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India SMART UTILITY Week 2025

Session : CAPACITY BUILDING IN UTILITIES FOR ENERGY TRANSITION (In Collaboration with SKILL COUNCIL FOR GREEN JOBS

Innovative Capacity Building: AI and Blockchain Integration

Presented By

Prof. (Dr) Subhra Das, Head, Amity Skills Institute, Amity University Haryana

India's Nationally Determined Contribution to UN framework for Climate Change

- To reduce Emissions Intensity of its GDP by 45 percent by 2030, from 2005 level.
- To achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of transfer of technology and low-cost international finance including from Green Climate Fund.
- To create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030.

India’s Missions for Decarb

The National Solar Mission

Ambitious renewable energy target of achieving 500 GW from non-fossil sources by 2030.

Cumulative Solar power installed as on Feb. 2025 is 102.57GW.

The National Electric Mobility Mission Plan 2020 launched in 2013

Aims at promoting hybrid and electric mobility in India through a combination of policies.

The 2020 roadmap estimates a cumulative outlay of about Rs.14000 cr. during the span of the scheme, including industry contribution.

The National Green Hydrogen Mission is a program by the Government of India to make India a global leader in the production, use, and export of green hydrogen.

The mission was approved by the Union Cabinet on January 4, 2023.

India’s Progress in Hydrogen Technology

Energy Transition- Challenges for Utility Companies

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Grid Modernization

Intermittency of Renewables

Technological Integration

Financial Sustainability

Regulatory and Policy Issues

Workforce Transition

Technical Skills

Renewable Energy Technologies
Grid Modernization
Installation and Maintenance
Data Science and Analytics

The Ministry of Skill Development & Entrepreneurship has launched several skills development programs which are offered Free of Cost to Upskill the workforce .

What are the Challenges?

Training Program Duration

Training delivery primarily occurs in physical classrooms, with mandatory biometric attendance for verification.

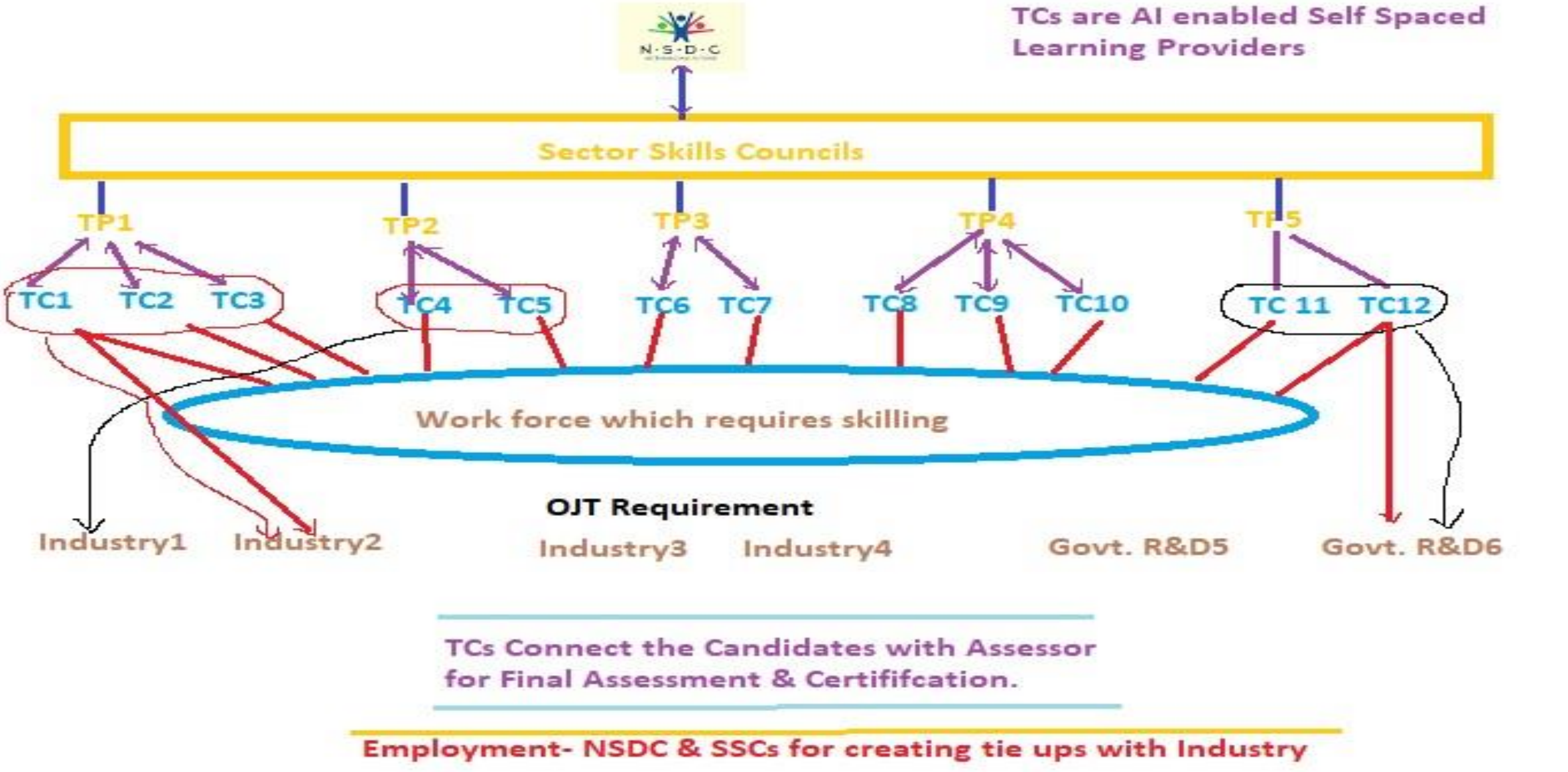
Emphasis on **maintaining consistent quality standards** across all TPs & TCs.

For emerging technologies, **employability i**s a key consideration due to limited industry presence.

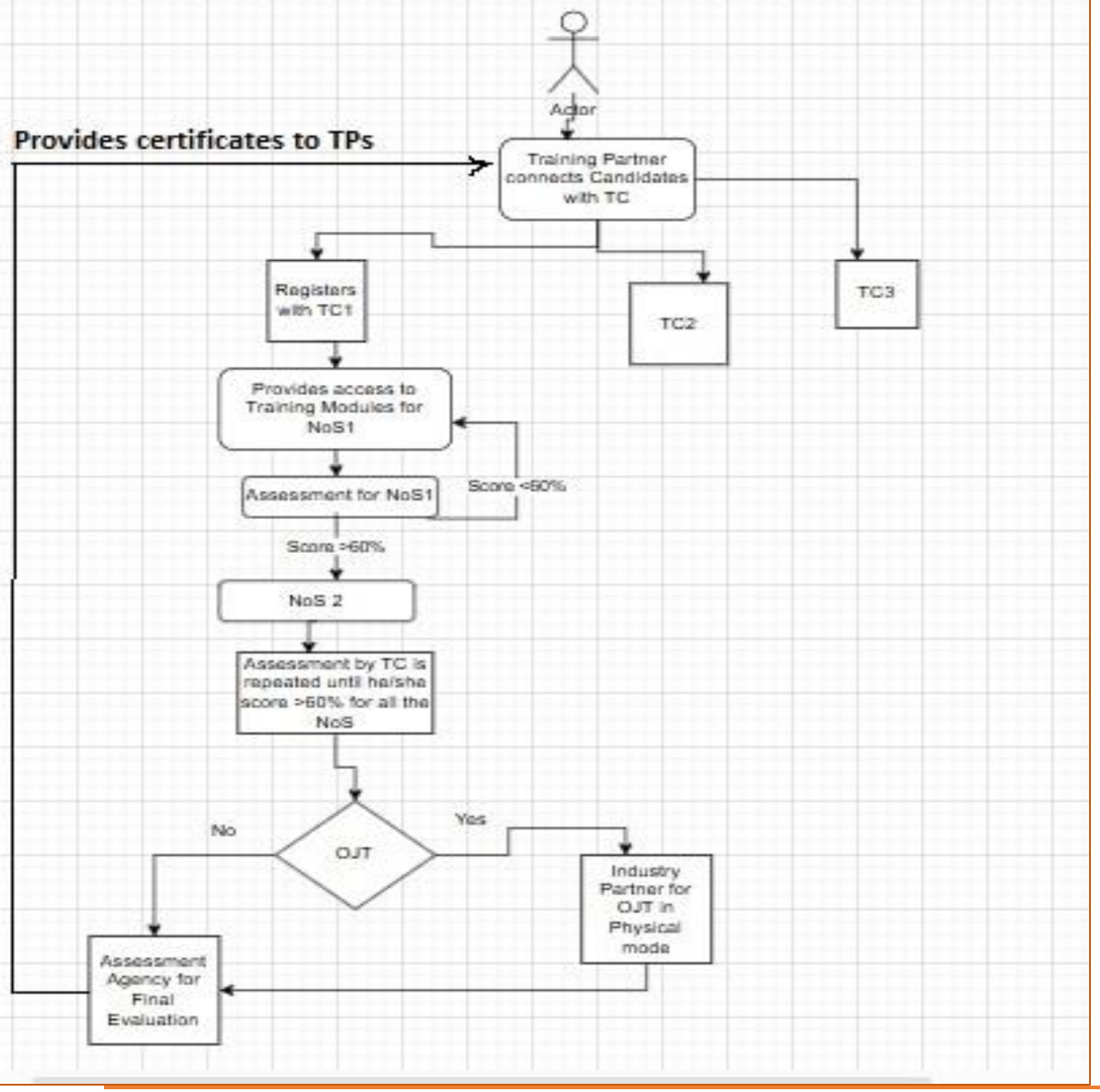
Soft Skills

Adaptability and Lifelong Learning
Problem-Solving and Critical Thinking
Communication and Collaboration
Project Management

AI & Blockchain Integration in Capacity Building



Skilling Mechanism for the Proposed Model



Advantages:

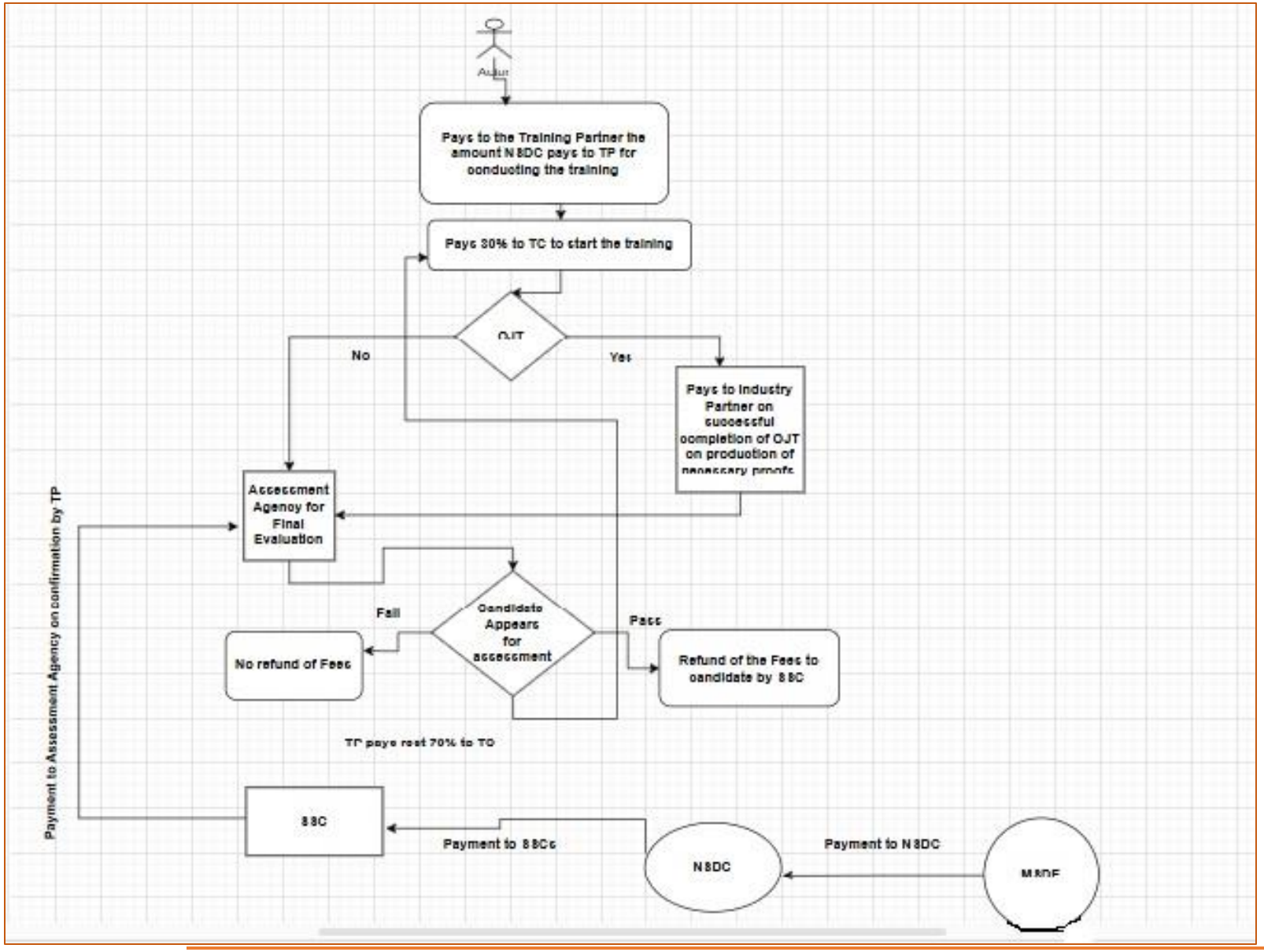
- **Quality assurance** through moderated content and delivery.
- **Course material** can be created in **regional language.**

- **Flexible learning** tailored to individual schedules. **Self-paced learning** convenience.
- **Continuous monitoring** and measurement of learning progress.

- **Guaranteed achievement of learning objectives.**

- **Elimination of travel and workplace absence** for theoretical training.
- On-the-job training (OJT) as the sole physical presence requirement.

Financial Model for the Proposed Scheme



Advantages:

The candidate's upfront payment ensures dedicated participation and serious engagement with the training.

Timely payments to all stakeholders are guaranteed.

The payment process is streamlined for ease of use.

Training success is a shared responsibility between candidates and Training Partners/Training Centres.

Candidate-funded training mitigates the risk of government financial loss in cases of non-completion.

KEY TAKEAWAYS / RECOMMENDATIONS

To ensure our capacity-building efforts align with industry demands, we recommend:

- Employing AI-powered learning platforms that adapt to individual learner needs and progress.
- Using blockchain to securely store and share learner credentials and achievements, creating verifiable digital portfolios.
- Utilizing blockchain to secure AI training data and models from unauthorized access and manipulation.
- Use AI to analyse training data for biases and promote fairness in AI-driven capacity-building programs.

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THANK YOU

For discussions/suggestions/queries email: isuw@isuw.in

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Links/References (If any)