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technologies

ASPECTS OF UNFC DIGITALIZATION

Data quality, security and blockchain

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Digitalized UNFC should be

Easy to use

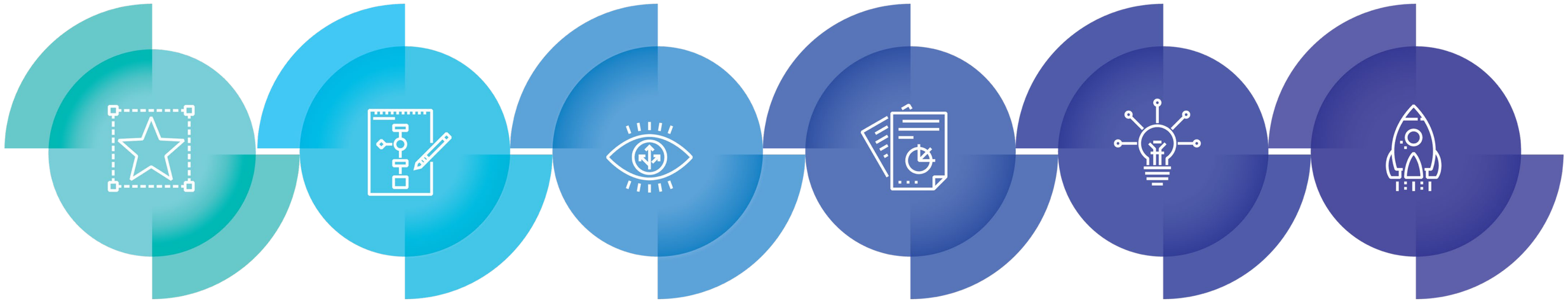
Guided

Controlled

Harmonized

Support Decisions

Implementation Boosting



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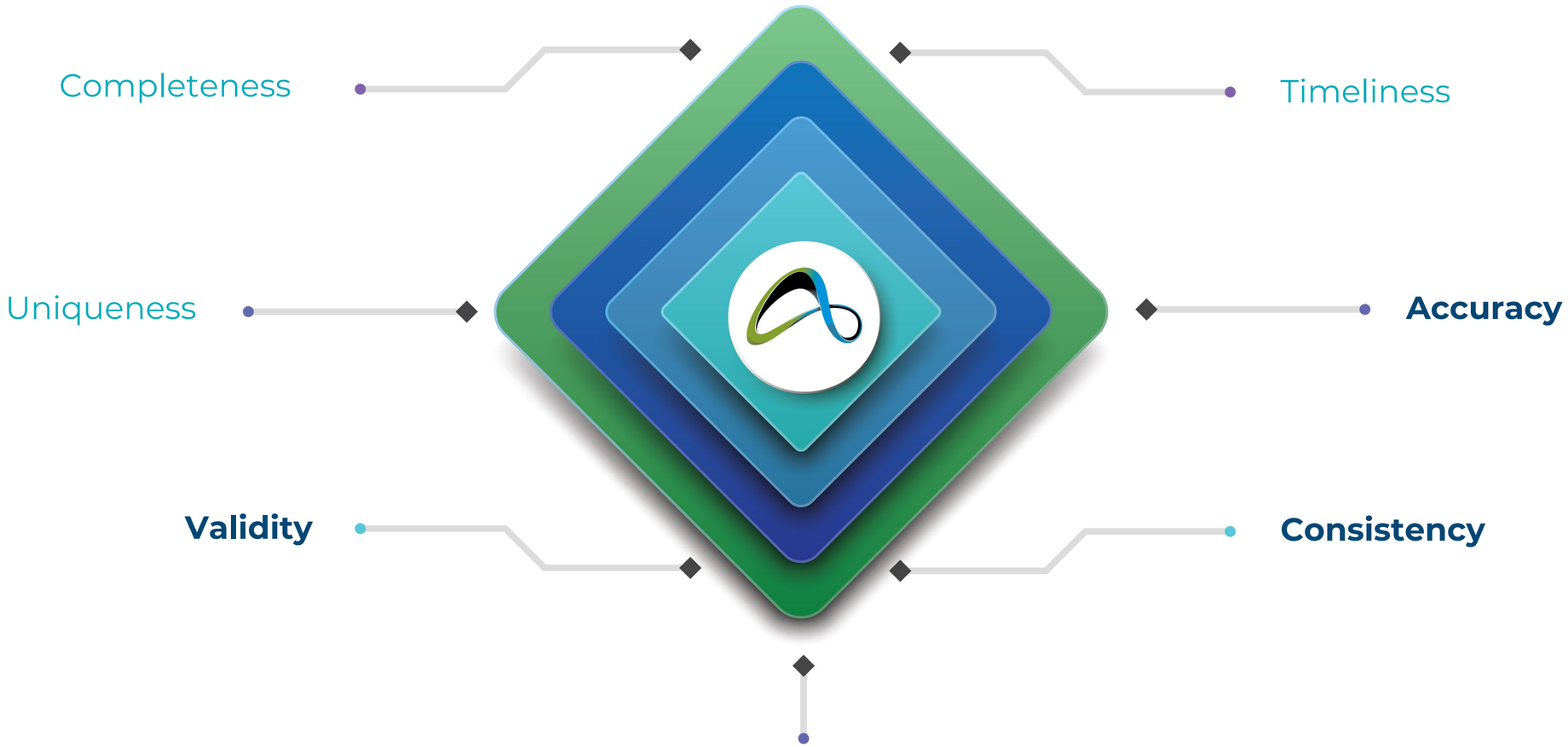
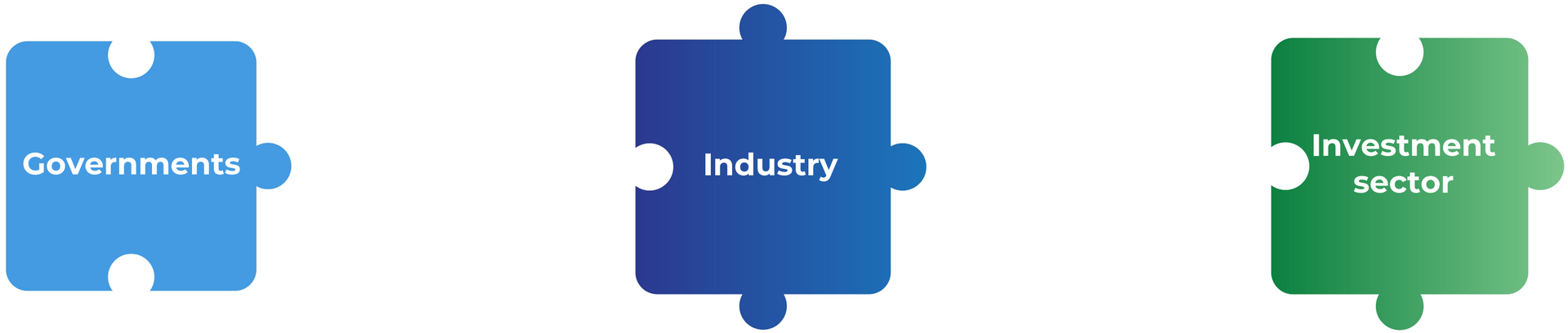
Dimensions of data quality



Fit for purpose

How well our data asset meets the business needs?



UNFC classification E+F Axis
G Axis with synced units

+Gov specific metrics and data:

- **Strategic resources**
- **Licensing**
- **Legal and regulatory frameworks**
- **Taxation**

UNFC classification E+F Axis
G Axis with synced units

+ Industry specific metrics and data:

- **Production**
- **Consumption**
- **Financial metrics**
- **Project management data**

UNFC classification E+F Axis
G Axis with synced units

+ Sector specific metrics and data:

- **Costs**
- **Revenues**
- **Financial needs**
- **Ratings**

Data validity, consistency

Is our data in the specific format, does it follow business/standards rules ?

To ensure quality data input the users need live:

- **Guidance**
- **Education and information**
- **Mappings**
- **UI/UX design which can ensure structured data to avoid data wrangling**

On digitalized UNFC level:

- **The users need to reach the UNFC definitions in a click, differentiated to all commodity**
- **Only the valid combination of categories/sub-categories can be selected**
- **Need to include in app mappings like CRIRSCO, INSPIRE CODES, TRL**

How we addressed validity

Add report to item

You can add a report to item here

Known sources | Potential sources

Template classification

Select and add calssification

Select Class :

Viable/Commercial Project (E1, F1) | Potentially Viable/Commercial Project (E2, F2 | Non-Viable sources (E3, F2) | Remaining products not developed from identified sources (E3, F4)

CRIRSCO: Mineral Reserve

CRIRSCO: Mineral Resource

Category explanation (E1, F1)

Select subclass

- On Production (E1, F1.1)
- Approved for Development (E1, F1.2)
- Justified for Development (E1, F1.3)

Sub-category explanation (F1.X)

Add estimate resources

G1 (low estimate, high confidence)

CRIRSCO: Proved

0.00

G2 (best estimate, moderate confidence)

CRIRSCO: Probable

0.00

Save | Back

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Data accuracy

How well does our information reflect reality?

To ensure quality accuracy digitalized systems needs:

- **Control**
- **Guided decision making**
- **Attached document repository**
- **Automated data gathering**

On digitalized UNFC level:

- **At classification and report making we need to control the currently available categories/sub-categories on all UNFC axis.**
- **The control framework need to be customizable to cover commodity, government and industry specific needs**
- **Comprehensive data repository for supporting documents e.g. technical data, maps, measurement and research results**
- **Competent person report, evaluator documents repository**

How we addressed accuracy

Control Framework
E Axis

Maximum E-axis value: E3.2 Project goal: E1

Generate factor list to reach project goal

Name	Value	Status
Raw Materials Policy at EU MS/Regional/local level	◉ Favorable (E1, E2) ○ Neutral (E3.2) ○ Unknown (E2, F2.2)	On target
EIA permits	○ Been approved (E1, E2) ◉ Not been approved (E3.2, E3.3)	Off target
Mining waste permits	◉ Been approved (E1, E2) ○ Not been approved (E3.2, E3.3)	On target
Royalties	○ Established and allows Project (E1) ◉ Being negotiated, in dispute, uncertain (E2) ○ Not determined (E3.2) ○ Not approved (E3.3)	Off target

Control Framework
F Axis

Maximum F-axis value: E3.2 Project goal: F1

Generate factor list to reach project goal

Name	Value	UNFC	Status
TRL	Actual system proven in operational environment TRL 9	F1.1 Extraction is currently taking place	On target
Technical feasibility	Prefeasibility Studies Complete and Successful or Ongoi...	F1.1 Extraction is currently taking place	Off target

Project extras

AUDIT LOG
Check the full audit log of the project
Open

REPORTS
Add or check project reports
Open

PROJECT TIMELINE
Open, edit and make project timeline
Open

DOCUMENT REPOSITORY
Upload, generate, export project documents
Open

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The control framework is fully customizable this is a demo only data

BLOCKCHAIN – FRIEND OR FOE?

Blockchain is a distributed digital ledger that recording transactions and data.

Conventional databases also can do this but blockchain is doing it totally decentralized: identical copies held on multiple nodes across a network.

The digital ledger or "chain" is made from "Blocks" of data linked securely together and to add a new block majority of nodes must confirm the block.

Once there is consensus, the block is added to the chain. All of this concluding the immutable records.

This technology is excellent for:

- **Supply chain tracking, licenses or Guarantee of Origin**
- **Achieving greater security**

BLOCKCHAIN – FRIEND OR FOE?

But there are some cons and questions:

What about the governance of the network or hostile chain take overs?

How to migrate the existing data?

What about storage of private data? e.g., finance, government and healthcare on de-centralized platforms are concerning from privacy point of view

What about the store of large data volumes, e.g., Electronic Health Records (EHR), images, legal agreements or contracts, etc. the Megabyte or Gigabyte sized files can easily create a high network load across nodes and overload the distributed network.

How can we address these problems:

- Using the blockchain ”only” for security and compliance with a transparent solution
- Add the advanced security and trust of de-centralization while data can be kept by the authorities or users as is.
- Secure and “Anchor” data records on the distributed ledger, but keep the actual data off-chain.

Example data stream and synchronization

Government or Authorities

Implemented Sinegon RP Cloud

Busines Intelligence

Govenment and or authorities can use visualisation and business intelligence tools on structured data provided by RP Cloud datasets.

Handle reports digitally

Government or authorities can collect, view filter and search all reports submitted by companies or site operators

Sustainability management

Manage and classify all resources on a comprehensive global standard platform which is uniformly applicable to all forms of minerals and energy.

Supported decision making

The SDM module assists the management to calculate and visualise the set of optimal portfolios and to make probability models

Easy Reporting

Companies can submit their reports directly from the system on UNFC standards + added data with a few clicks.

Companies

Implemented Sinegon RP Cloud

Busines Intelligence

Companies and site operators can use visualisation and business intelligence tools on structurised data provided by RP Cloud datasets.

Manage projects

Companies and site operators can manage projects and sites with all the added data in a tailored and comprehensive global standard platform uniformly applicable to all resources.

Guided digital reports

Exceptional quality assurance and efficiency with RP Cloud guided reporting system.

Supported decision making

The SDM module assists the management to calculate and visualize the set of optimal portfolios and to make probability models

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Thank You !

References and citations:

- IBM - What is data quality?
- UNECE 2022. UNFC GUIDANCE EUROPE - Guidance for the Application of the United Nations Framework Classification for Resources (UNFC) for Mineral and Anthropogenic Resources in Europe
- ECE/ENERGY/GE.3/2022/10
- Sinegon RP Cloud https://sinegon.com/sinegon-rp-cloud-2/
- Sinegon AT Core https://sinegon.com/sinegon-at-core/

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