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Born from Canadian and Mexican leaders in the industry, we specialize in quantifying, controlling, and reducing CH4 emissions. As pioneers in Mexico in applying OGI technology, we support the journey towards sustainability of the O&G international industry.

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TECHNOLOGY TRANSFER THEORY AND PRACTICE AND HOW TO OVERCOME MEXICO'S IMPASSE

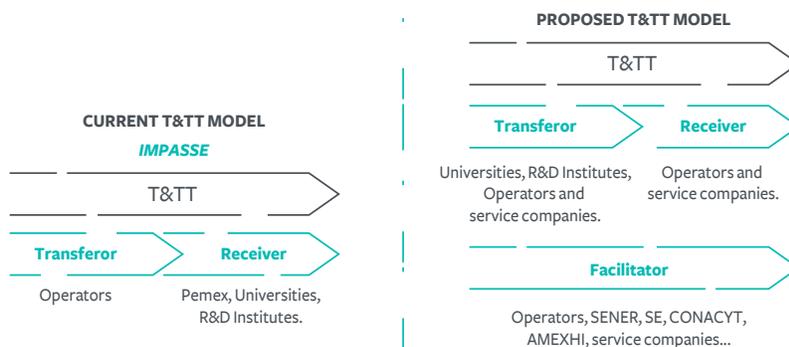
After seven years, oil and gas operators are still confused about how to comply with Training and Technology Transfer (T&TT) Programs in their Exploration and Production (E&P) Plans (Exploration, Appraisal, and Development). As a consequence, there are dozens of T&TT programs that are not approved or stuck in government's process for approval.

Both ministries, Economy (SE) and Energy (SENER), have not realized that our national oil and gas industry won't benefit if E&P companies continue to be forced (through E&P contracts) to act as technology Transferors. Instead, they should recognize that there could be more benefits if they provide more flexibility to the process and allow stakeholders to play the role that brings more benefits to them. In this one-pager, we analyze the T&TT fundamentals and provide some recommendations to overcome the impasse of T&TT in Mexico's oil and gas sector.

How to overcome the impasse in T&TT

The main reason for the impasse is believing that T&TT process only requires Transferor and Receiver (left-hand graph). Moreover, operators not owning technology or not benefiting from this process are common obstacles for T&TT programs in the Mexican model.

To overcome the impasse, we need a T&TT model where all stakeholders benefit from the T&TT process. Thus, we propose **two improvements for Mexican T&TT model that require no legal or regulatory changes:** (1) **Including the role of Facilitator** (right-hand graph) which can provide support in different areas like financial, networking, symmetric information, regulatory compliance, among others, and (2) **allowing operators to participate as Receivers, Transferors or Facilitators.**



The **main flaw of the current model** is to consider that T&TT processes are automatic. The government only sets a contractual obligation for E&P companies (the Transferors) to transfer technology to the National Oil Company or Mexican research centers (the Receivers). However, there are two main obstacles in this model: (1) the **lack of clear incentives for operators to share** their technologies (which could be part of their main competitive advantage); and (2) **Limiting their role the one of Transferor.**

The **proposed model is more flexible** as it allows all stakeholders (operators, PEMEX, Universities, service companies, etc) to participate as Transferors, Receivers and Facilitators. **This flexibility will improve all T&TT Fundamentals:** Stakeholders, Capabilities, Commitments and T&TT Environment. (see definitions at the section at the margin).

Conclusion and recommendations:

T&TT requirements are not working, and Mexico must make some changes in order to benefit from the activities of an increasing number of international players in E&P activities (operators and service companies). International experience is already in place and Mexico can apply it without any further change in regulatory or legal framework. For instance, allowing **operators to play the role of Facilitator** or even as a Recipient. Additionally, **SENER and SE** can implement mechanisms to improve coordination, communication, and networking, such as a National T&TT Strategies or Forums like OG21 Forum (Norway) and The North Sea Transition Forum (UK).

To be successful, T&TT must consider the following fundamentals:



Stakeholders:

(a) Receiver, (b) Transferor, and (c) Facilitator.



Capabilities:

Technical (assimilation, adaptation, and diffusion) and non-technical (communication, leadership, teamwork, adaptability, problem-solving, etc.)



Commitment:

is the glue that holds the stakeholders or process participants to achieve a successful T&TT process. Commitment requires that every stakeholder understands the objectives and seeks their achievement.



T&TT Environment:

Among all stakeholders and external (political, economic, social, technological, among others).

Five steps for operators to follow during their T&TT processes.

1. Establish active partnerships between key stakeholders to enhance T&TT (government, AMEXHI, operators, receivers, others);
2. Permanent assessment of T&TT needs; (receivers, AMEXHI)
3. Stakeholder participation in the processes of technology creation, development and adaptation; (operators, service companies, universities, R&D, etc)
4. Design and implement T&TT plans and specific actions (AMEXHI, operators, service companies, universities, R&D, etc);
5. Assess and improve actions and plans, and (operators and service companies)

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