



Allotrope Connect Fall 2020 - Roadmap to Recognizing Value

Sept. 30, 2020

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Industry Challenges

- Acknowledged Challenges
 - Mis-aligned vocabulary between groups, functions or across an entire organization
 - Lack of FAIR data
 - Lack of interoperable data (context and structure) across instrument vendors and domains
 - Lack of Standardized Operations
 - Testing methods
 - Verification methods
 - Reporting
 - Instrument maintenance & calibration



Vocabulary Alignment

- Inevitably a team needs to share data across groups, functions or organizations - if the vocabulary is not the same, there will be delay or worse, there could be misinterpretation of the data
- Over 200 relevant biomedical ontologies available publicly:
 - Choosing an ontology = **the lowest level decision to proceed forward with standardization**
 - Allotrope Foundation Ontologies (AFO):
 - Comprehensive across the laboratory environment and continuing to grow aligned to community requests
 - Governed for quality control upon submission
 - Aggressively maintained by a dedicated full-time staff and volunteer SMEs
 - Aligned with industry standards (e.g. BFO & OBOFoundry)

Agree to align
on Allotrope
Vocabularies



Define Your Project Goals

- If needed, consult with Allotrope Foundation's Product Team to understand available examples or be connected with other members who are working on similar efforts
- Gather SME(s) for input to define and choose scope
 - Smaller scope such as Proof of Concept (PoC) for a single domain or less-complex instrument (e.g. Cell Counter)
 - Larger scope such as a more complex instrument (e.g. LC-UV) or a production-ready project
- Ideally consult with vendor contact or Allotrope Partner Network contact to discuss intent so as to gain additional SME or other resourcing support

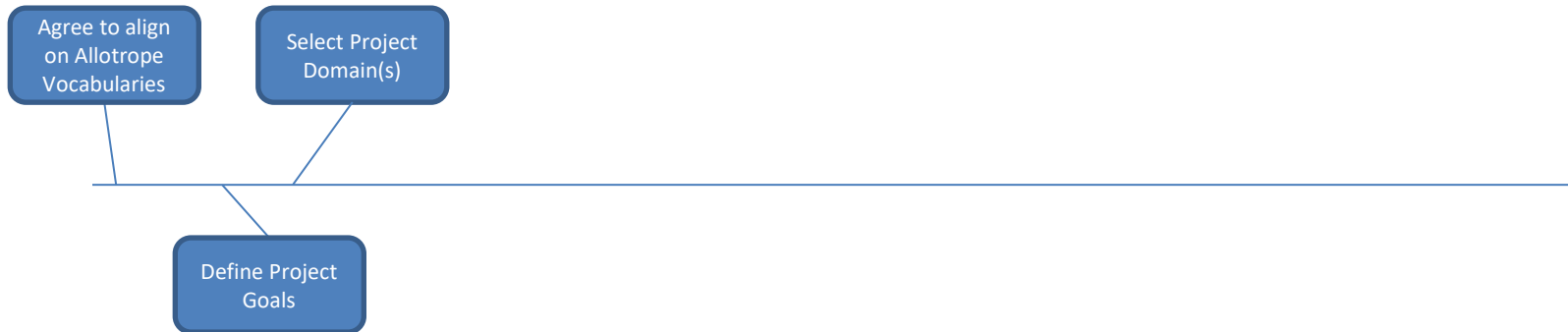
Agree to align
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Define Project
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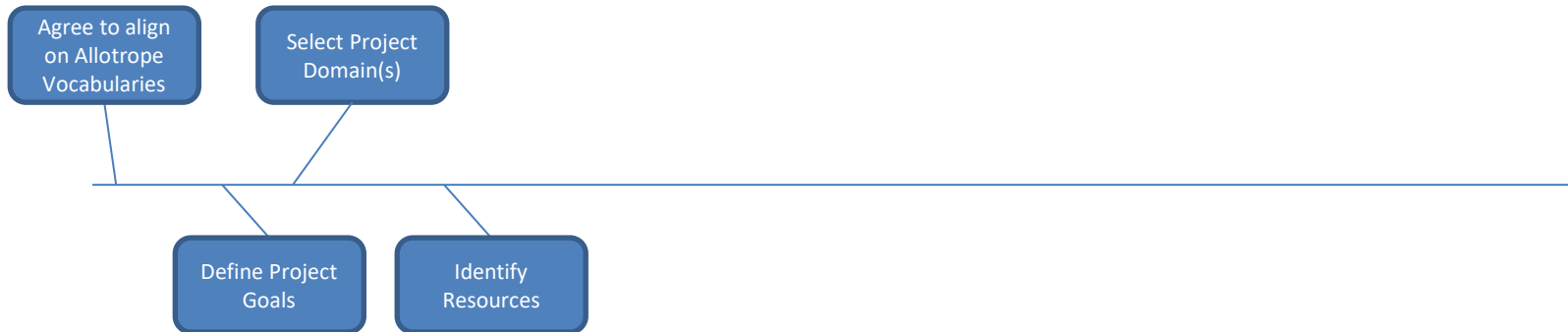
Select Domain(s) to Cover

- Initially narrow scope of interest to domain(s) which have the most impact
 - If more than one domain of interest, prioritize the domains for ease of implementation (e.g. access to data, available resourcing etc.)
- Check existing PoCs or reference implementations available within the Allotrope Foundation to leverage previous projects or step-wise guides where available.



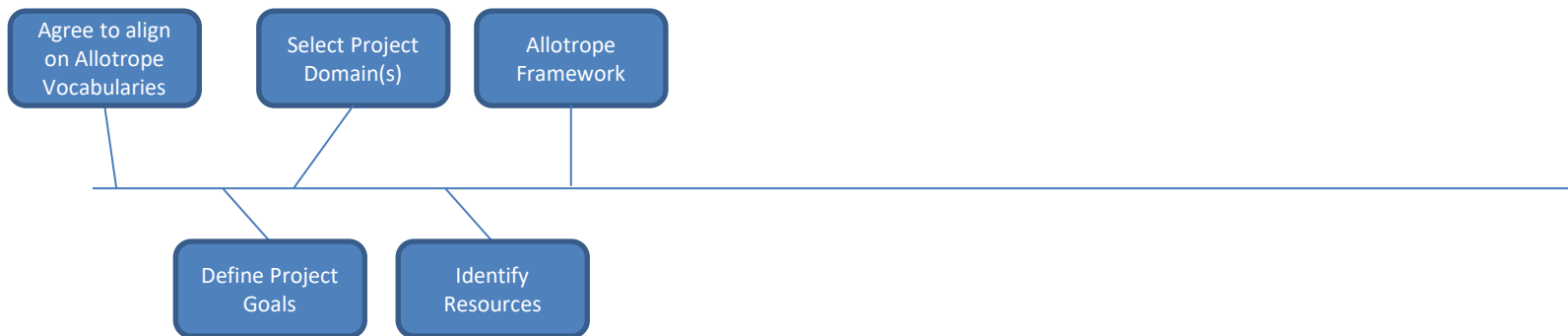
Resourcing Needs

- Internal option:
 - Skilled engineer(s) in Java or C# as well as DBMS
- External option:
 - Identify an Allotrope Partner who may align to your needs and has the expertise
- Vendor SME



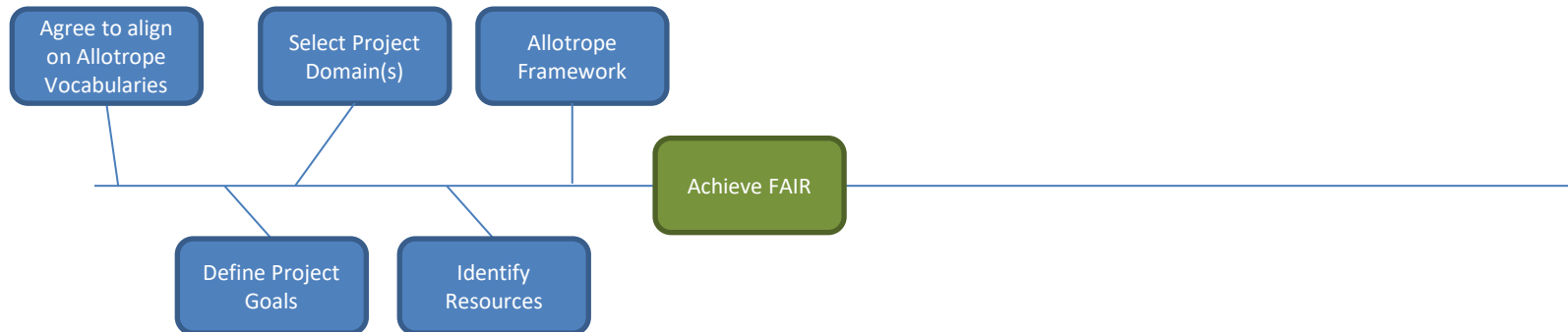
Project Execution

- Learn and adopt Allotrope Framework using available tutorials and consulting with the Allotrope Product Team on technical questions
- Learn from Member and Partner experiences
- Join Allotrope Working Groups where appropriate (e.g. Modeling, Semantic, Sample Prep)



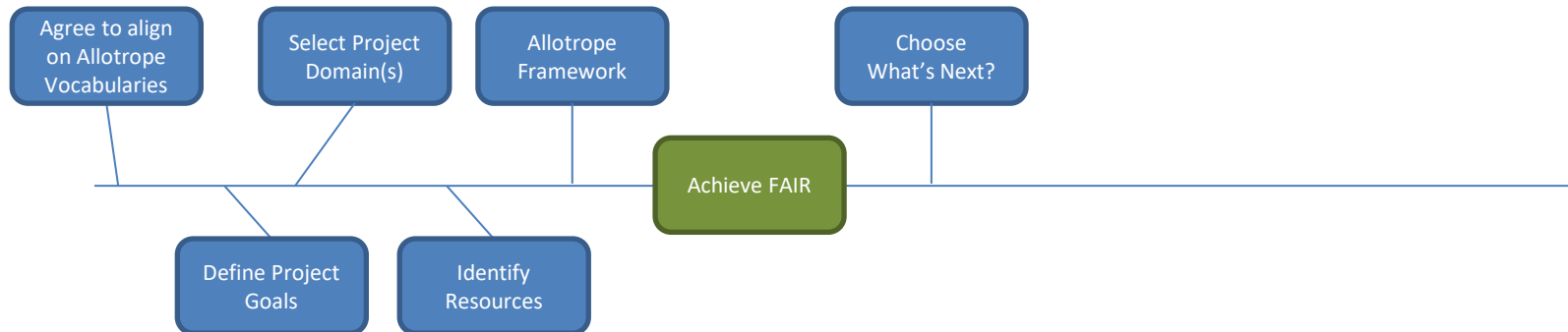
Completing the Project

- Initial Value Recognition!
 - It is now possible to search for and retrieve interoperable data with the same underlying vocabulary
- Using Allotrope Foundation's technology sets the '*foundation*' to scale across groups, functions and organizations at a lower cost structure than any known proprietary solutions



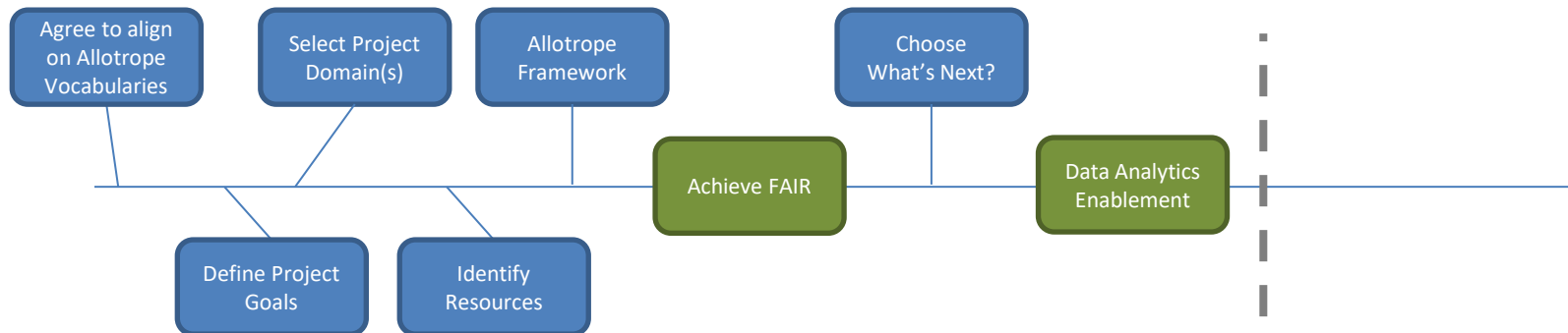
Expanding Implementations

- Choose type or direction of expansion
 - Reproduce project in other groups, *'expanding horizontally'*
 - Increase the complexity of instrumentation or use cases, *'expanding vertically'* (e.g. use Allotrope Data Models)
- Collaborate with Allotrope Foundation Member companies
- Collaborate with Allotrope Partner Network
 - Request instrument vendor to output ADF files
 - Expand scope to new areas, techniques or methods with vendor support



Increasing Value Vertically

- Align and standardize operation with the adoption of Allotrope Data Models
 - Enabling more techniques and methods
 - Enable data analytics applications for data scientists (Allotrope's Python access is coming soon)
 - If new models are needed, define new models through Working Groups and the Allotrope Foundation will govern them



Long Term Impact

- Consider brainstorming conversations for long-term vision using Allotrope Framework technologies
 - Semantic Technology
 - Data Warehousing (i.e. adoption of triple-store technology)
 - Knowledge Graphs
 - A.I.
 - End-to-end alignment from drug discovery through clinical trials to FDA submission

