



SESSION A6 INNOVATION

Implementation of innovative infrastructure solutions

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Digital MRV Readiness for Carbon Pricing Systems in Moldova

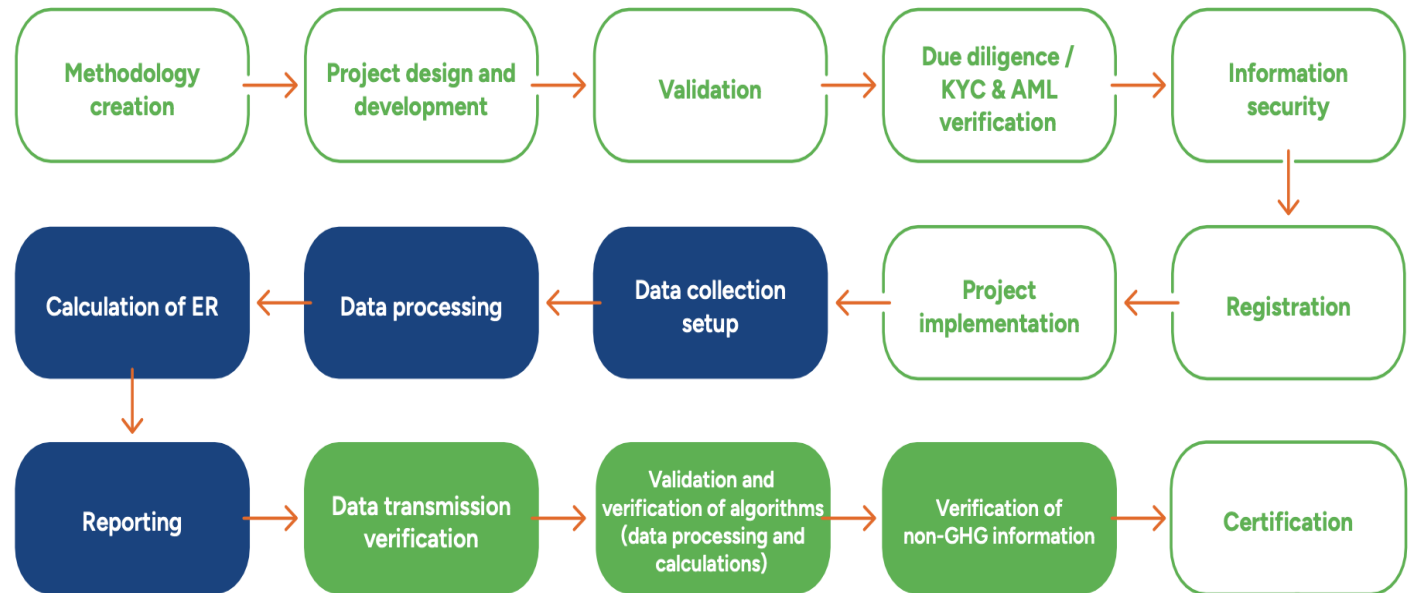
Why Digital MRV Matters

- Carbon pricing systems require trusted emissions data
- Manual MRV becomes difficult to scale
- Digital MRV supports:
 - transparency,
 - efficiency,
 - interoperability,
 - lower transaction costs,
 - faster verification, and
 - stronger integrity.
- Moldova Context:
 - Moldova is working on introducing carbon pricing and EU alignment
 - Early digitalization avoids lock-in to inefficient legacy systems
 - Important for future interoperability with EU-related systems

What is Digital MRV (dMRV)?

- Digital MRV integrates digital infrastructure into emissions monitoring, reporting, and verification workflows through automation, digital data capture, interoperability, and continuous validation.
- Key technologies:
 - IoT sensors
 - APIs
 - Digital reporting platforms
 - Satellite data
 - AI/analytics
 - Blockchain/DLT

Integrated digital infrastructure with automated data processing and parallel verification tracks



Barriers and Risks

- Technological
- Operational
- Regulatory
- Integrity/Inclusion

- Lack of technical expertise, unclear standards, interoperability gaps, cybersecurity, resistance to change
- Potential constraints for Moldova: institutional capacity constraints, fragmented datasets, evolving legal framework, limited digital integration across agencies
- Integrity constraints:
 - “black box” algorithms,
 - cybersecurity,
 - data tampering,
 - unequal access,
 - algorithmic bias,
 - vendor lock-in.

How to Assess dMRV Readiness

- Readiness benchmarking
- Countries can assess dMRV maturity using structured evaluation criteria.
 - transaction costs
 - transparency
 - accuracy
 - scalability
 - speed
 - standardization
 - fraud resilience
 - accessibility

Moldova Readiness (Self)Evaluation

	Emerging	Developing	Advanced
Legal framework	X		
Institutional coordination		X	
Data infrastructure	X		
Digital reporting systems	X		
Verification capacity	X		
Interoperability	X		
Cybersecurity		X	
Automation readiness		X	

High-Value dMRV Hotspots and Technical Caveats

- Not all MRV elements should be digitized at once.
- Priority areas:
 1. Measurement & data storage
 2. Emission reduction calculations
 3. Verification
 4. Reporting
- Technical Caveats:
 - Data integrity & conservative quantification
 - Digital verification challenges
 - Challenges of non-GHG verification

Next steps and plans

- Short-term:
 - digitalized reporting templates
 - structured emissions database
 - pilot workflows
 - capacity building
 - standardized data protocols
- Long-term:
 - interoperability standards
 - algorithm validation
 - continuous verification
 - registry integration
 - cybersecurity frameworks
 - alignment with evolving EU and international carbon market infrastructure (EU ETS digital reporting evolution)

Moldova will pursue phased, fit-for-purpose digitalization. Capacity-building is essential. Early planning supports future carbon pricing readiness. Standardization and interoperability are critical.

- **Phase 1 — Foundations**
 - institutional mapping
 - data architecture assessment
 - legal review
 - pilot sector selection
- **Phase 2 — Pilot Digitalization**
 - digital reporting tools
 - APIs/data exchange
 - verifier training
 - automated calculations
- **Phase 3 — Integration & Scaling**
 - registry integration
 - interoperability
 - continuous verification
 - broader sector coverage

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