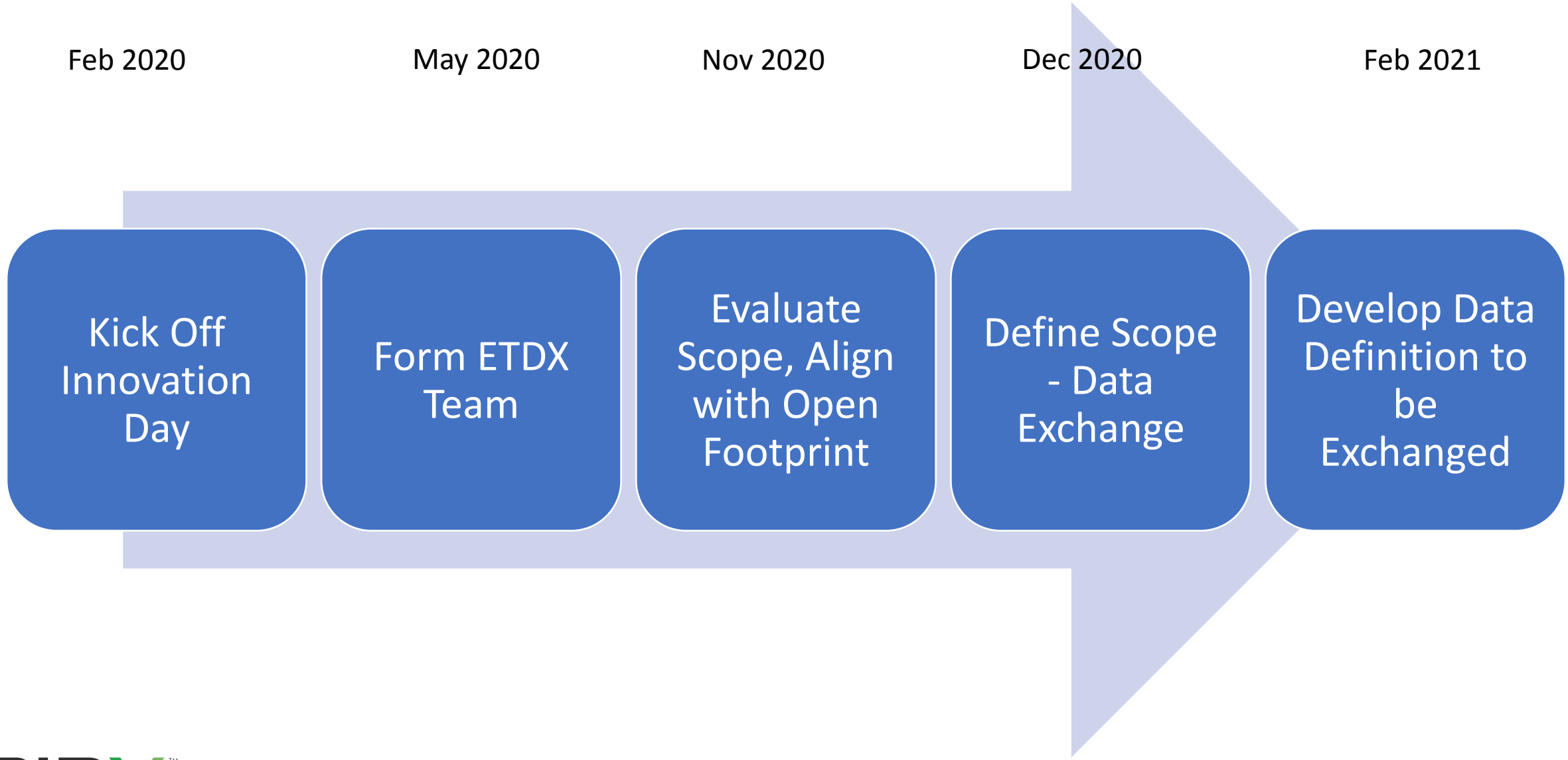
The Journey to Develop a New Standard for the Industry

Chris Welsh – ETDX Workgroup Chair



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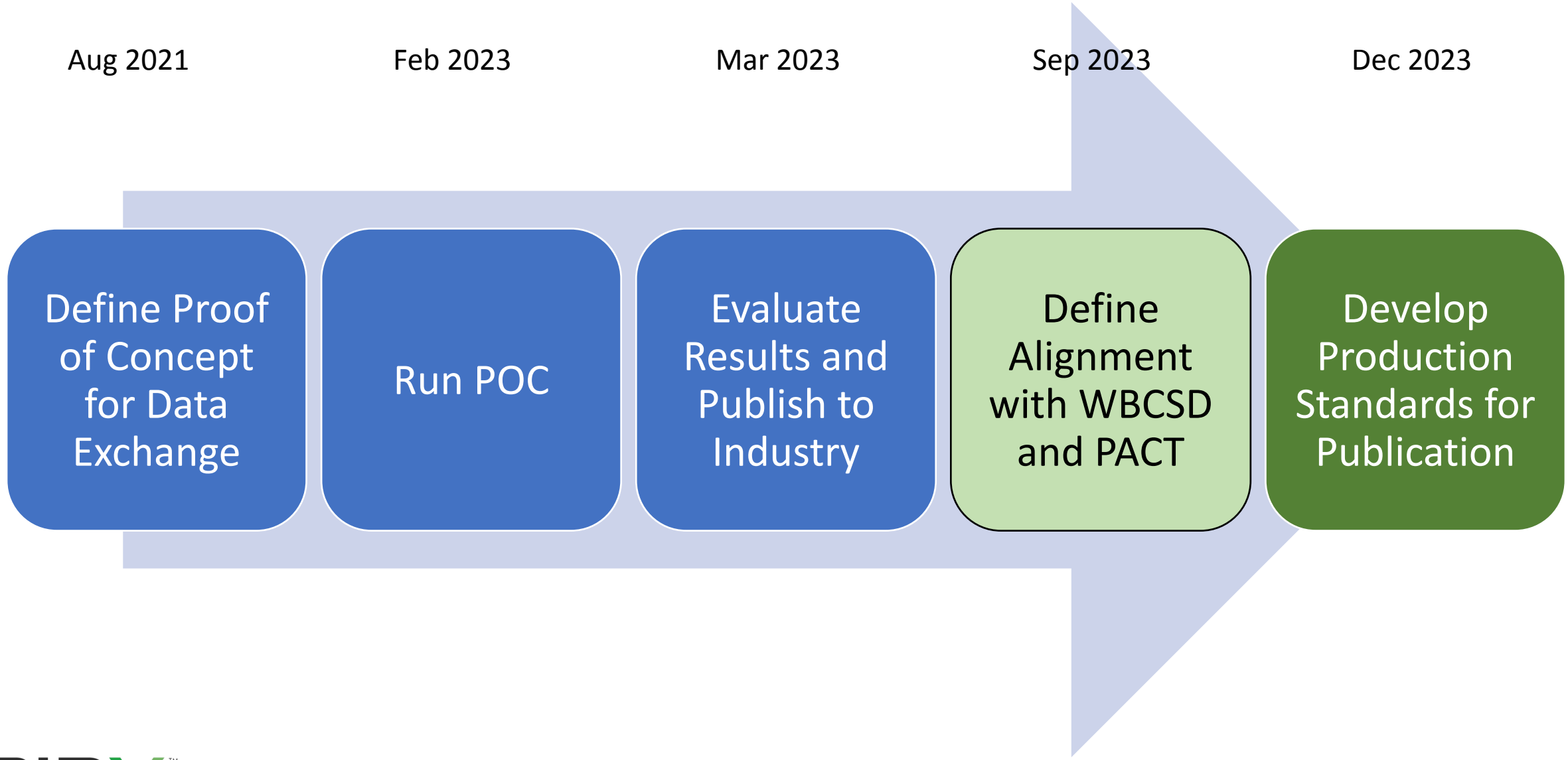

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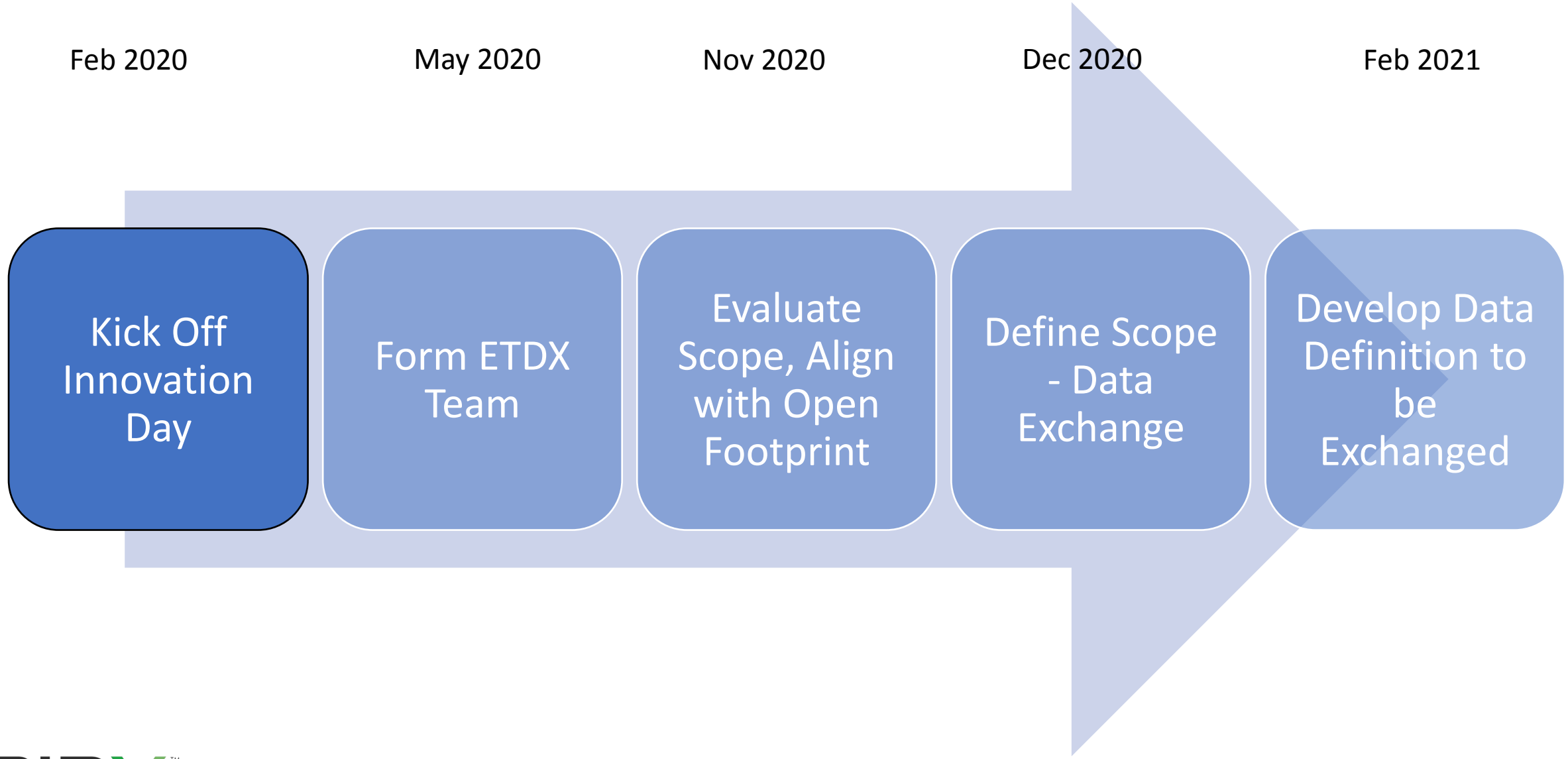

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Proposal to Change Big Idea from "PIDX on Energy Transition" to:

"PIDX-ing the Industry's Energy Transition Journey"

PIDX Innovation 2020

Napkin Pitch Outcome

Big Idea:

PIDX on Energy Transition

PIDX is the forum to develop the Energy Transition Standards and Data Exchange

- **Define the Scope**
- **Determine the Metrics**
- **Define the Data**
- **Collect & Compile the Data**
- **Analysis and Reporting**

Usability/Value Proposition:

- Transparency
- Certifiable
- Tailored to Industry
- Pervasive Data & Depth
- Potential to Benchmark

Execution:

- **Be iterative:** Aim for step-wise approach
- **Perform Collaborative Discovery**
  - Gather requirements from members
  - Include Industry best practices and other bodies (CDP, UN)
- **Develop scope, metrics and standards for data exchange**
- **Propose how data to be collected** / compiled and associated technologies (open source) and support needed – including analysis/reporting (potential PIDX Service)
- **Define standard data models/definitions for carbon emission/footprint** (data generation points)
- **Determine pilots, POCs**

Viability:

- **Use of existing** PIDX organizational and antitrust compliance framework to allow the members' energy transition teams to collaborate as needed to develop open standards and best practices with inherent cost avoidance and open source or other cost reduction potentials
- **Collaboration**
  Industry leadership, bringing experience, all energy participants . resource efficiency (aggregation) of suppliers, operators, and tech networks
- **Proactive in** setting industry Perception and Compliance
  Facilitate behavioral awareness Do it before it's done to "us"

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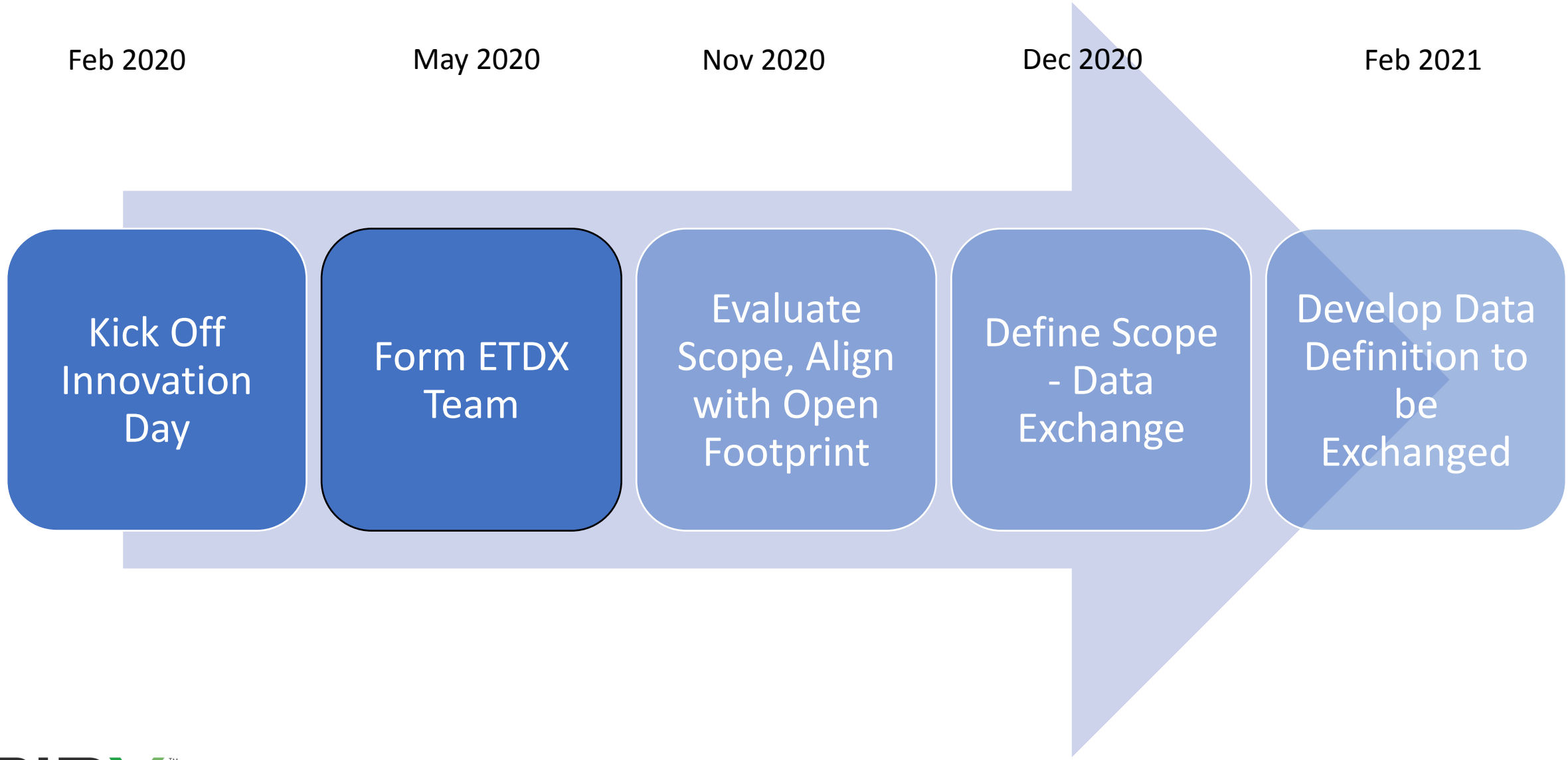

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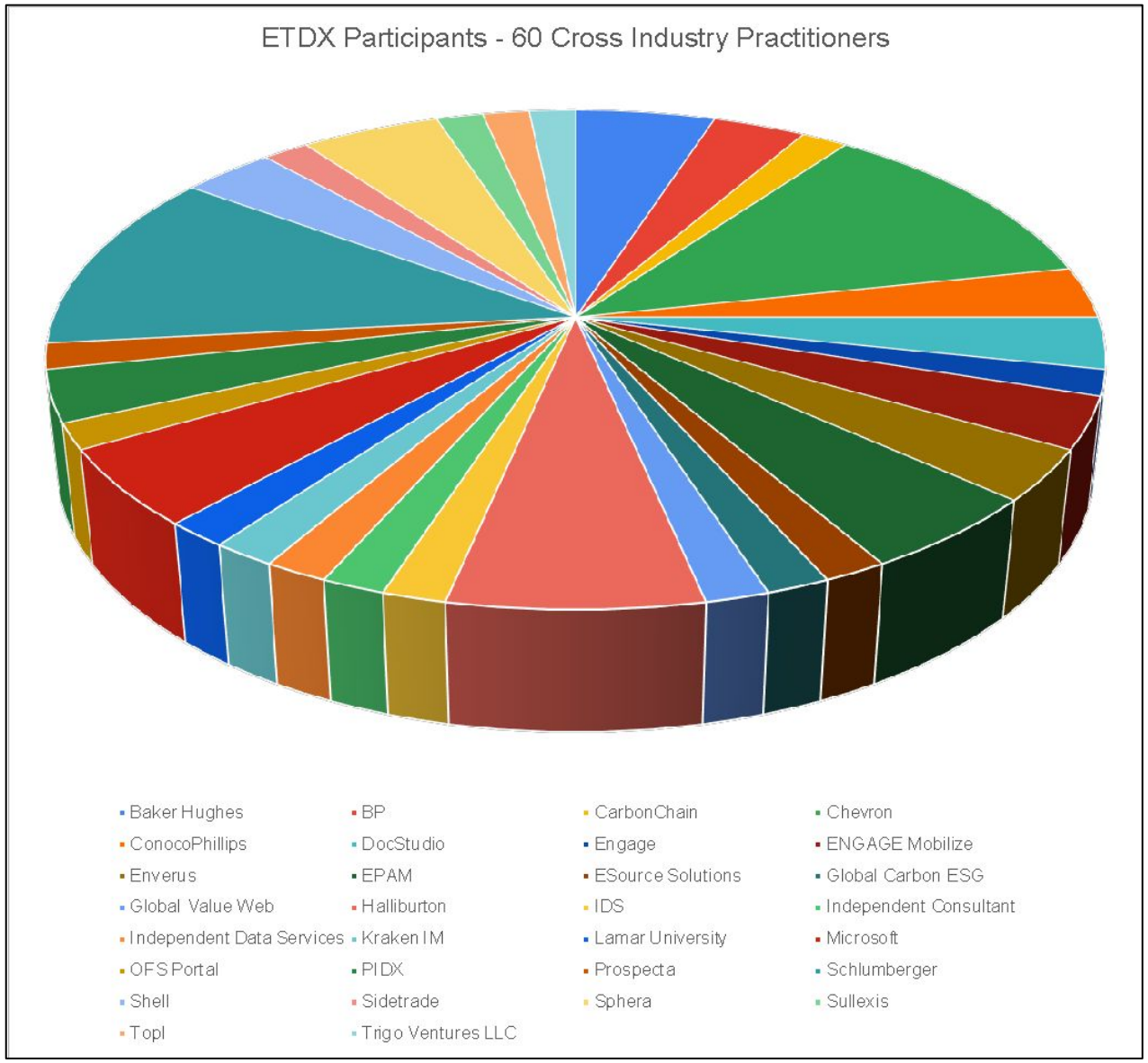
30 Different Companies and Institutions

Baker Hughes	3
BP	2
CarbonChain	1
Chevron	7
ConocoPhillips	2
DocStudio	2
Engage	1
ENGAGE Mobilize	2
Enverus	2
EPAM	3
ESource Solutions	1
Global Carbon ESG	1
Global Value Web	1
Halliburton	4
IDS	1
Independent Consultant	1
Independent Data Services	1
Kraken IM	1
Lamar University	1
Microsoft	3
OFS Portal	1
PIDX	2
Prospecta	1
Schlumberger	7
Shell	2
Sidetrade	1
Sphera	3
Sullexis	1
Topl	1
Trigo Ventures LLC	1



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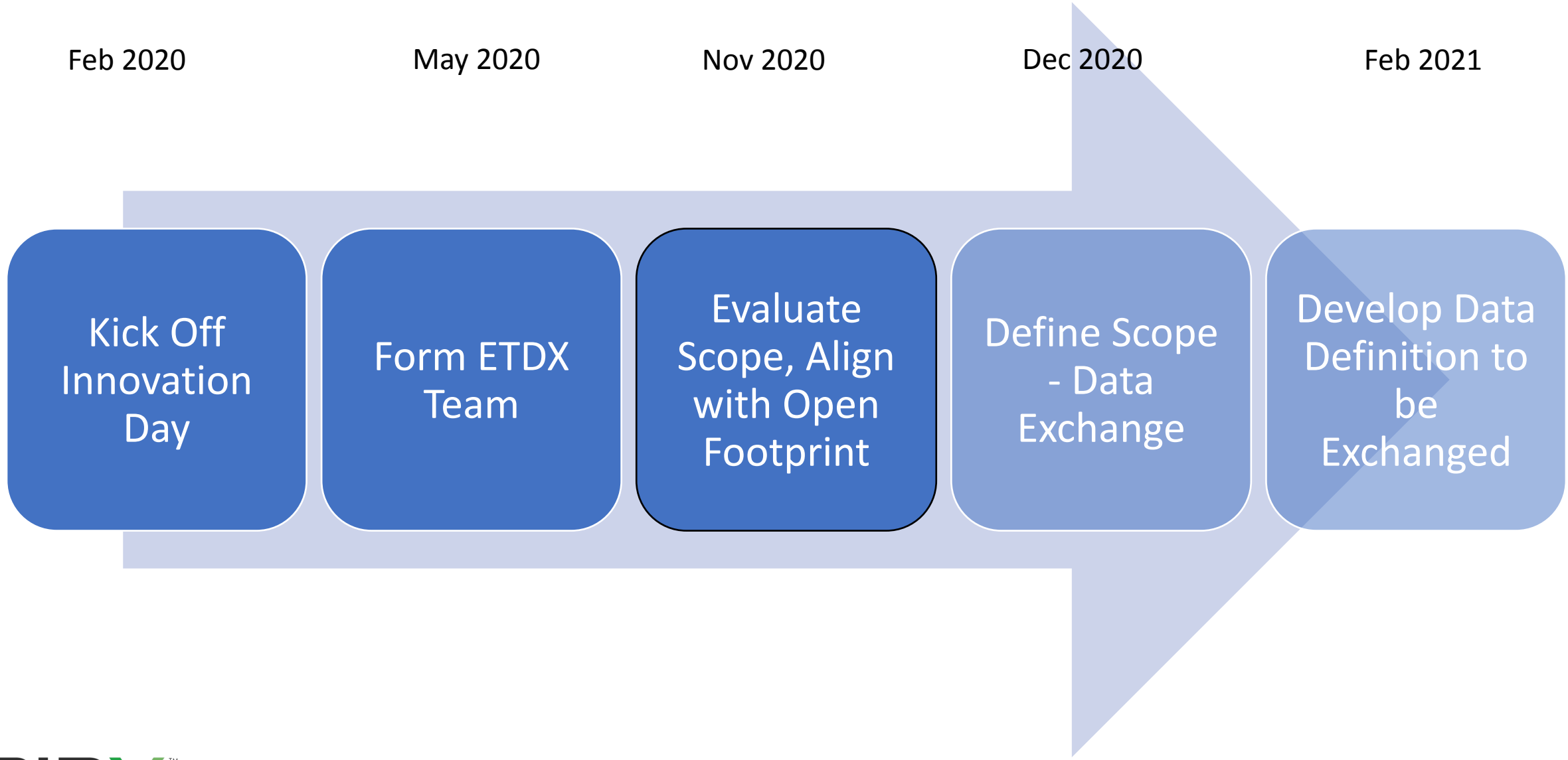

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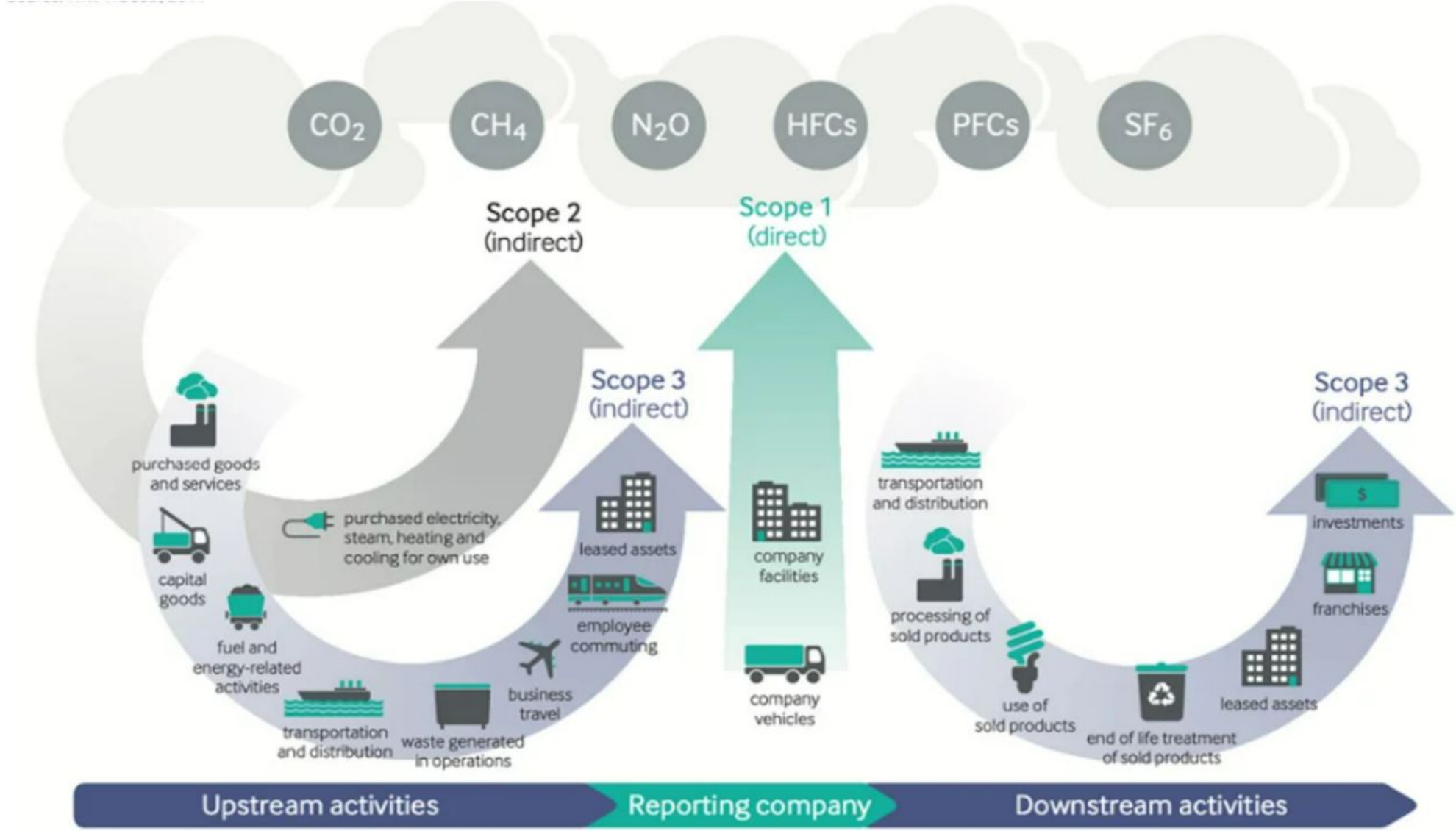

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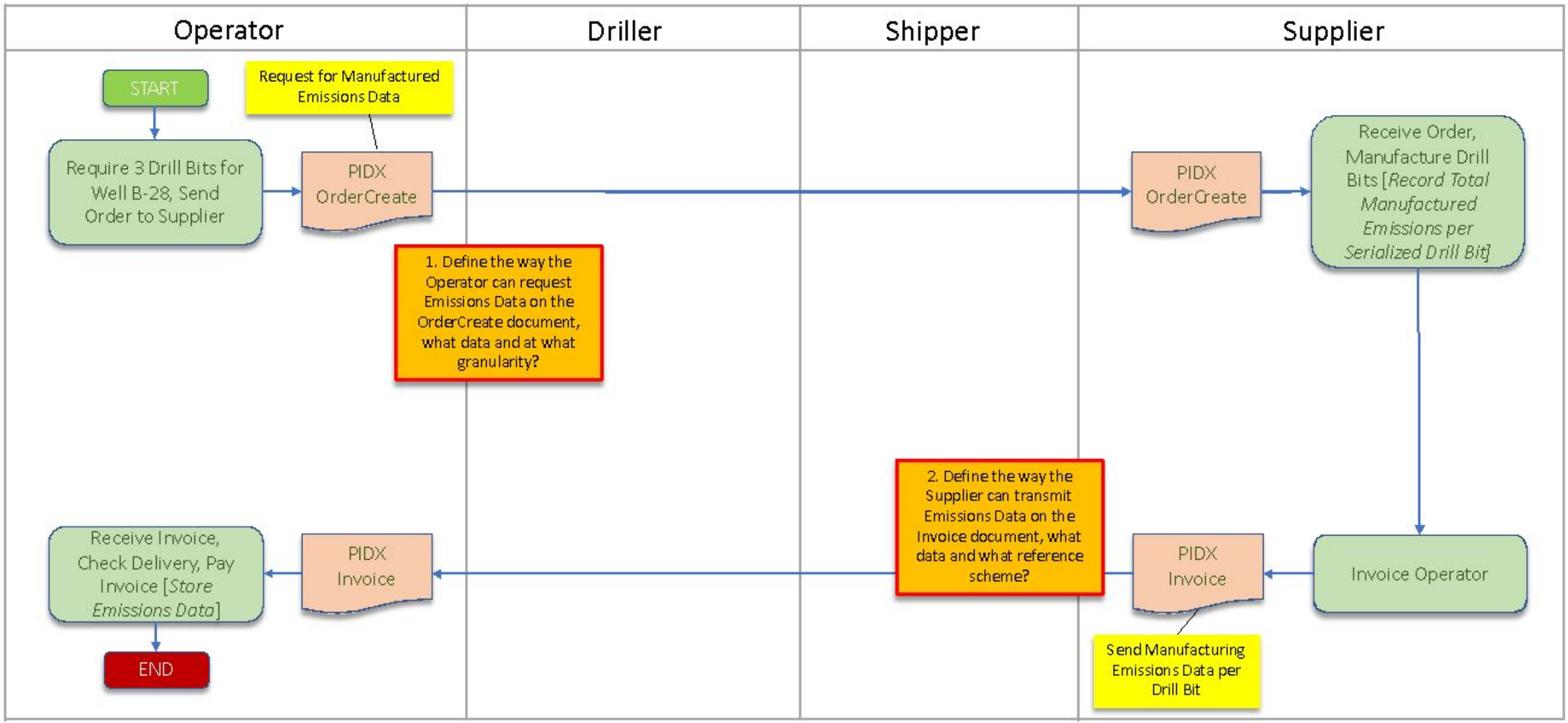
EMISSIONS REPORTING CONTEXT

What are the different Emissions Scopes?

* Source Carbon Trust

Scope 1	Scope 2	Scope 3
Fuel combustion Company vehicles Fugitive emissions	Purchased electricity, heat and steam	Purchased goods and services Business travel Employee commuting Waste Disposal Use of sold products Transportation and distribution (up- and downstream) Investments Leased assets and franchises

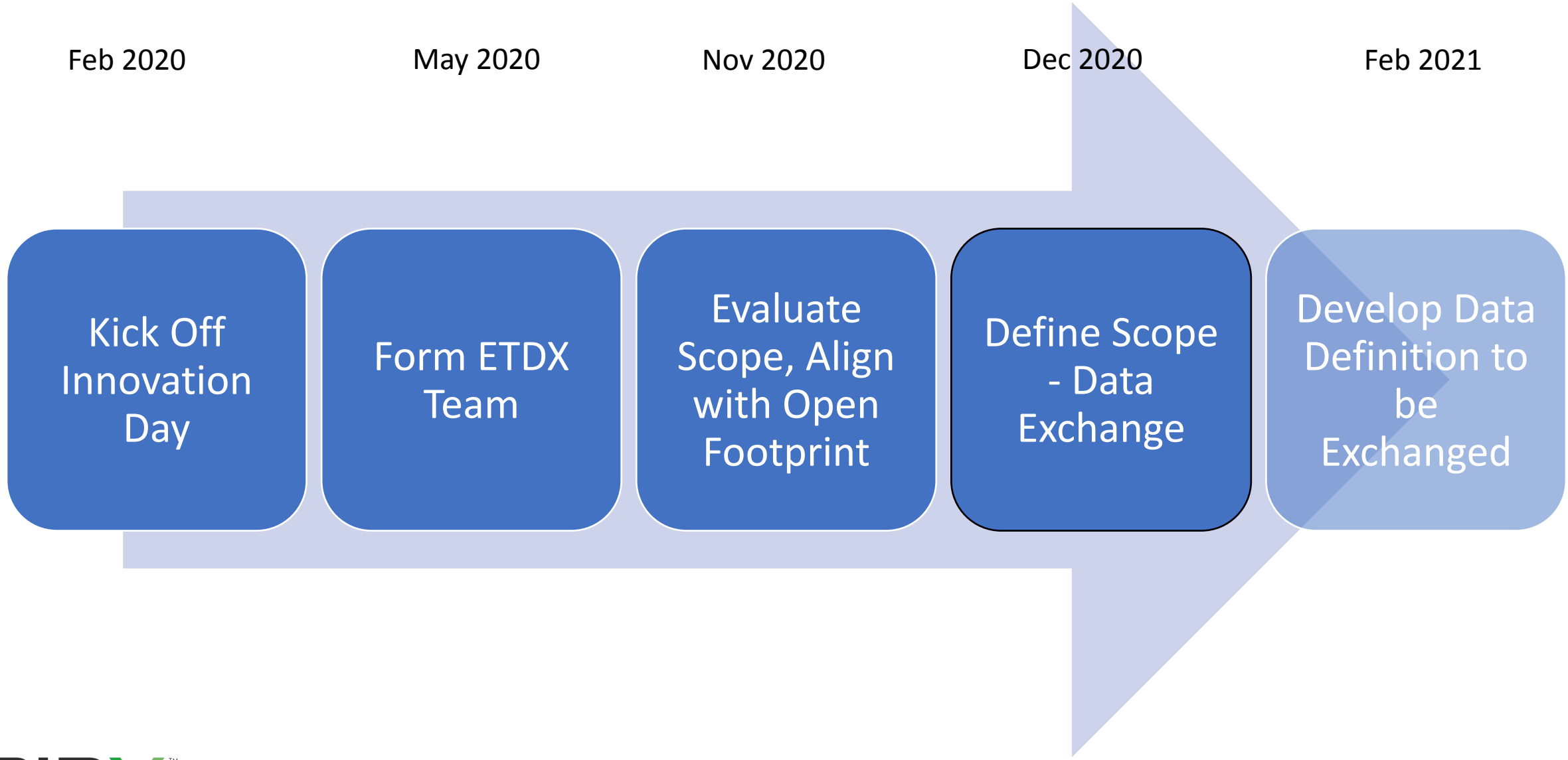
PIDX DOCUMENT EXCHANGE



(January 2022) committed organizations in the Open Footprint™ Forum

PIDX™ EMISSIONS TRANSPARENCY

THE OPEN GROUP OPEN FOOTPRINT™ FORUM



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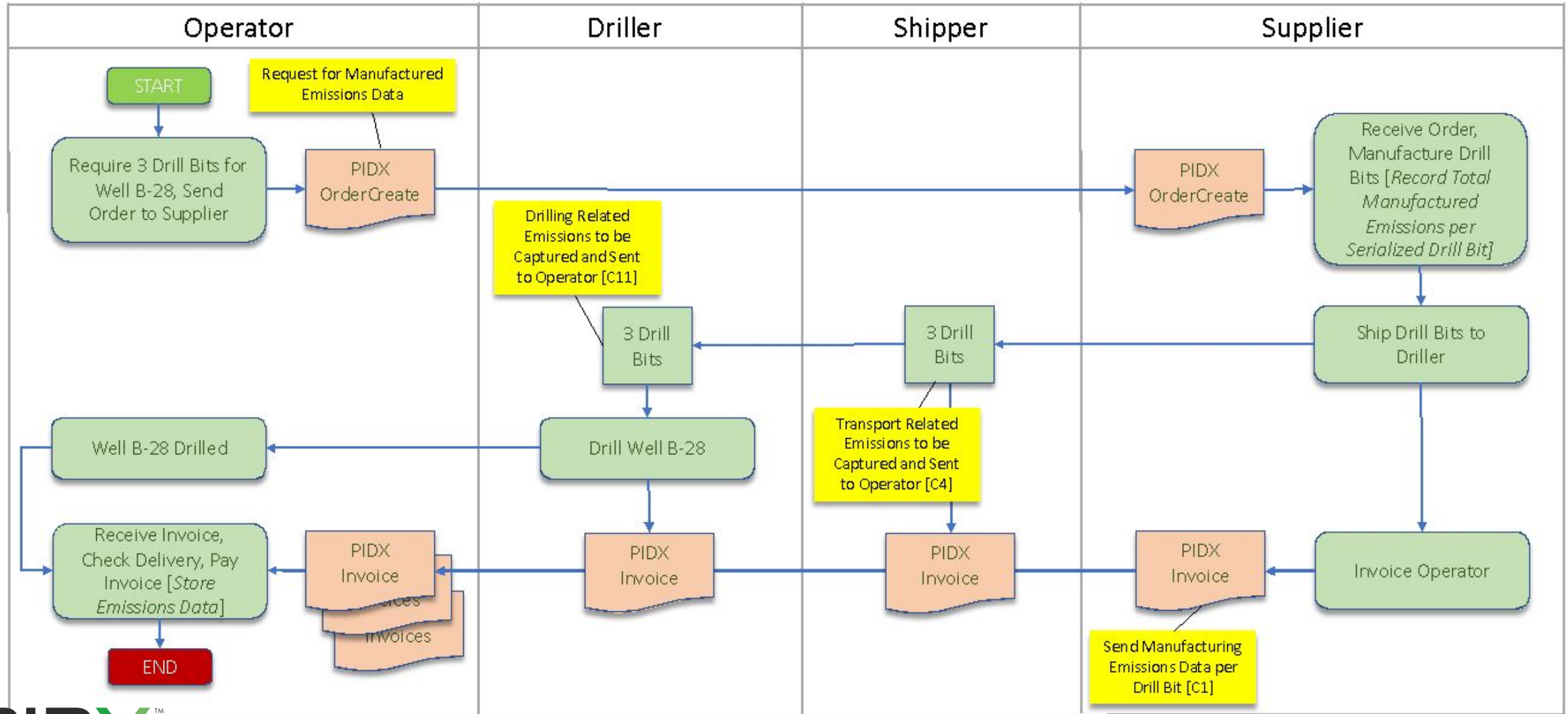
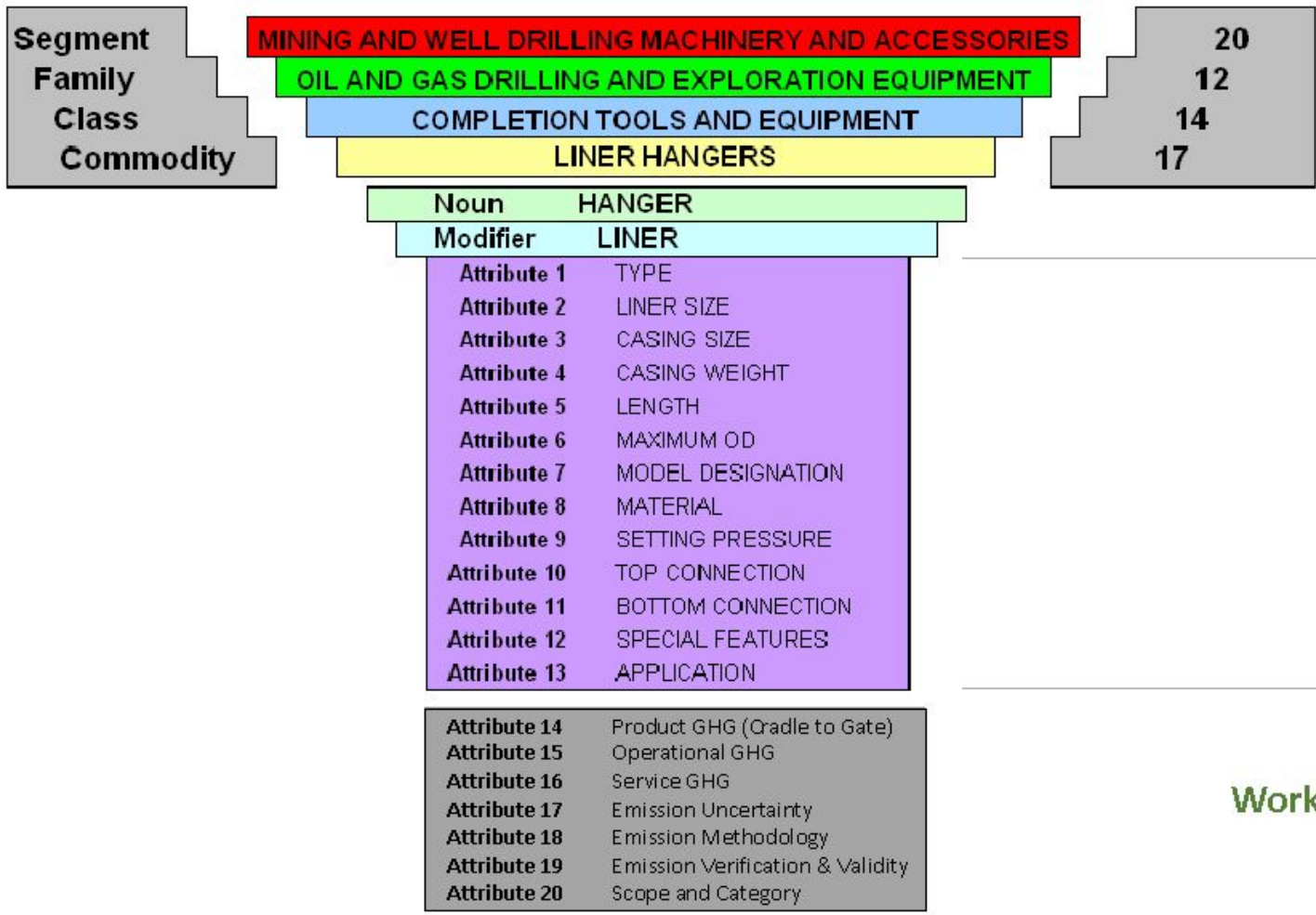


PETROLEUM INDUSTRY DATA DICTIONARY



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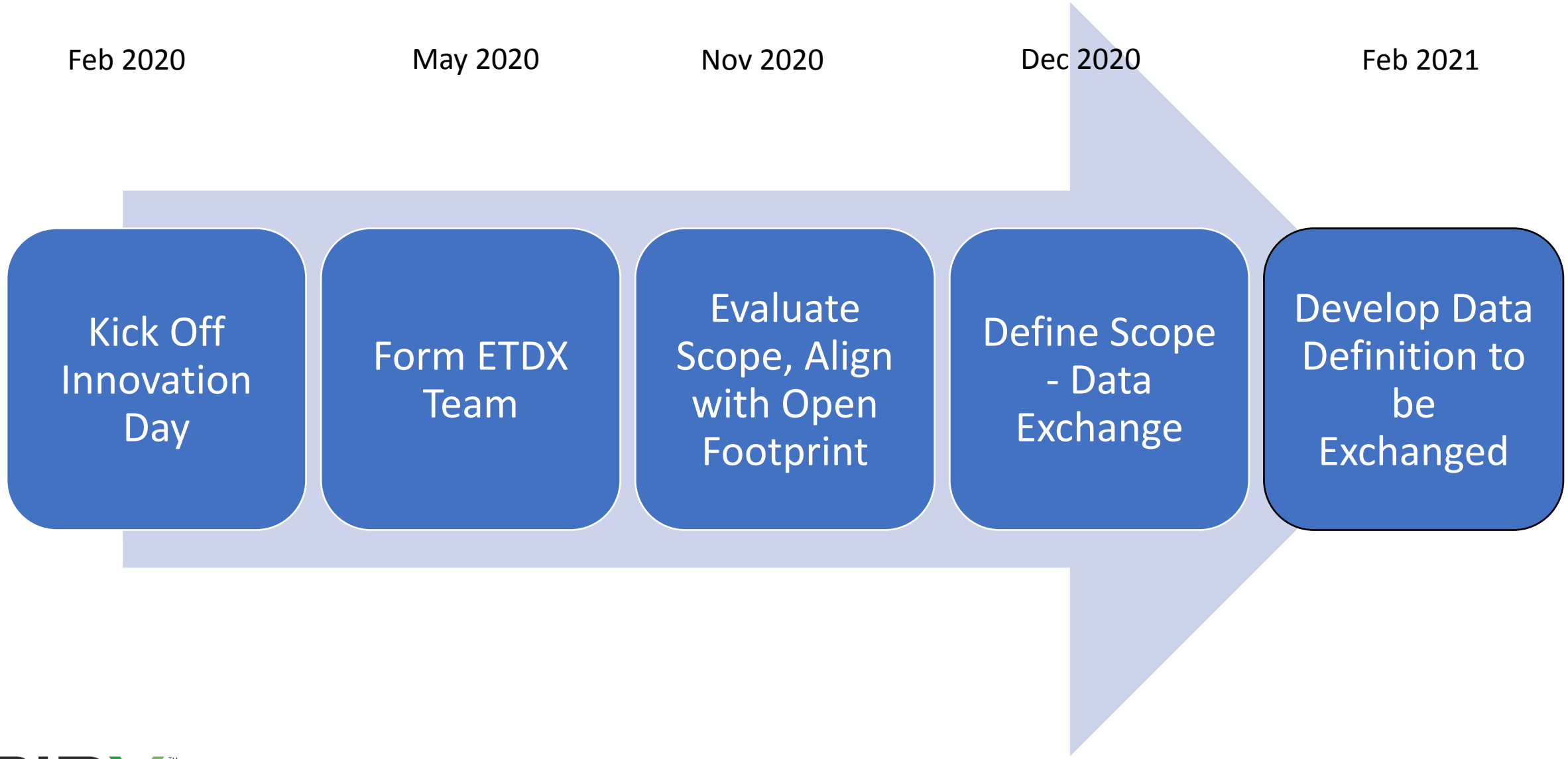
PIDX PIDD HANGER:LINER

PIDX PIDD Detailed Attributes

Workgroup to extend PIDX PIDD for GHG



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SUPPLY CHAIN SCHEMA ADDITIONS - SCOPE 3

Emissions Data for Products and Services (Scope 3 Category 1)

#	Attribute	Unit	Notes / References
14	**Product GHG Emission (cradle-to-gate)**	kg CO_2e	Upon purchase of the product, this attribute is expected to become part of the purchasing company's upstream scope 3 emissions.
15	**Operational GHG Emission**	kg CO_2e / [time]	This attribute is a guide to the expected emissions in the use of the product. This could be a URL, provided for reference – detail of ranges, real case studies, etc.
16	**Service GHG Emission**	e.g., kg CO_2e / hour	This attribute expected for services. What are emissions for this service? Per day, per hour, per whatever unit the service is provided.
17	**Emission Uncertainly**	%	An estimate of how certain the company is of the value in Attribute #14 / #16
18	**Emission Methodology**	String	A description of/reference to the methodologies used to quantify emissions in Attribute #14 / #16, and a description of the data sources used (including emission factors and GWP values), e.g., AR5[1].
19	**Emission Verification & Validity**	String	Entity that has verified and/or validated emissions, based on ISO 14064-3:2019
20	**Scope & Category**	Limited List	To give a suggestion to the buyer as to which scope and scope category of the emission, e.g., Scope 3, Category 1 – Goods and Services.

SUPPLY CHAIN SCHEMA ADDITIONS - SCOPE 3

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                Change Management Log:
                        Version         Person          Date            Description
                        Sep2007         Original        2007-09-15      From Sep2007 release
                        1.51            PIDX BMWG       2012-01-11      Transfer to PIDX, Inc.
                        1.61            PIDX BMWG       2014-09-09      Creation of new Pidx Schema PriceSheet
                        1.61            PIDX BMWG       2015-08-03      Update to PIDX v1.61.
                        1.62            C. Welsh        2020-07-20      Fixed missing ParameterValue in Parameters
                        1.7             C. Welsh        2020-11-12      Added EmissionsData complex type and namespace upgrade to V1.7
    </documentation>
</annotation>
<include schemaLocation="PIDXCodeLists.xsd"/>
<element name="AccompanyingSampleCode" type="pidx:AccompanyingSampleCodeType">
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</element>

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        <documentation>GHG Emissions data defined for the Scope 3 Emissions Supply Chain Use</documentation>
    </annotation>
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                <element ref="pidx:EmissionOperationalGHGQuantity"/>
                <element ref="pidx:EmissionServiceGHGQuantity"/>
            </choice>
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            <element ref="pidx:EmissionScopeCategory" minOccurs="0"/>
            <element ref="pidx:EmissionUncertainty" minOccurs="0"/>
            <element ref="pidx:EmissionMethodology" minOccurs="0"/>
            <element ref="pidx:EmissionVerificationValidity" minOccurs="0"/>
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    </complexType>
</element>

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<element name="EmissionOperationalGHGQuantity" type="pidx:QuantityType"/>
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<element name="EmissionVerificationValidity" type="string"/>
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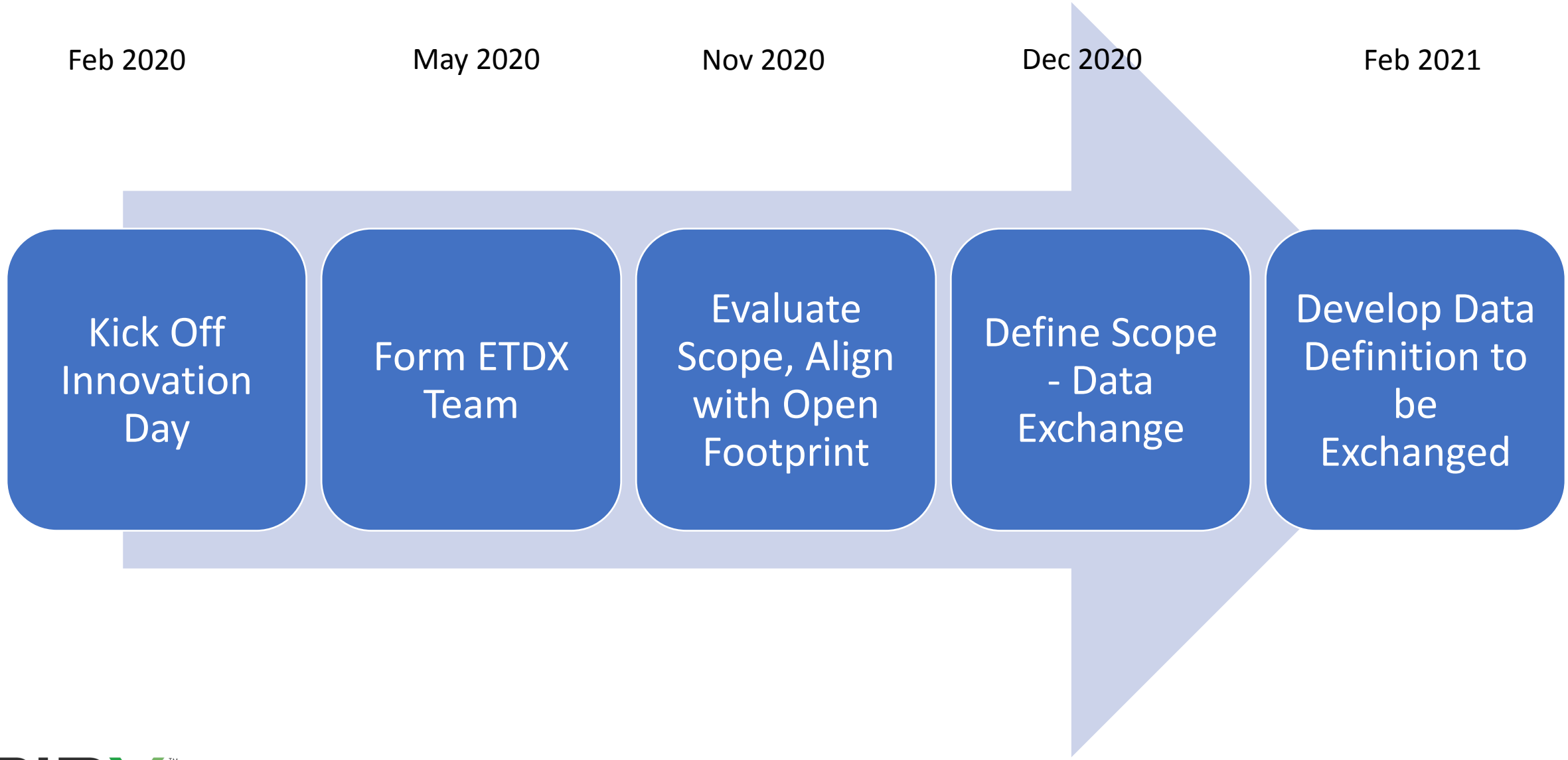

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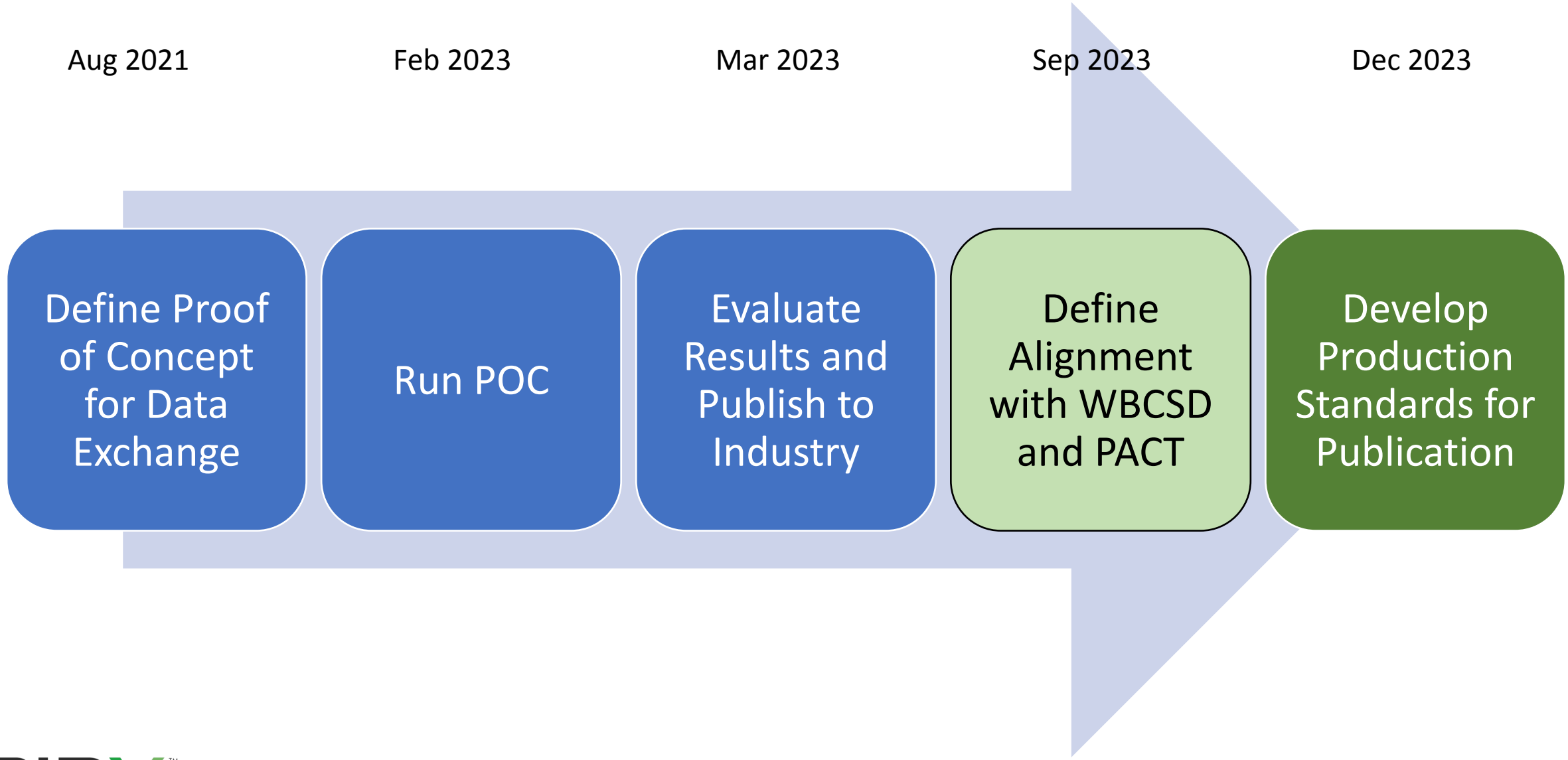

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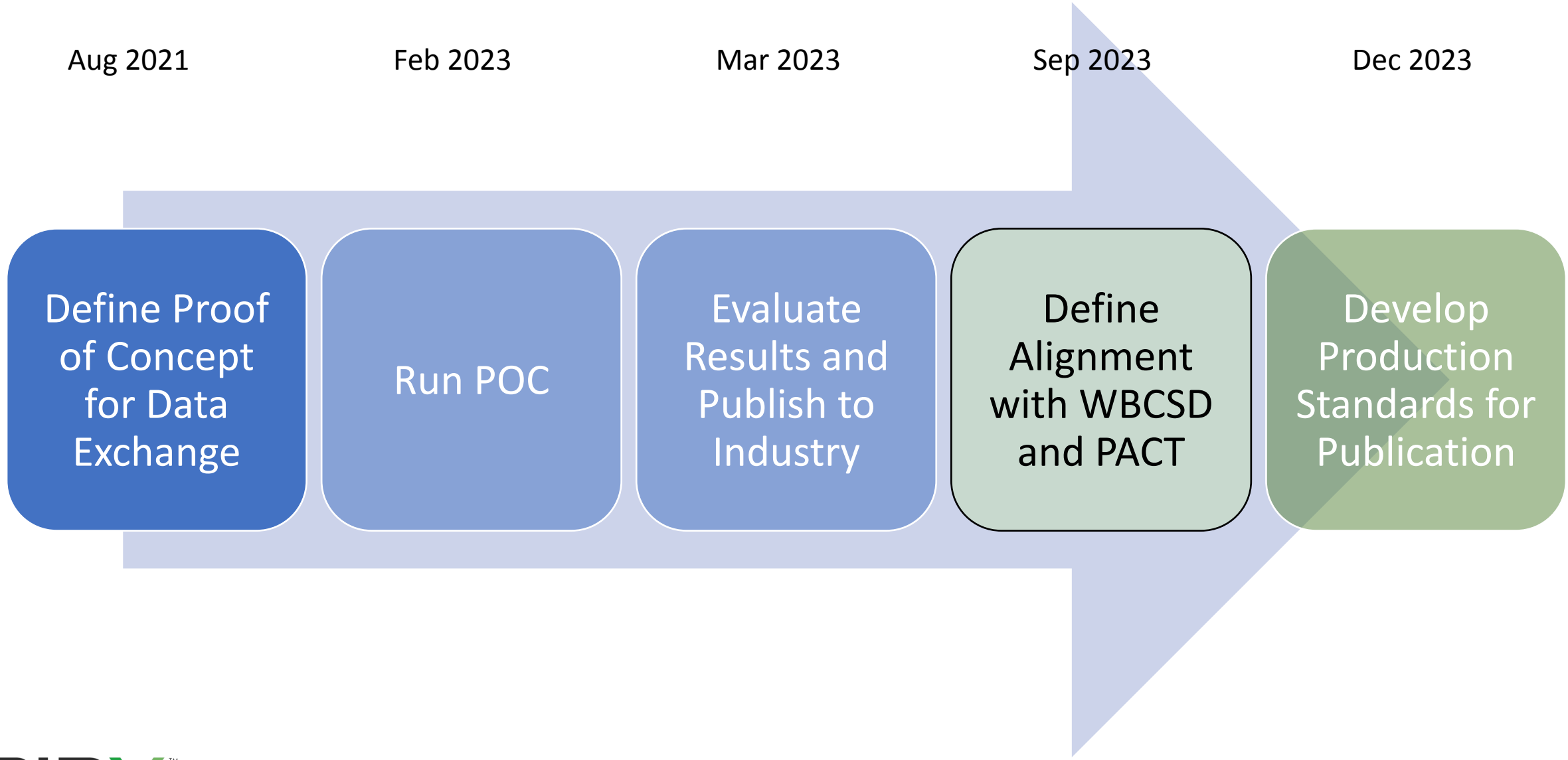

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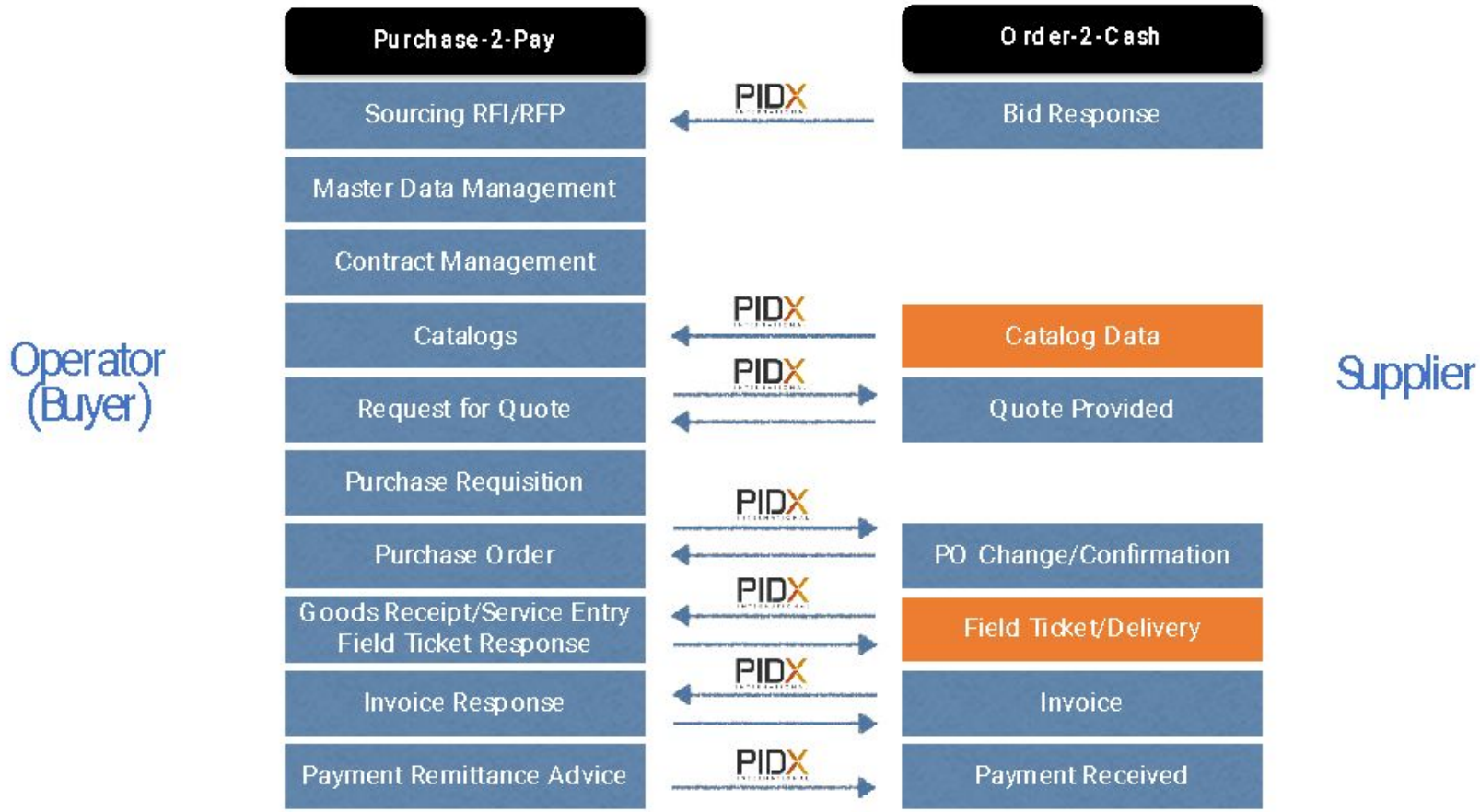
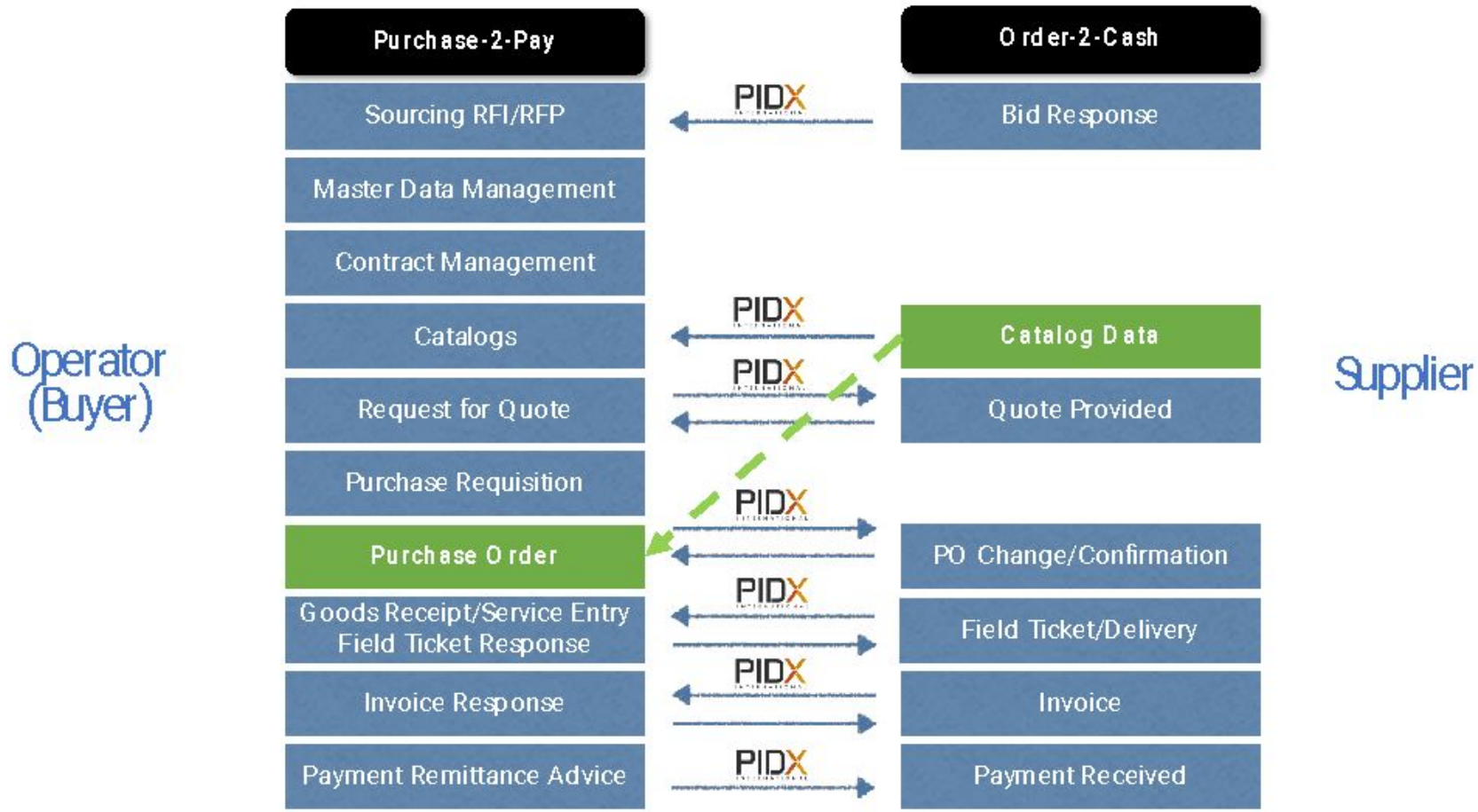
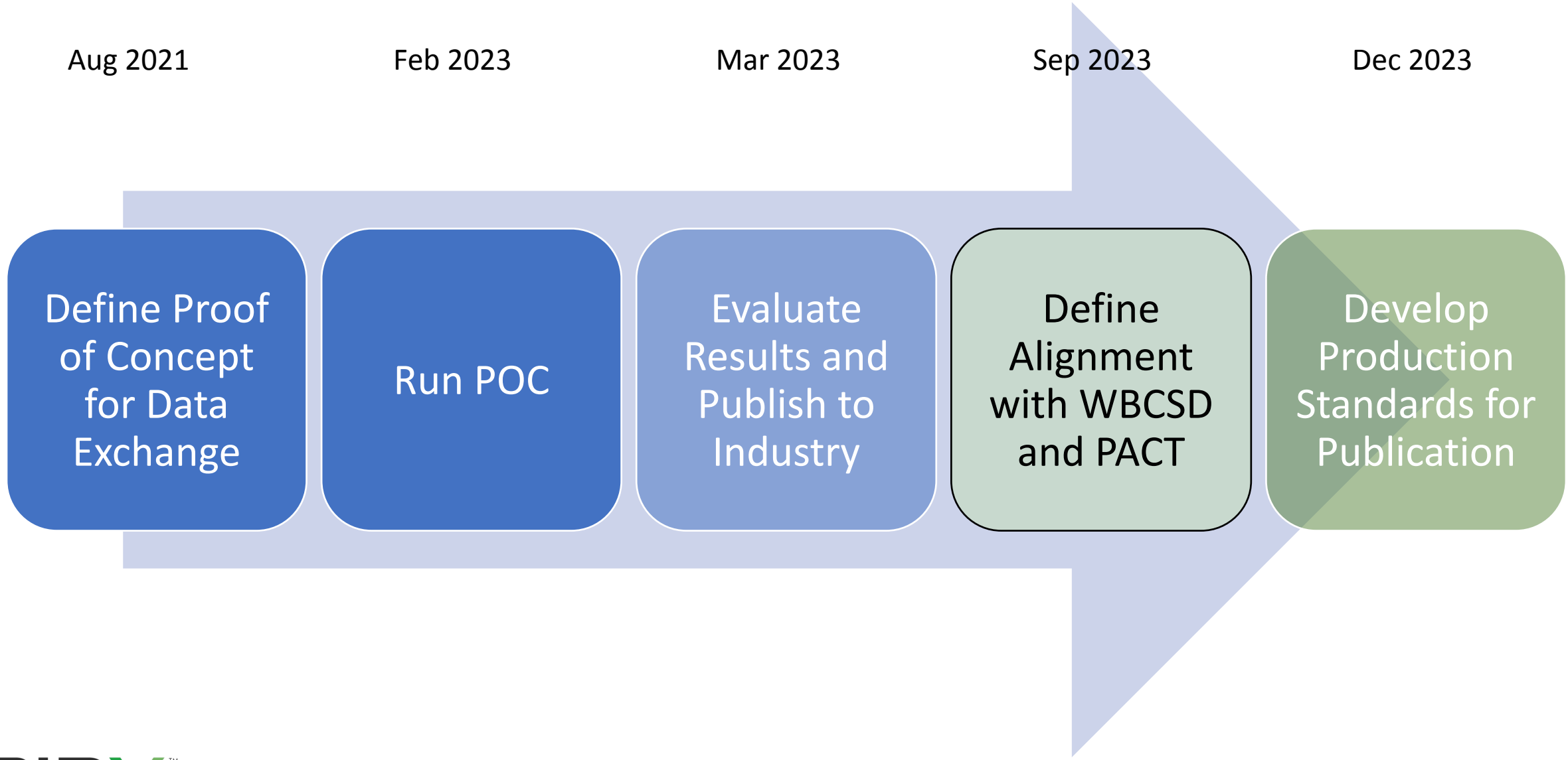
ORCHESTRATION OF SUPPLY CHAIN MESSAGES



POC BETWEEN OPERATOR AND BUYER





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POC BETWEEN OPERATOR AND SERVICE CO.

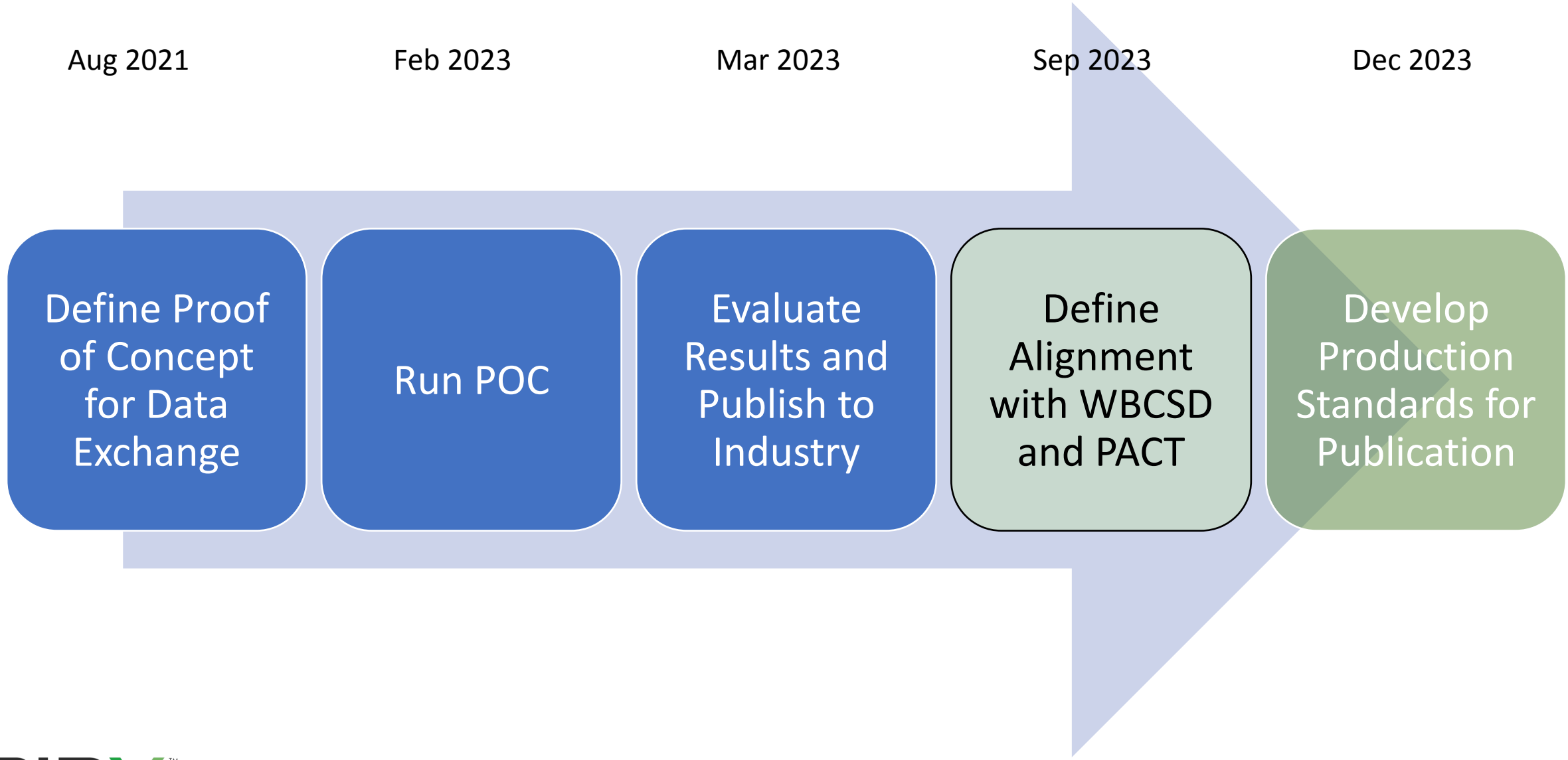
Column C	UoM	Attribute #					Notes
		14	17	18	19	20	
		KG CO2e per KG of product	+/- %	Emission Methodology	Emission Verification & Validity	Scope & Category	
BARITE 4,1	not provided	0.180	84%	IPCC 2007 (AR4)	None	Scope 3 Category 1	
BENTONITE EXTENDER	not provided	0.279	89%	IPCC 2007 (AR4)	None	Scope 3 Category 1	
CALCIUM CARBONATE D151-10	not provided		N/A	GWP: IPCC 2013	According to ISO 14025:2006. PCR: Micronized stone from quarry-UN CPC 15200, 15320	Scope 3 Category 1	Proxy used: micronized limestone with selected granulometry lower than 200 µm.(CA150, CA40, CA150SMP)
LIME	20 KG & 400KG		N/A	EN15804:2012+A1:2013	According to ISO 14025. PCR 2012:01 Construction Products and Construction Services, Version 2.33, 2020-09-18. PCR 2012:01-Sub-PCR-H, Product category rules Cement and Building Lime, version 2.31, 2020-09-18	Scope 3 Category 1	
CLASS C CEMENT	not provided		N/A	GWP100, EN 15804. Version: August 2021	as per ISO 14025 and EN 15804+A2	Scope 3 Category 1	Proxy used: Class C acc. to API Spec 10A
CEMENT, CLASS A	not provided		N/A	U.S EPA TRACI v2.1 IPCC 2013 (AR 5)	According to ISO 14025:2006, ISO 21930:2017 (the core PCR) and the NSF product category rules for Portland, Blended, Masonry, Mortar and Plastic (Stucco) Cements (subcategory PCR)	Scope 3 Category 1	Proxy used: Portland Type I/II ASTM C150

Data source comments:

Cement Class A is supplier's data (single supplier - single plant - US location)
Cement Class C are supplier's data (single supplier - single plant - Germany location)
Lime is supplier's data (single supplier - single plant - Australia location)
Calcium Carbonate is supplier's data (single supplier - single plant - Italy location)
Product packagin not included in CO2e factor

Other findings:

List provided has line-items without UoM
List provided contain fluids (product blends) without fluid density reference



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POC BETWEEN OPERATOR AND SERVICE CO.

POC Successful ☑

5000+ purchases
$14million+
Carbon footprint of around 3 million kg CO2e

POC BETWEEN OPERATOR AND SERVICE CO.

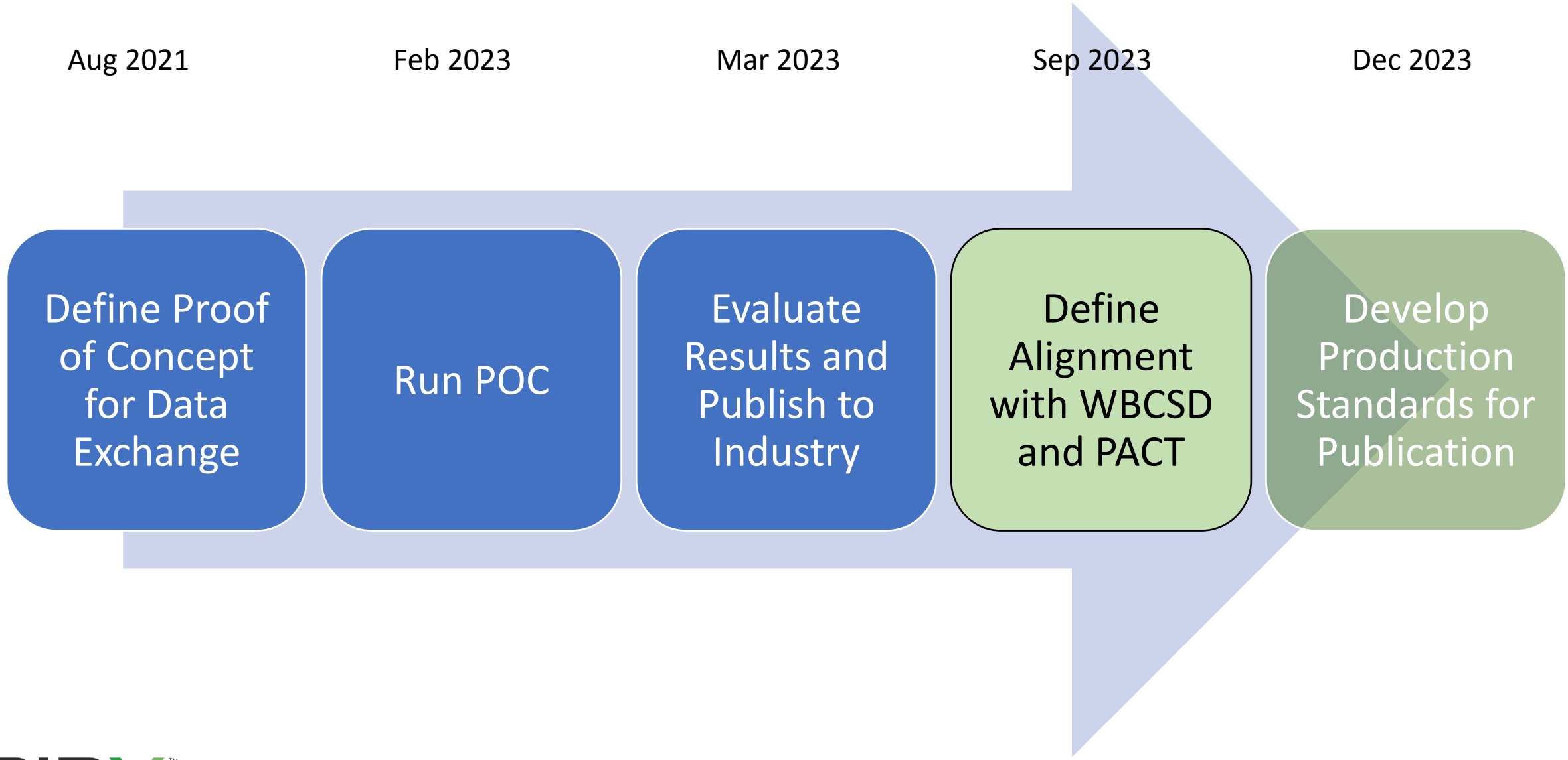
Challenges

- Carbon footprint information is complex
  - UOMs
  - different facilities
- Need more Product Category Rules for O&G
- Sensitive information
- Some companies may not have the platform to exchange the info

POC BETWEEN OPERATOR AND SERVICE CO.

Next steps

- Use draft PIDX schema to exchange data
- Involve other service companies and buyers
- Apply to other scope 3 categories
- Review compatibility with other standards – OFP, WBCSD, etc.



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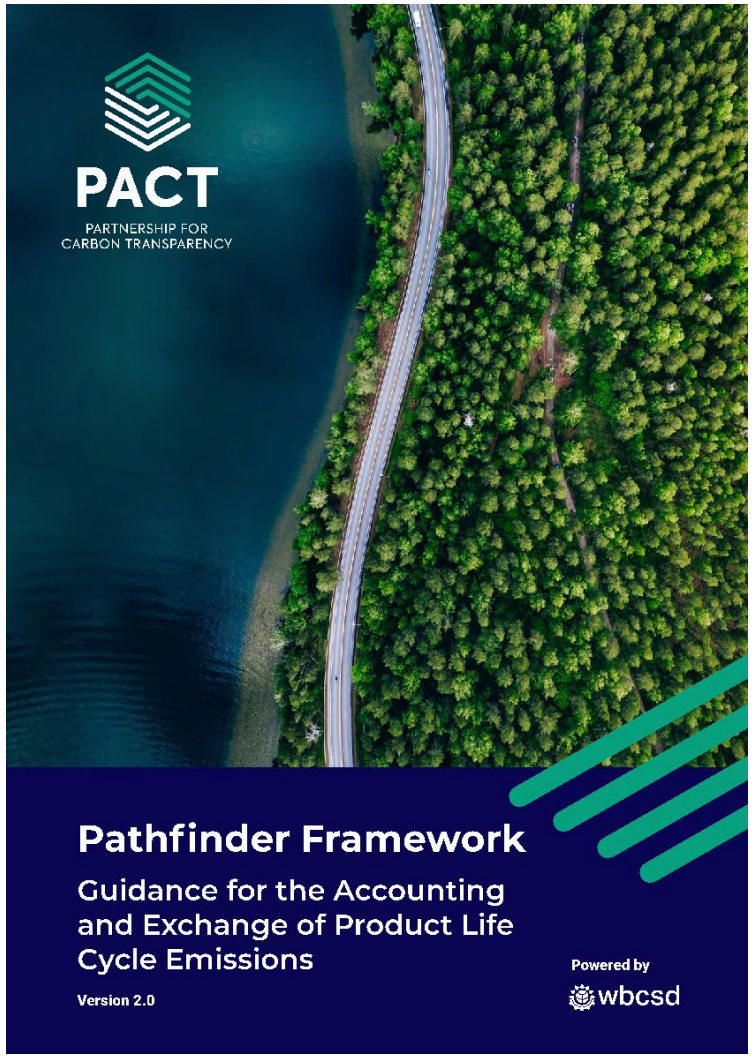

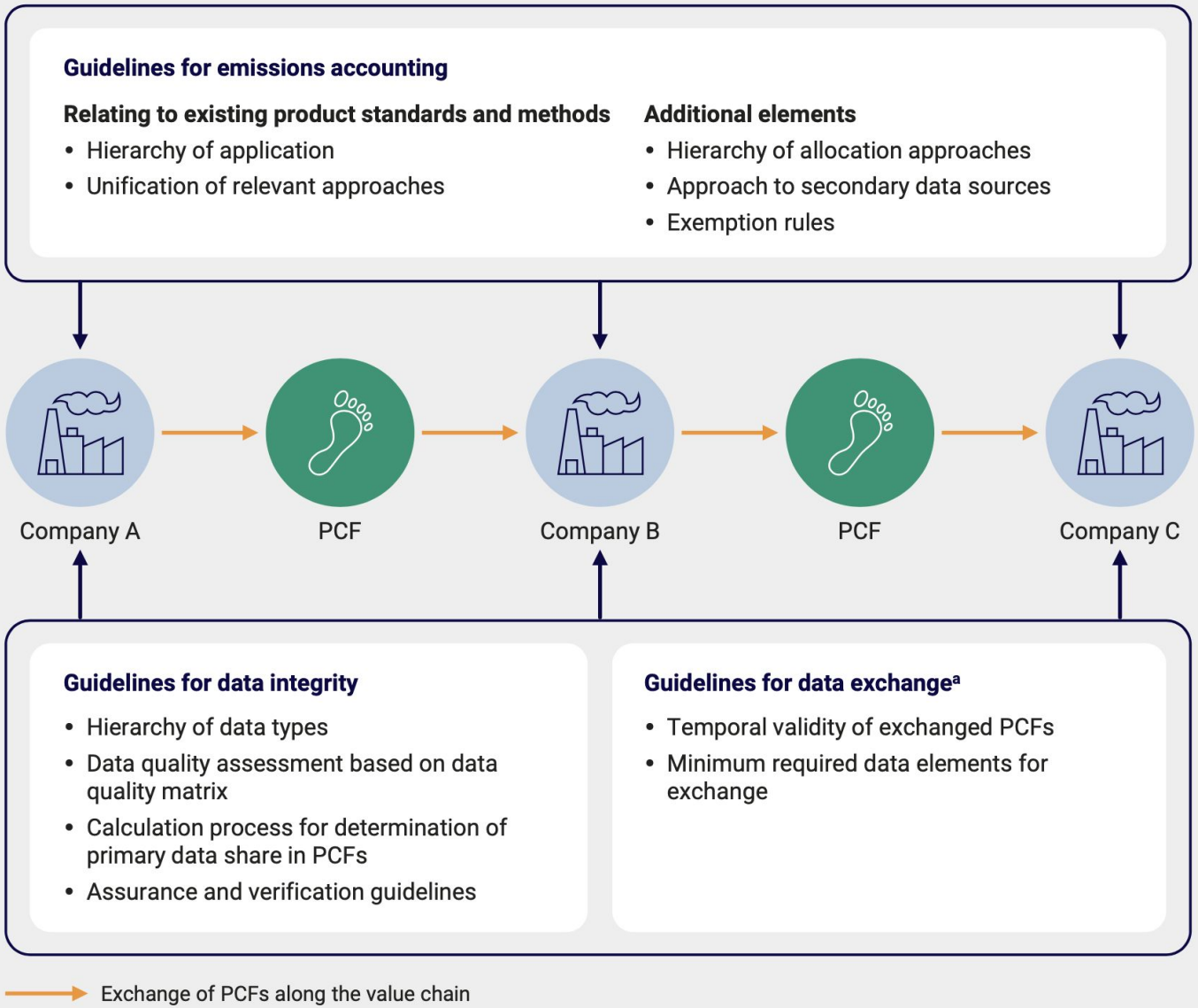

a. Additional technological guidelines and mechanisms for standardized data exchange have been developed in parallel by the Pathfinder Network (e.g., technical data specifications, company onboarding mechanism, or governance structure for the extension of required data elements).

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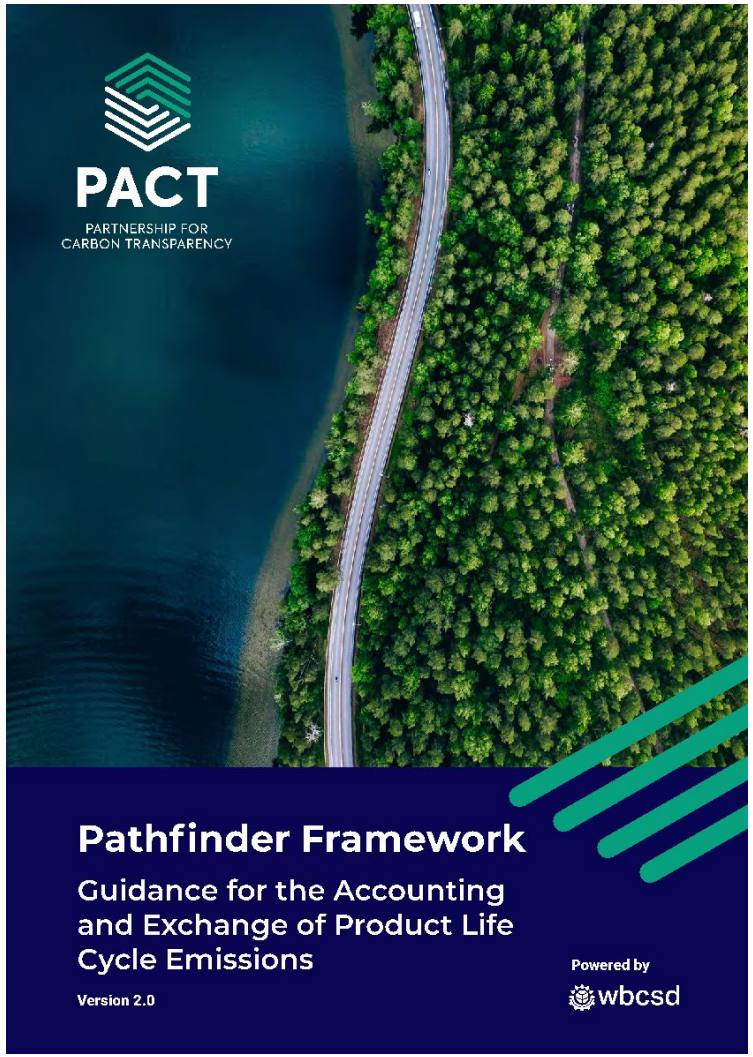

Collaborators

WBCSD would like to thank the following companies and organizations that have supported and contributed to the development of the Pathfinder Framework:

Knowledge partner

McKinsey Sustainability

Technology partner

SINE

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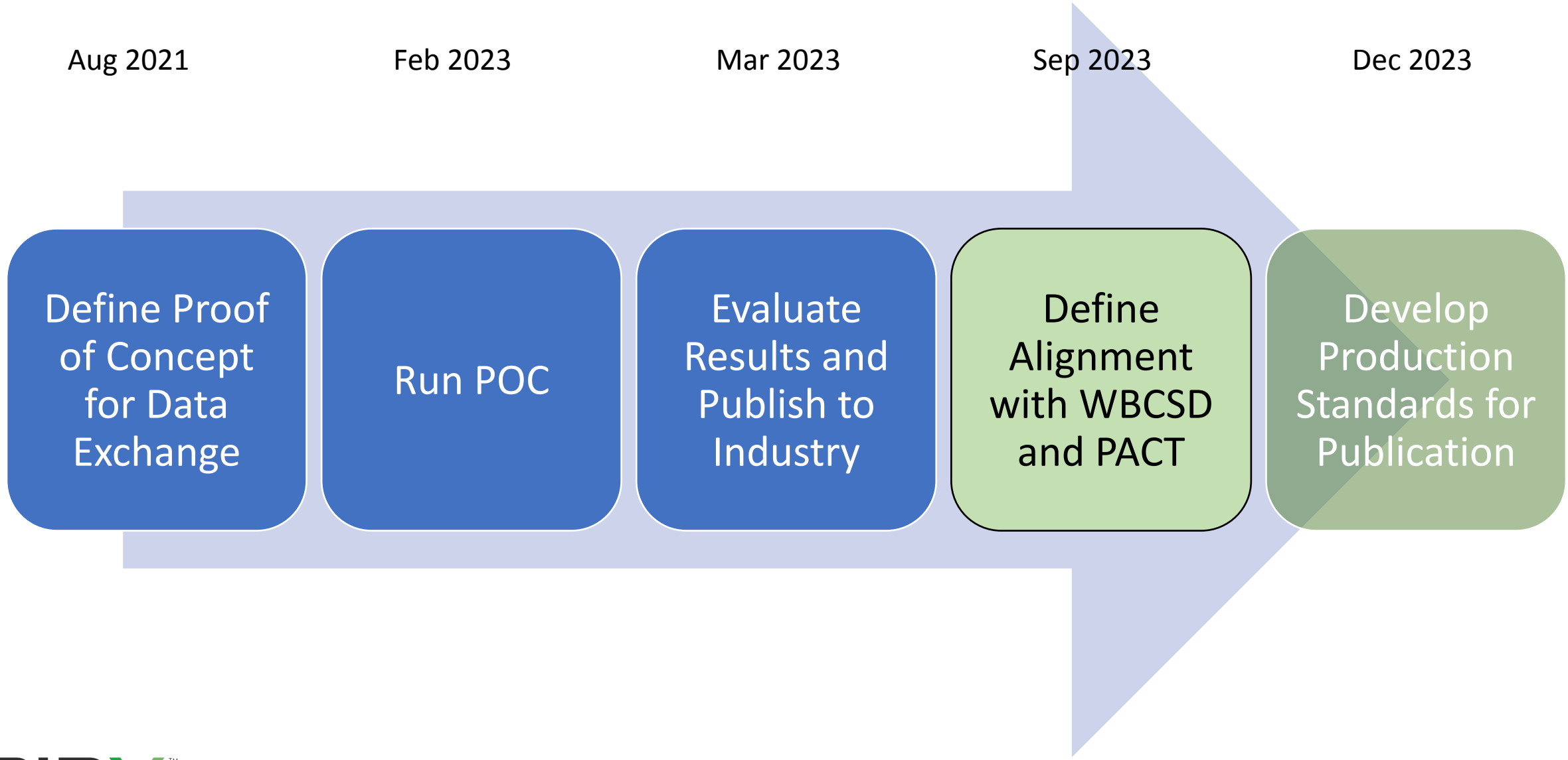

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