship

Promoting a more competitive industrial sector.

CDTN
CENTRO DE DESENVOLVIMENTO DA TECNOLOGIA NUCLEAR

Technologies

Nuclear Technology Development Center

CNEN Comissão Nacional de Energia Nuclear

MCTIC

- ✓ Belo Horizonte / MG - UFMG *campus*;
- ✓ Up to 50 laboratories;
- ✓ Nuclear research reactor TRIGA;
- ✓ Radiopharmaceutical Research and Production Unit.

Environment

Materials

Health

Nuclear Technology

(i) Academic training, with the Masters / Doctorate;

(ii) Provision of technological services.

Nucleus of Technological Innovation

- ✓ Created in 2007 in accordance with the attributions of Resolution n. 70, of December 21, 2007;
- ✓ The activities of cooperation with companies and the provision of technological services - 1980s.

- ❑ Coordinator and an Intellectual Property Analyst
- ❑ Level II Science and Technology Management Fellow

- ❖ Non-Disclosure Agreements
- ❖ Scientific-technological partnerships
- ❖ Protocols of Intent / Academic Cooperations
- ❖ Ownership sharings
- ❖ Research contracts

Objectives

The general objective of the present work is the definition and validation of methodology used to characterize the developed technologies regarding the aspects of maturity and economic interest that will allow the valuation of these technologies and the market prospection for transfer to the productive sector or even the availability of those of social interest.

Methodology

Selecting technologies

Technological description

Technology Portfolio

Survey

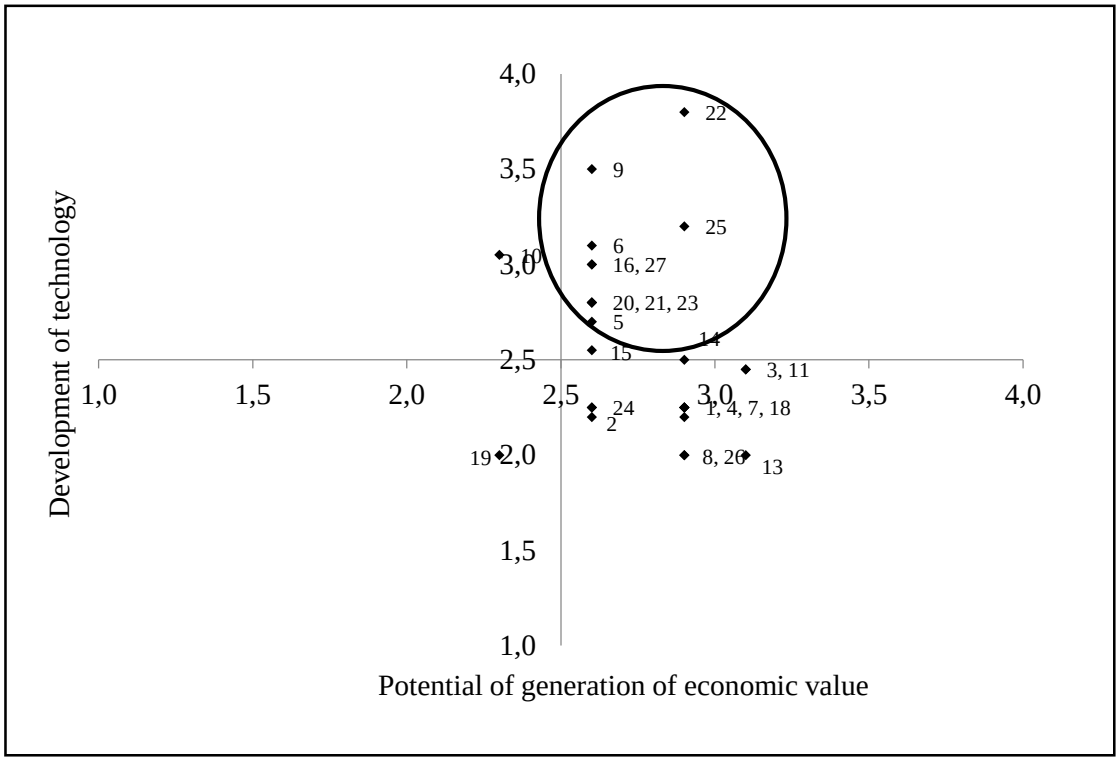
Technology Level of Development

Technology Readiness Level – TRL

Potential of Generation of Economic Value

Classification

Results and Discussion



The highest probability of success in the transfer process.

However they need advances in the development.

Figure 1 – Prioritization of CDTN Technologies.

Results and Discussion

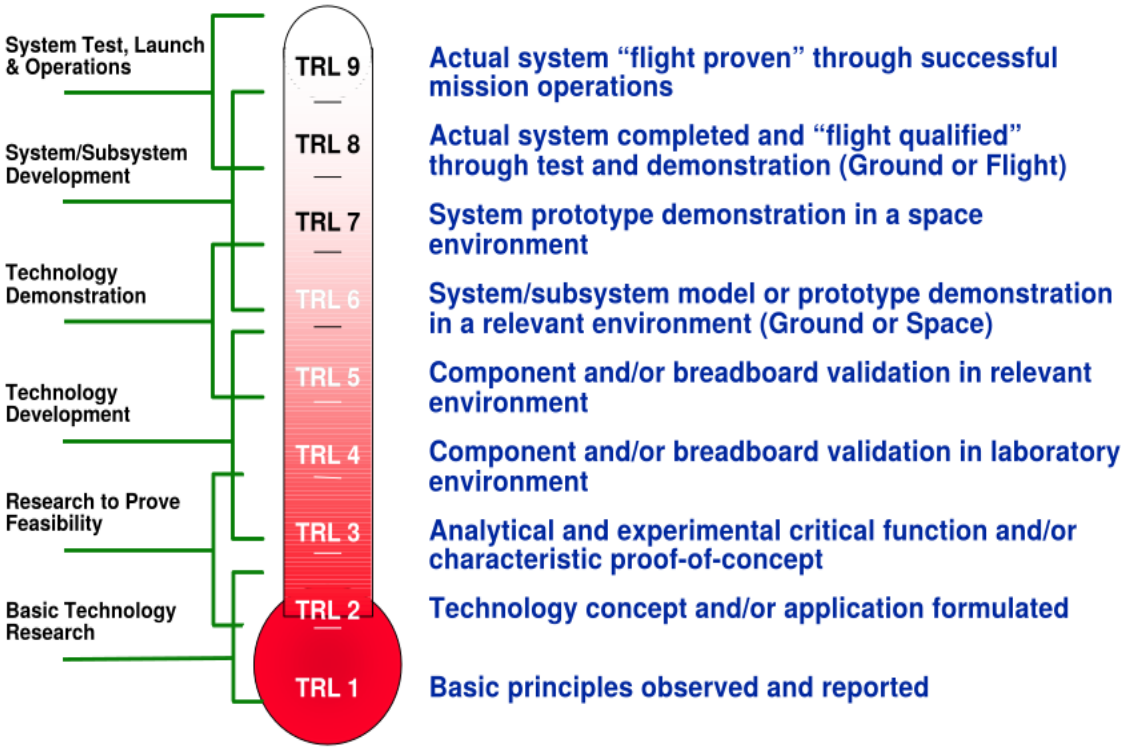


Figure 2 – Scale of technological readiness levels – TRL.

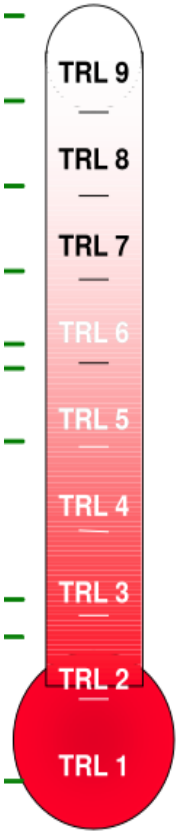
Fonte: C. M. John, "Technology readiness assessments: A retrospective," *Acta Astronautica*, Vol. 65, pp. 1216 –1223 (2009)

Technology Readiness Level (TRL), which was developed with the purpose of providing a measure regarding the state of a new technology in relation to its use for future space systems.

The TRL scale was initially designed in 1974 by Stan Sadin, a NASA researcher [7]. In 1989, this scale was formalized, still with seven readiness levels [8] and in 1995 it was reinforced with two more levels, in a spectrum of one to nine, represented by Fig. 2

Results and Discussion

According to Quintella (2017):



TRL7 to TRL9: finalization of technologies, with high interaction with incubators, technology parks, startup accelerators etc.; traditionally called a demonstration, and then a commercial one.

TRL4 to TRL6: technological development focused on applied research and where technology transfer still has great academic bias requiring rounds of negotiation of IP Portfolios and mentoring, startups; traditionally referred to as a pilot, for example.

TRL1 to TRL3: basic and partially applied scientific research (abstracts in events, articles, etc.); traditionally referred as bench level technology.

The results agree with the TRL methodology and the CDTN technologies are between levels 2 and 4 in which the surveys are at bench level.

Conclusion

ICTs are playing an important role in the system of generating innovation environments, whether in staff training or in support of new business creation. The CDTN has the knowledge, teaching and research that can work together to promote innovation.

It was identified that most of the CDTN technologies are in the pilot phase, which makes it difficult to transfer to the market.

The ideal scenario would be to invest in the most promising technologies to have a breakthrough to the pilot scale.

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Thank you!

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