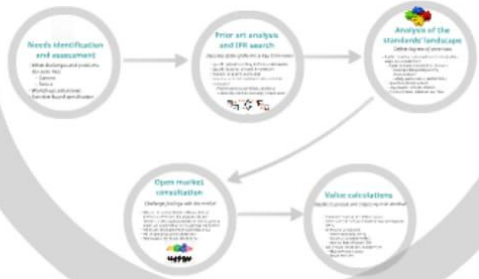
Building a Business Case

Estimate value in 5 steps



Begin Official Project

Qualification & Scoping

Demonstrate room for innovation and degree of novelty

Conduct the Procurement

Drafting Tender Documentation

- Technical specifications
- Award criteria
- Contract clauses
- Focus on
  - Functional specification
  - Openness

Contract Management

Contract Duration

- Monitor progress via KPI's
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- For PCP:
  - Check active participation in standardization
  - Collect royalties based on generation of IPR

The Business Case Methodology for Innovation Procurement

Theoretical basis & practical application

Dr. Anne Rainville, Research Fellow, Maastricht School of Management

14th Procurement, Integrity, Management, & Openness Forum
Bucharest, Romania, May 8-10, 2018

Corvers-MSM Chair of Innovation Procurement

MSM | MAASTRICHT SCHOOL OF MANAGEMENT

- Held by Prof Dr Nicola Dimitri; Research Fellows Dr. Ramona Apostol & Dr. Anne Rainville
- Coordinates research and doctoral studies in the field; Organizes training and capacity building
- Public lecture series
- Recent topics:
  - Intellectual Property Rights in EU Pre-Commercial Procurement for Innovation
  - Business case methodology furthered from the *eafip* initiative

eafip

Official academic collaboration

MITRE

- Federally funded research and development centers in the United States
- Collaborators Dr. Andreas Tolk & Dr. John Selby
- Topic: Facilitating international public procurement in the defense sector for interoperability
- Means: Through ontology, framework, and methodology improvement

Qualification & Scoping

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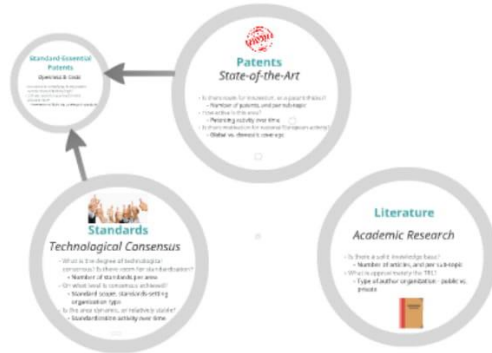
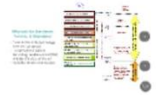
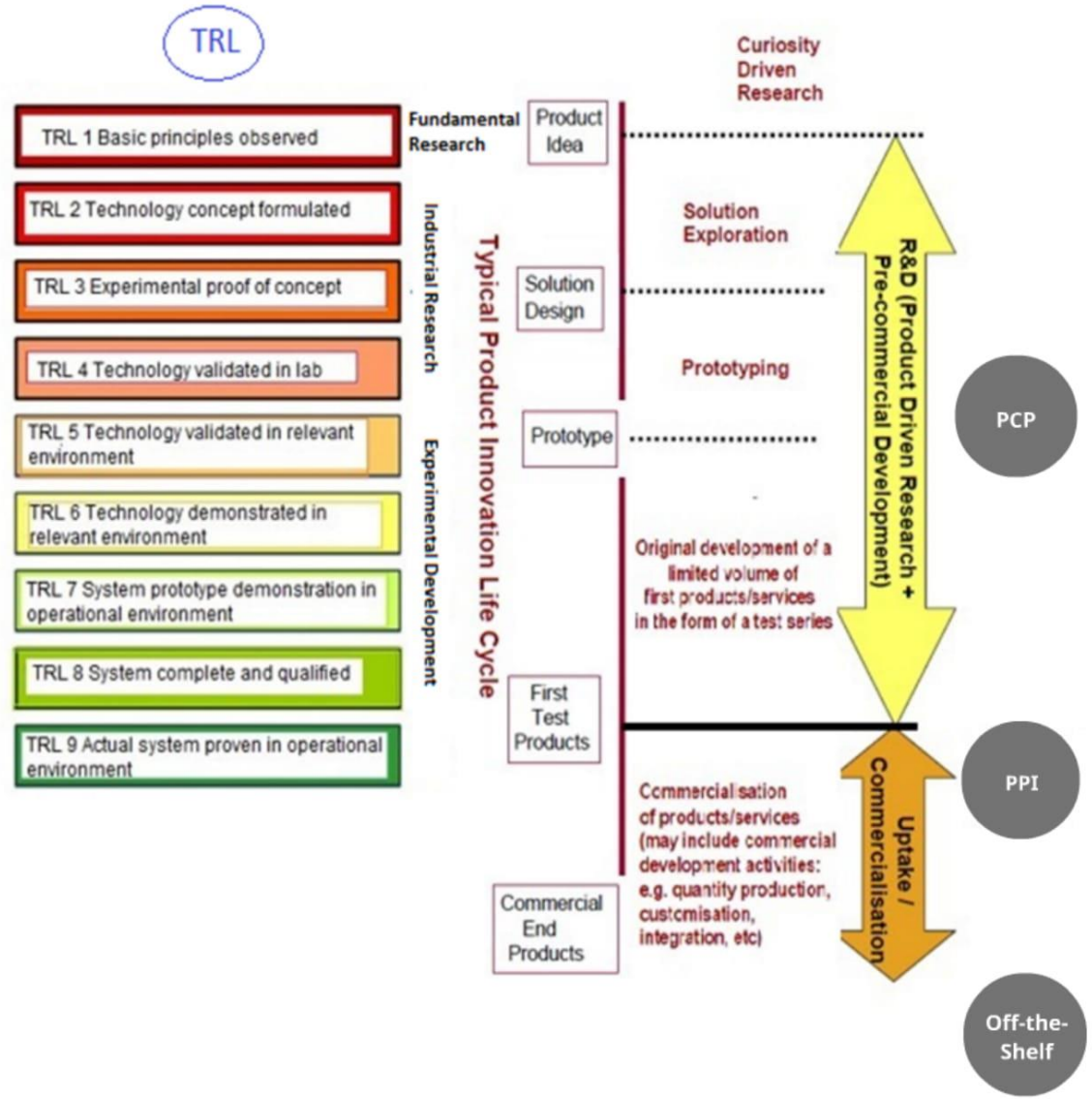




Why look for Standards, Patents, & Literature?

- To understand the technology base and consensus
- To estimate the current technology readiness level (TRL) and identify state-of-the-art
- To define room for innovation



Standard-Essential Patents

Openness & Costs

- Are costs for complying to any (open) standards prohibitively high?
- Is there room for openness in this procurement?
  - Presence of SEP's for a relevant standard

Patents

State-of-the-Art

- Is there room for innovation, or a patent thicket?
  - Number of patents, and per sub-topic
- How active is this area?
  - Patenting activity over time
- Is there motivation for national/European activity?
  - Global vs. domestic coverage

Standards

Technological Consensus

- What is the degree of technological consensus? Is there room for standardization?
  - Number of standards per area
- On what level is consensus achieved?
  - Standard scope, standards-setting organization type
- Is the area dynamic, or relatively stable?
  - Standardization activity over time

Literature

Academic Research

- Is there a solid knowledge base?
  - Number of articles, and per sub-topic
- What is approximately the TRL?
  - Type of author organization - public vs. private

Patents

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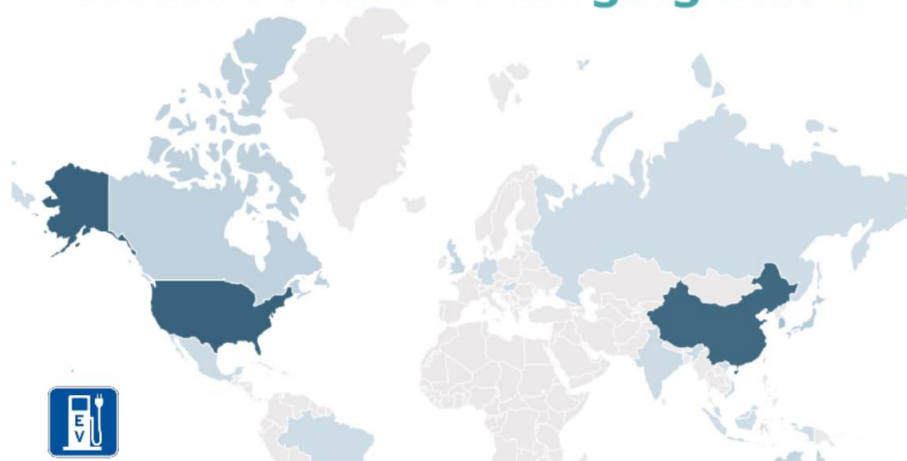
Global coverage: Patents for Electric Vehicle Charging Stations



TOP 5 Countries:

United States: 1,015 Patents | China: 964 Patents |
Republic of Korea: 270 Patents | Japan: 139 Patents |
Canada: 106 Patents

2874 total; 440 WO patents; 371 EP patents

Patents

few many

LYTICS

Cooperation Partners

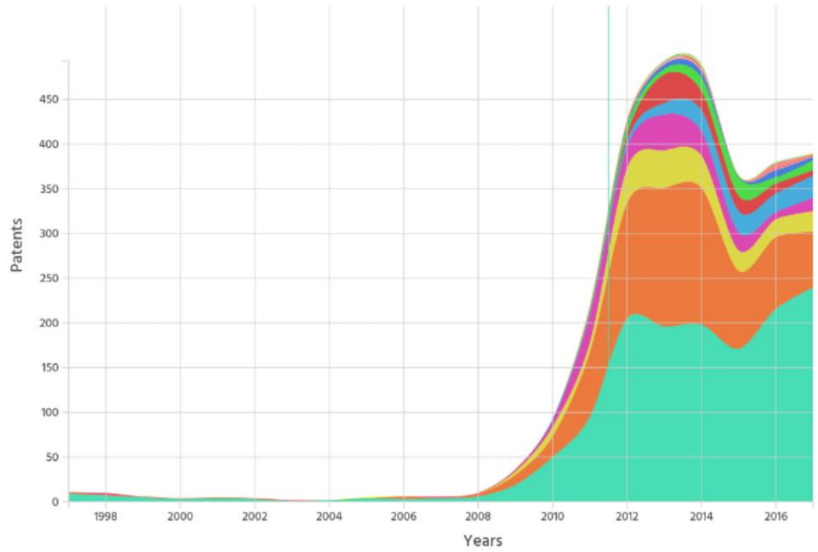
Fraunhofer

berlin

MINES ParisTech

NORTHWESTERN UNIVERSITY
QUAECUMQUE SUNT VERA
1851

Patenting Activity over time for Electric Vehicle Charging Stations



Top 5 Industries

Transport: 1,441

Electrical machinery, apparatus, energy: 786

IT methods for management: 209

Control: 175

Measurement: 119

LYTICS

Literature

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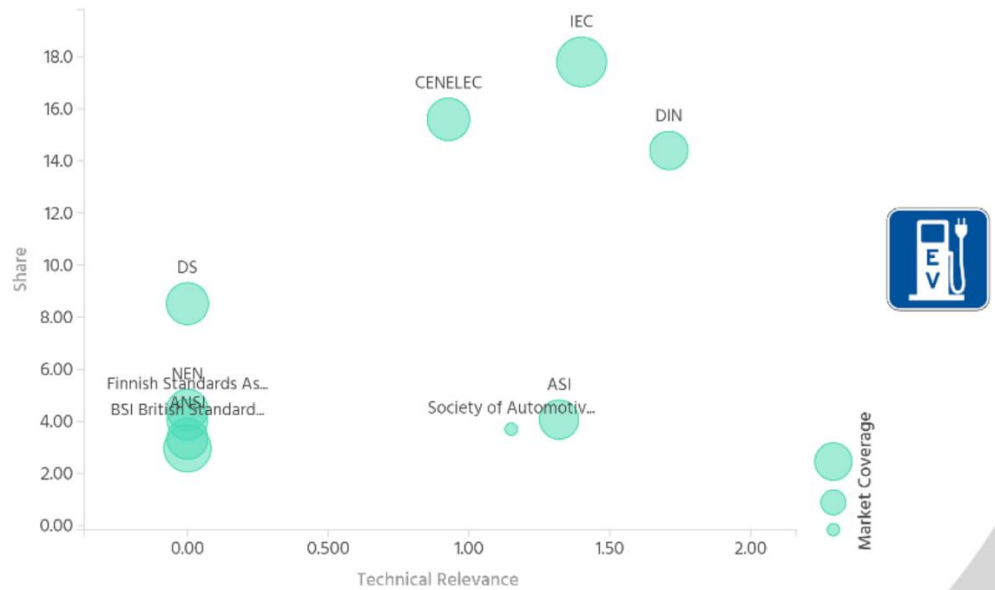
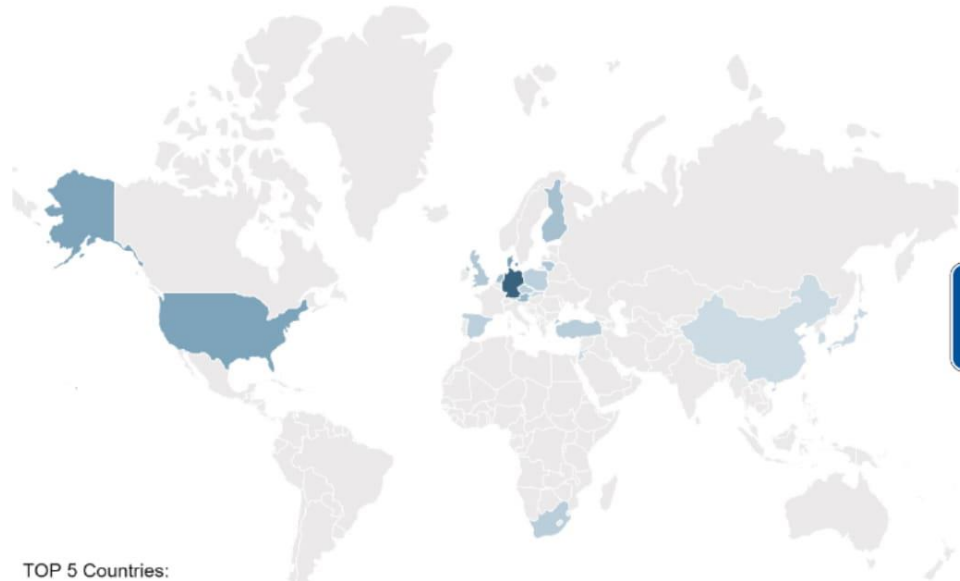
Standards for Electric Vehicle Charging Stations, by Standards Setting Organization



IPLYTICS

Standards for Electric Vehicle Charging Stations, by Standards Setting Organization



TOP 5 Countries:

Germany: 43 Standards | Denmark: 23 Standards |
United States: 21 Standards | Austria: 14 Standards |
Netherlands: 12 Standards

Standards

few many

IPLYTICS

Standard-Essential Patents

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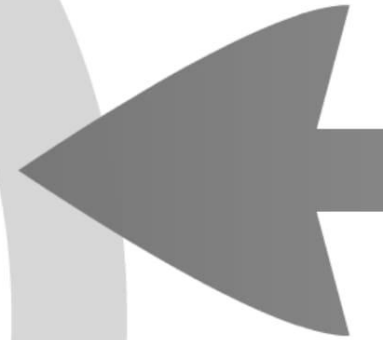


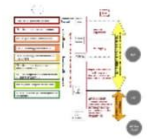
Possible Interpretations

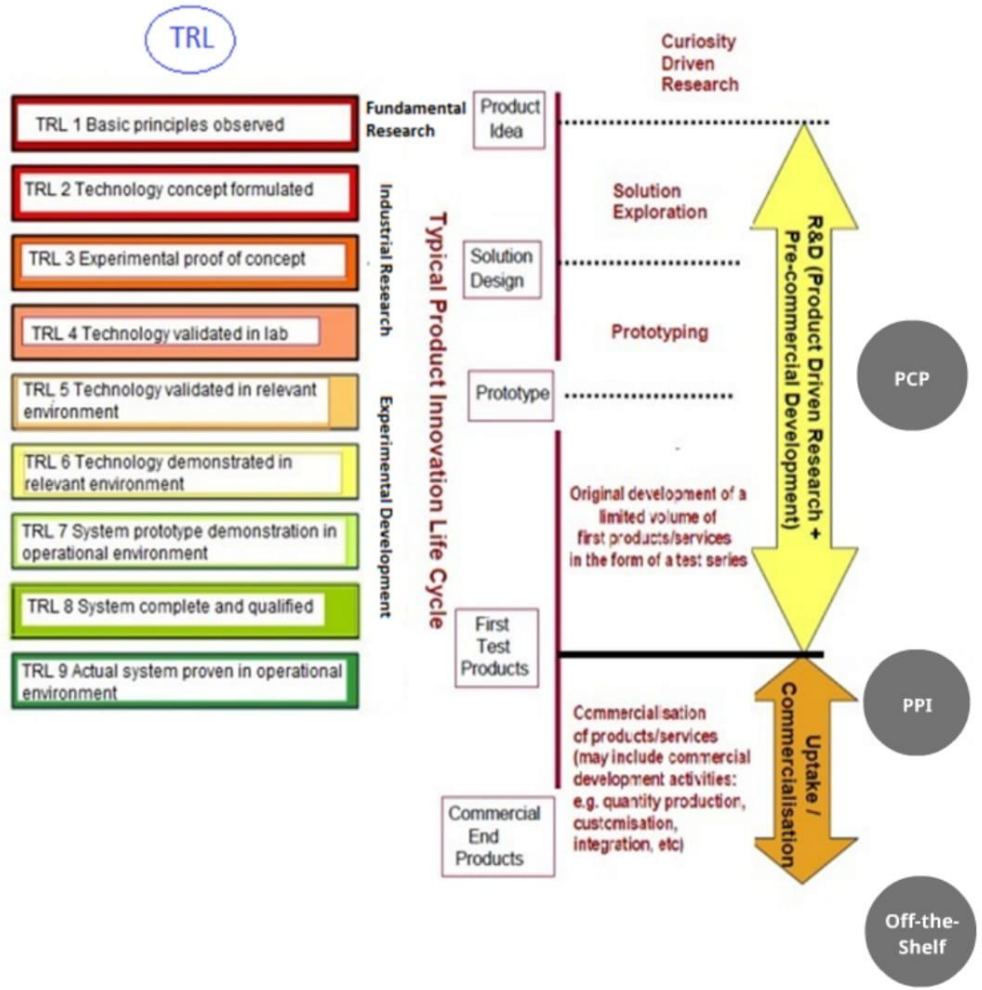
Few patents, much literature, few standards

- Justification for radical innovation (Pre-Commercial Procurement)
- Standardization strategy

Many patents, much literature, many standards

- Saturated research area;
- Justification for
  - Incremental innovation (Public Procurement of Innovative Solutions)
  - Off-the-shelf procurement
- If mandated to conduct a PCP, find a new area




TRL
TRL 1 Basic principles observed
TRL 2 Technology concept formulated
TRL 3 Experimental proof of concept
TRL 4 Technology validated in lab
TRL 5 Technology validated in relevant environment
TRL 6 Technology demonstrated in relevant environment
TRL 7 System prototype demonstration in operational environment
TRL 8 System complete and qualified
TRL 9 Actual system proven in operational environment
Fundamental Research
Industrial Research
Experimental Development
Typical Product Innovation Life Cycle
Product Idea
Solution Design
Prototype
First Test Products
Commercial End Products
Curiosity Driven Research
Solution Exploration
Prototyping
Original development of a limited volume of first products/services in the form of a test series
Commercialisation of products/services (may include commercial development activities: e.g. quantity production, customisation, integration, etc)
R&D (Product Driven Research + Pre-commercial Development)
Uptake / Commercialisation
PCP
PPI
Off-the-Shelf

Begin Official Project

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Conc

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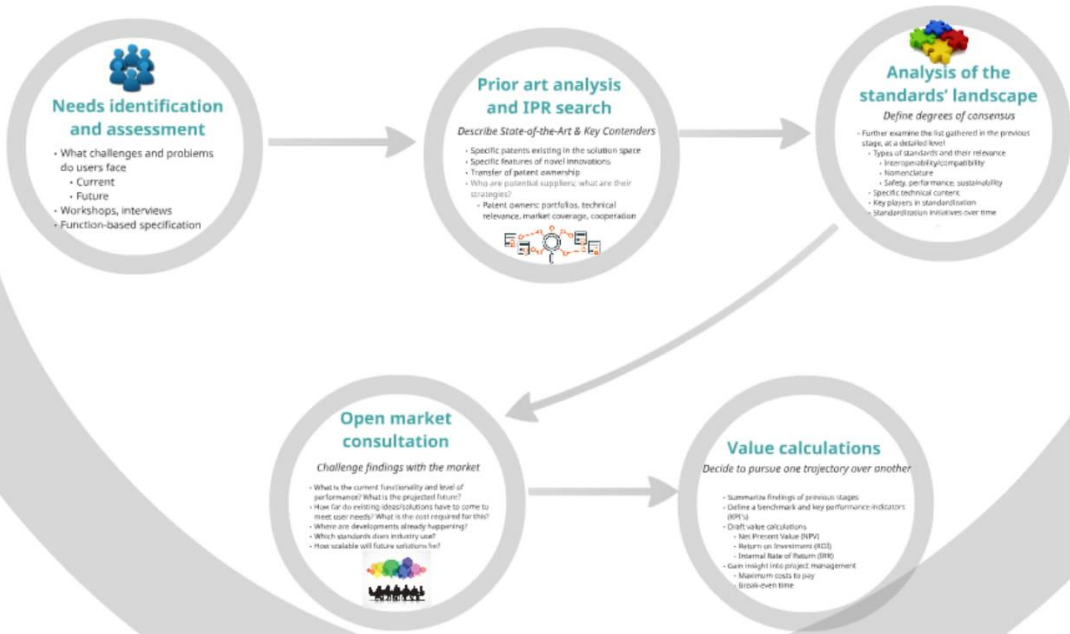


Needs identification and assessment

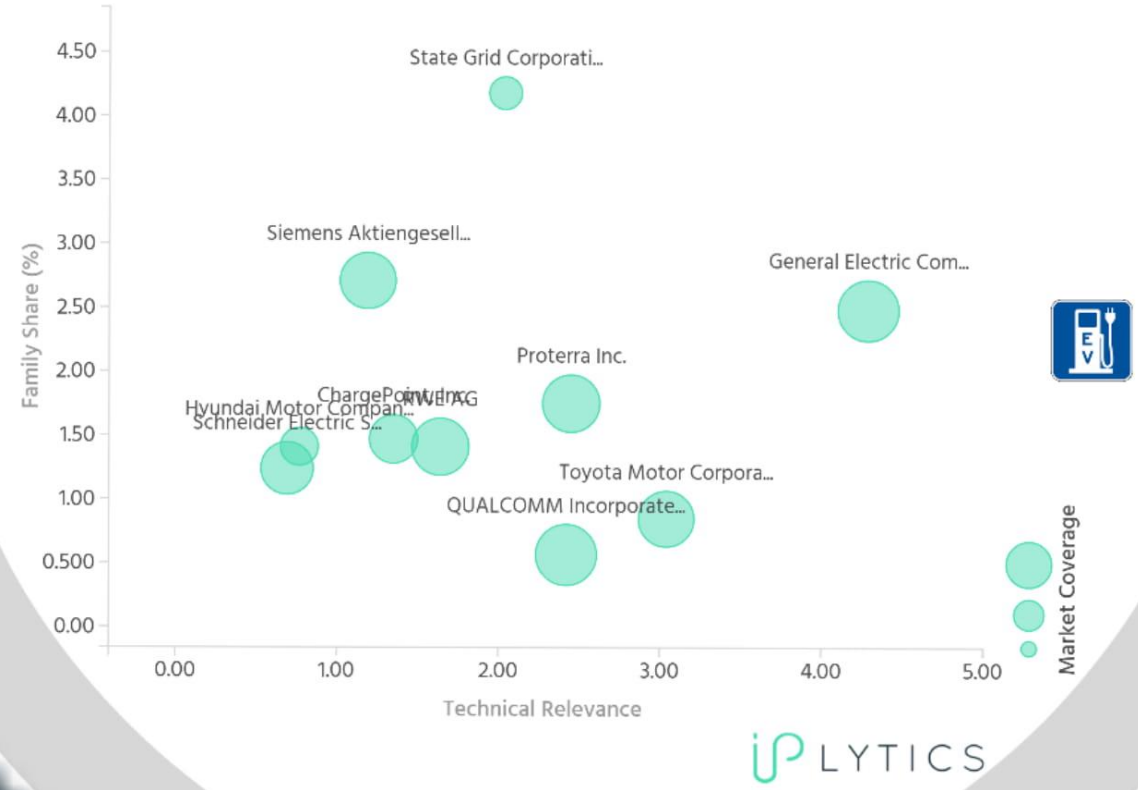
- What challenges and problems do users face
  - Current
  - Future
- Workshops, interviews
- Function-based specification

Prior art analysis and IPR search

Describe State-of-the-Art & Key Contenders

- Specific patents existing in the solution space
- Specific features of novel innovations
- Transfer of patent ownership
- Who are potential suppliers; what are their strategies?
  - Patent owners: portfolios, technical relevance, market coverage, cooperation

Key patent holders for Electric Vehicle Charging Stations



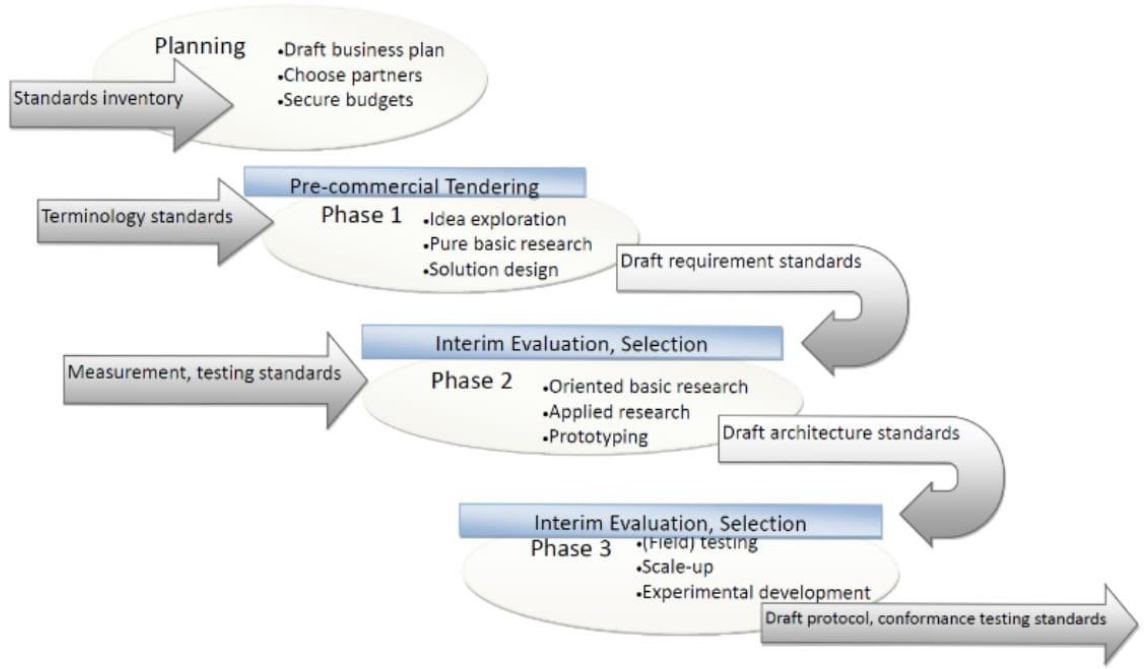
LYTICS

Analysis of the standards' landscape

Define degrees of consensus

- Further examine the list gathered in the previous stage, at a detailed level
  - Types of standards and their relevance
    - Interoperability/compatibility
    - Nomenclature
    - Safety, performance, sustainability
  - Specific technical content
  - Key players in standardization
  - Standardization initiatives over time

Applied to Pre-Commercial Procurement



Rainville (2017). Standards in green public procurement – A framework to enhance innovation. Journal of Cleaner Production, Volume 167, pp. 1029-1037,https://doi.org/10.1016/j.jclepro.2016.10.088.

Open market consultation

Challenge findings with the market

- What is the current functionality and level of performance? What is the projected future?
- How far do existing ideas/solutions have to come to meet user needs? What is the cost required for this?
- Where are developments already happening?
- Which standards does industry use?
- How scalable will future solutions be?

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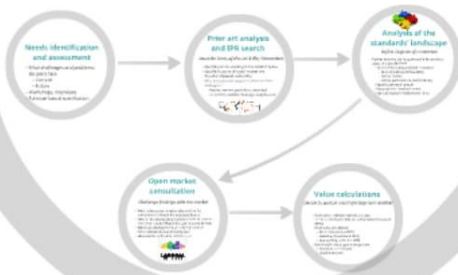

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