Workshop Title

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About Me

Hervé legenvre

Hervé Legenvre is Professor and Research Director at EIPM. He manages educational programmes for global clients. He conducts research and teaches on digitalisation, innovation, supply chains and ecosystems.

Hervé is the author of the Fifth generation purchasing a book on Innovation and supply chains. Hervé has authored the chapter on the role of Open Technologies in digital infrastructure for the forthcoming Oxford Open Innovation handbook edited by Chesbrough, Radziwon, Vanhaverbeke and West,

Lately Hervé has conducted extensive research on how open-source software and open hardware are transforming industry foundations.

Aim of the session

The aims of the session includes:

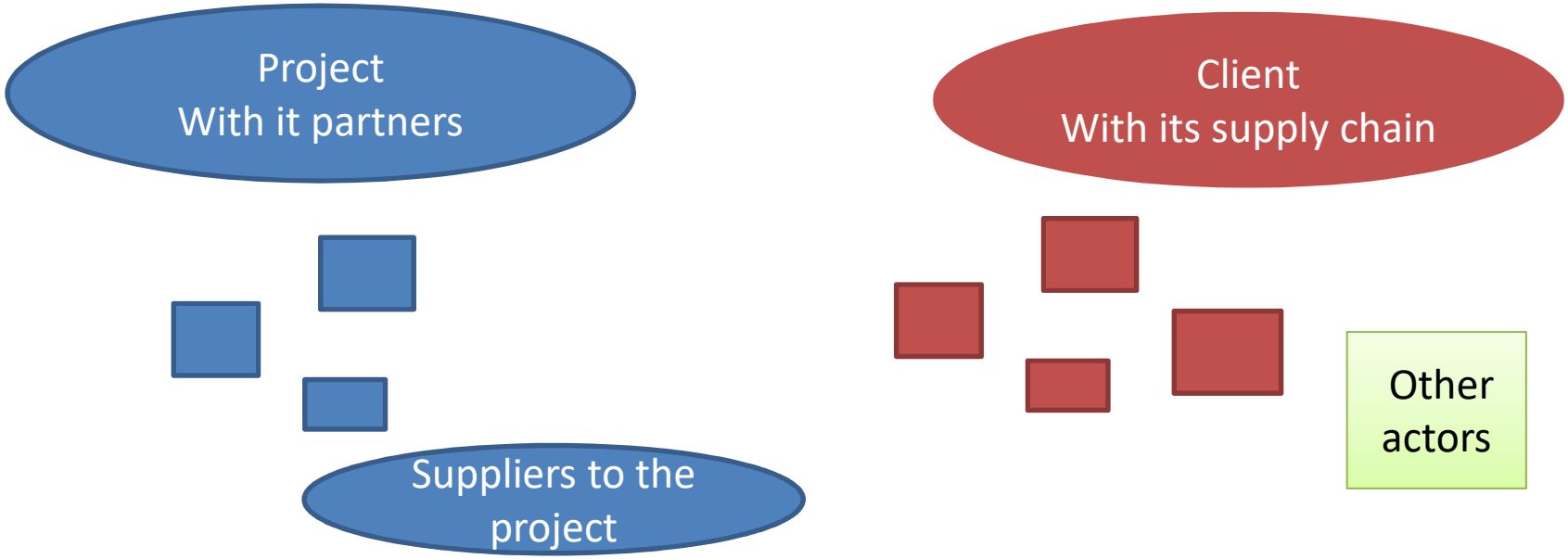
- How innovations are integrated within value/supply chains
- How companies integrate innovation within their procurement and sourcing activities.
- How innovation projects can be positioned within ecosystems of complementary firms and capabilities
- What drives companies to adopt open-source software and open hardware

Timing	Content	Format
15’	Opening of the workshop	
45’	Positioning innovation projects within value/supply chains • Successful Innovation project need to find their place within increasingly complex value/supply chains. • Projects need to explicitly position themselves within a value/ supply chain. • What prevents an innovation from flowing down a value chain? • Discussion / cases	Lecture and Q&A
45’	How companies organize their innovation sourcing process • Companies’ expectation for their supply chains are evolving (risks, decarbonation, cost…) • The role of R&D / Innovation teams • The role of General managers • The role of procurement • The role of intermediaries • Fifth generation Purchasing • Different work modes • Discussion / cases	

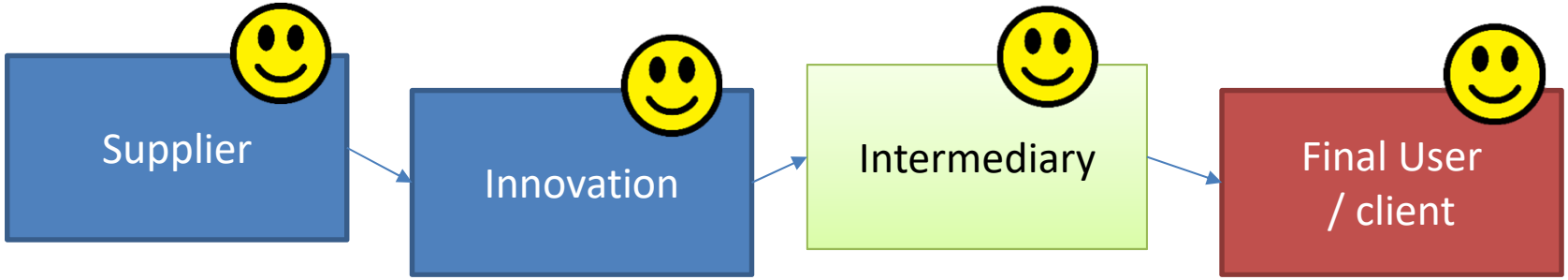
20'	**Break**	
45''	Thinking in ecosystem • Distinguishing supplements and complements. • Understanding and mapping Ecosystems • Understanding open-source ecosystems • Open-source software, open hardware • Asking the right questions: Who will be the integrator? Who will influence key decisions? • Discussion / cases	Lecture and Q&A
45'	Workshop In order the position our project in the right supply chains and ecosystem What should we: • Stop doing? • Start doing? • Keep doing?	Workshop

Scope of our discussion

Moving from



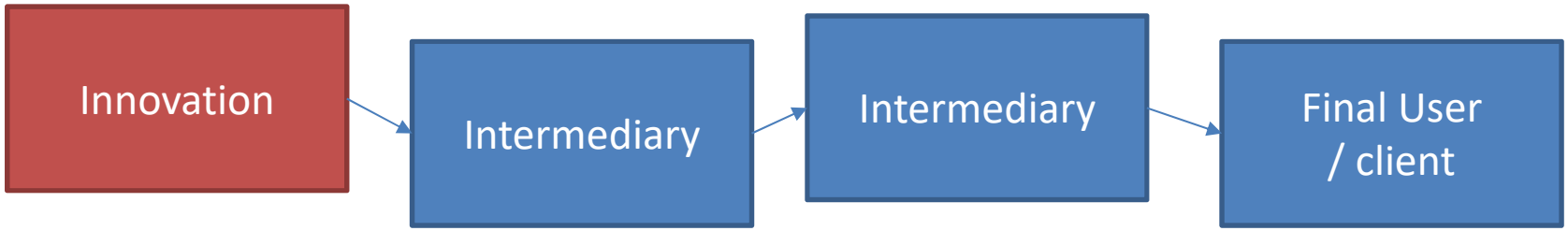
To something like this



POSITIONING INNOVATION PROJECTS WITHIN VALUE/SUPPLY CHAINS

Innovation project in complex value/supply chains.

The story of the anticoagulant drug

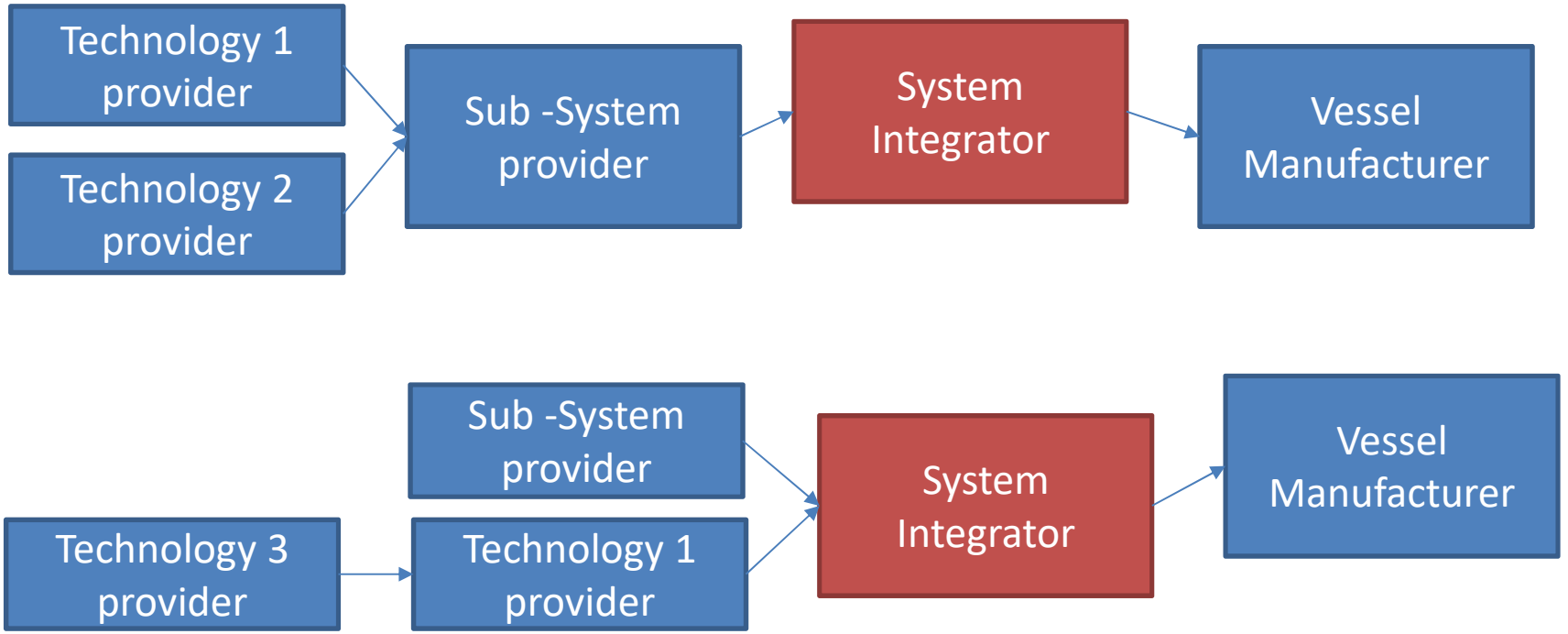


An innovation project succeeds if all intermediaries in the chain gain value out of it

This can prevent an innovation to flow down a chain
It is important to find, if possible, the right entry point in a value chain

Innovation project in complex value/supply chains.

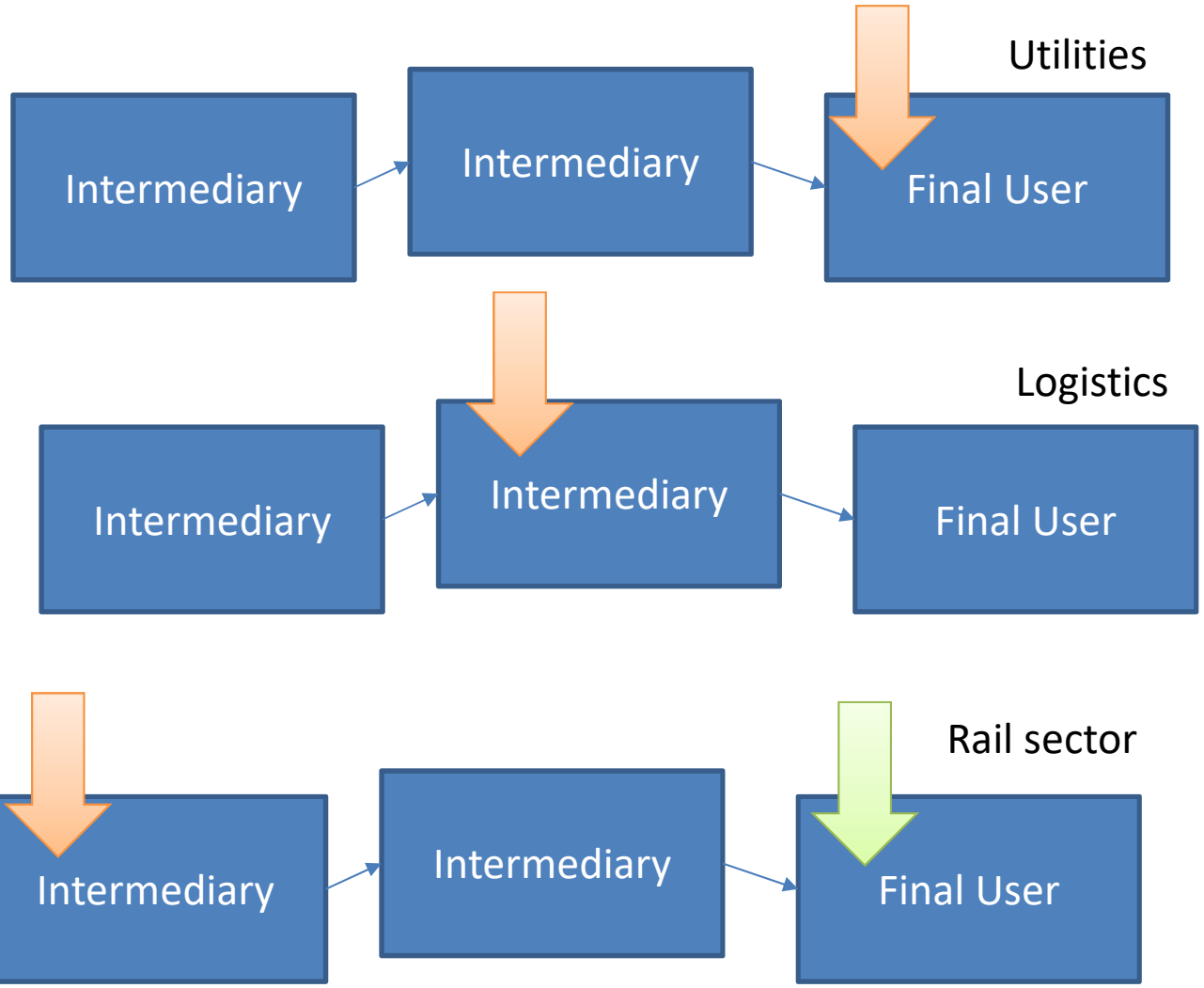
The Story of the radar technology



Companies actively shape their value chains
Often because they dislike dependencies

Where to enter within a value/ supply chain.

Use cases



LoRaWAN

One pioneer of IoT networks

Factors to consider when deciding where to enter

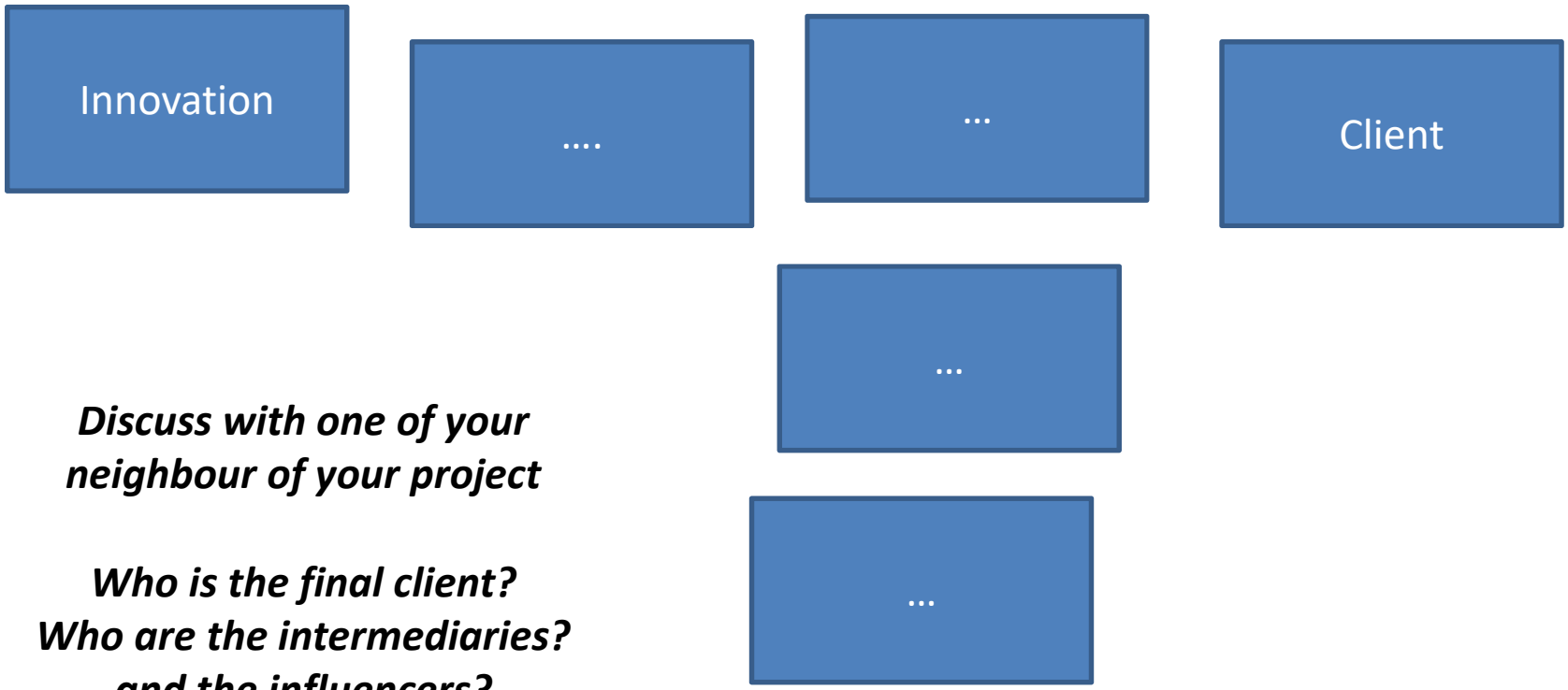
- The Innovation and the Technology Architecture
- Who benefits? Who does not benefit?
- Who influences innovation adoption decisions along the chain
- Innovation good and bad practices
  - “We have a 10 step process to assess new opportunities”
  - “I met 10 intermediaries before talking to decision maker”
  - “They keep changing the team and their expectations?”

How can an innovation flow down a value chain?

You created a very innovative steel pilar
They are quite expensive
You need less of them –this creates more space in a warehouse.
It is hard to sell them… they are expensive… where to act?

Discussion / cases

Discussion / Cases?



Discuss with one of your neighbour of your project

Who is the final client?
Who are the intermediaries?
and the influencers?

HOW COMPANIES ORGANIZE THEIR INNOVATION SOURCING PROCESS

Recent announcement

TESLA ELECTRIC MOTOR

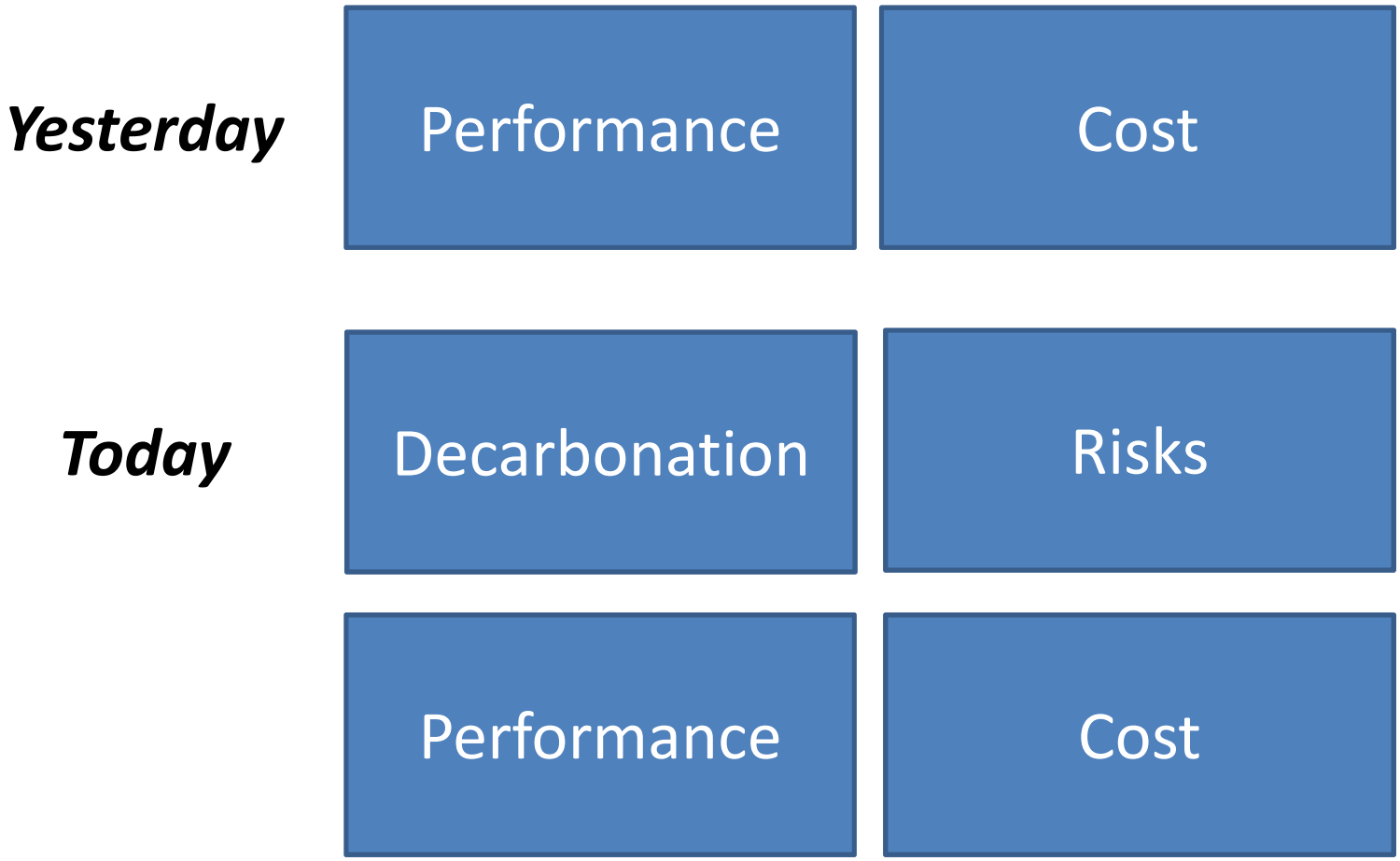
Tesla is going (back) to EV motors with no rare earth elements

Jameson Dow | Mar 1 2023 - 3:23 pm PT | 26 Comments

Apple to use ELYSIS zero-carbon aluminum for the latest iPhone SE

Apple announced that it will use zero-carbon aluminum produced by ELYSIS in the new iPhone SE. This is the first time the aluminum will be produced and sold at industrial scale, representing another major milestone in advancing the ELYSIS technology invented by Alcoa. The aluminum to be used in the iPhone SEs is being produced at the ELYSIS Industrial Research and Development Centre in Quebec with renewable hydropower.

Companies' expectation for their supply chains



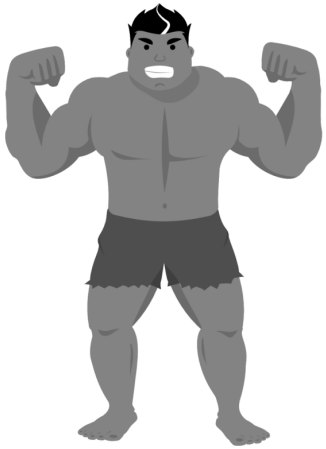
Who plays a role inside a company

Who do you talk to? How do you talk to them?

Type of engagements	Corporate venturing teams	Innovation team	Procurement team	R&D team
Hackathon and crowdsourcing		✓	✓	
Pitch competition		✓	✓	
Incubator		✓		✓
Corporate Venture Capital	✓	✓		✓
Accelerator		✓	✓	✓
Publicly funded research projects		✓	✓	✓
Innovation partnerships / co-development		✓	✓	✓
BtoB meetings		✓	✓	✓
Procurement		✓	✓	

✓ *Natural involvement*
✓ *Random involvement*

Companies are caught In paradox and tensions



HOW DO WE ANTICIPATE AND ACCELERATE?

HOW DO WE COMBINE PACE AND POWER?

HOW DO WE TAKE RISKS WHILE AVOIDING

HOW DO WE EXPLORE AND EXPLOIT OPPORTUNITIES

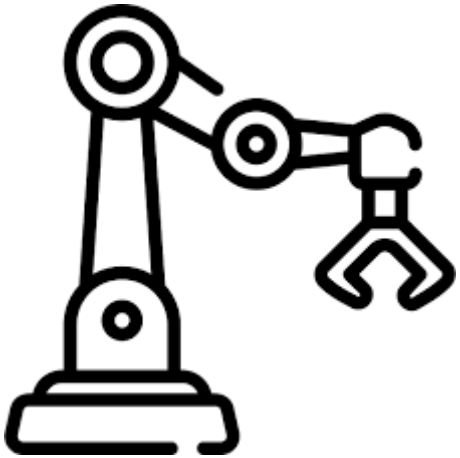
The buying center

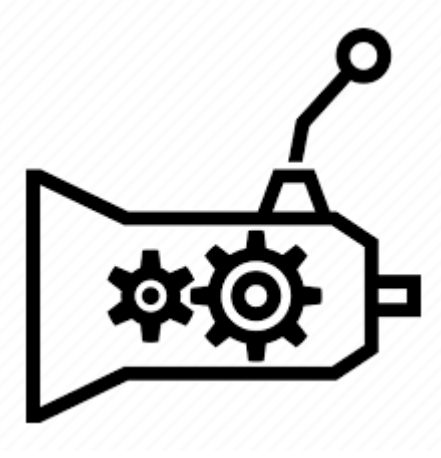
The Story of the Robot and the Gearbox innovation

Can they deliver the performance?
Do they have the R&D resources for such project?
How much work for us?

Gearbox really?
Too short term !

What is the business model?
Can they scale?
What are the risks when it moves to operation?



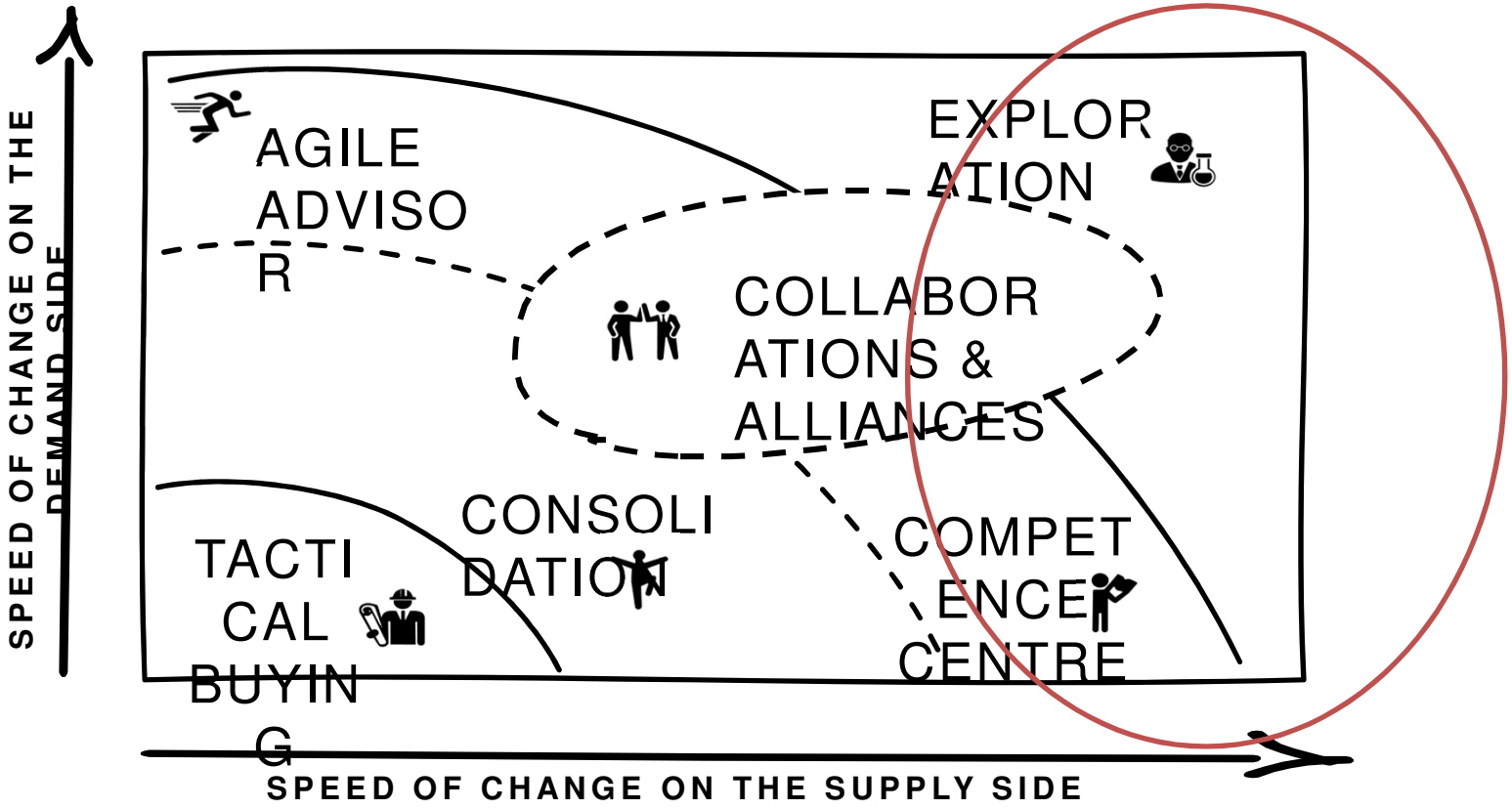


Who plays a role? The buying center

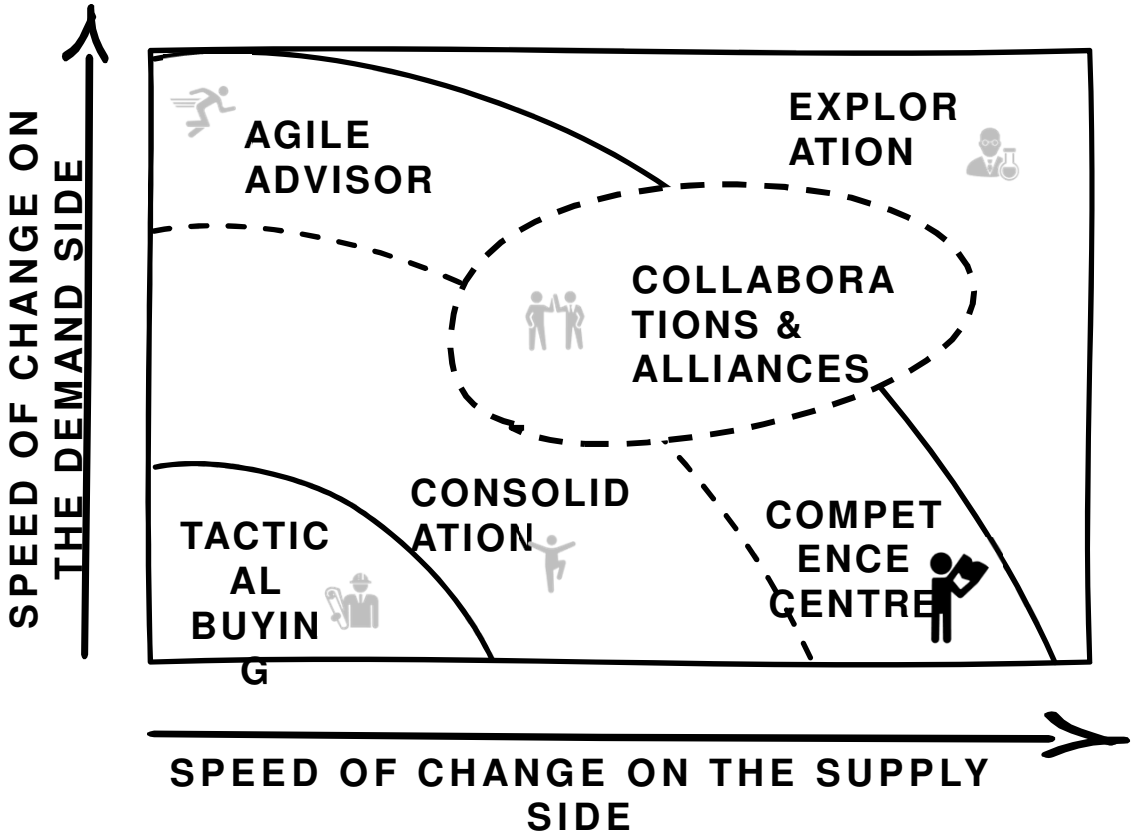
	**R&D**	*R&D is concerned about resources & performance* *They focus on technology readiness* *They love proximity*
	***Innovation Teams***	*They build bridges* *They link with Innovation intermediaries* *They facilitate innovation workshops*
	***Procurement***	*They facilitate supplier selection* *They are obsessed by dependencies, scale, cost and compliance*
	Top management	*They are involved in major decision* *They influence who works with whom* *They are part of escalation*

5th generation: 6 work modes

Six work modes based on speed of change on demand and supply side.
Three of them are important for innovation projects



Competence Centre/ Gatekeeper



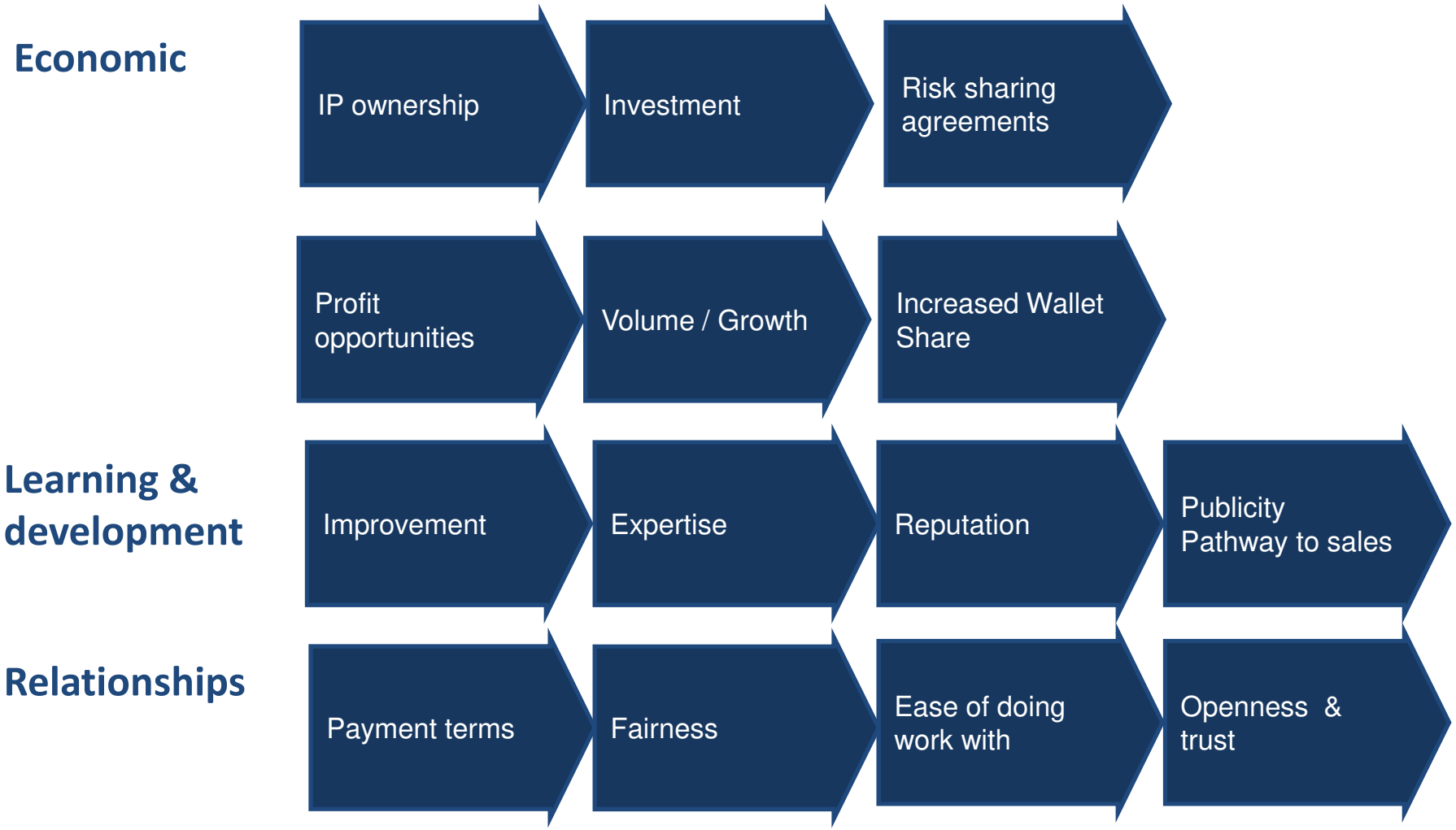
Motto is: **Looking beyond the obvious!**

Companies want to understand what happens deep into their value chain. they need to spot future threats and opportunities

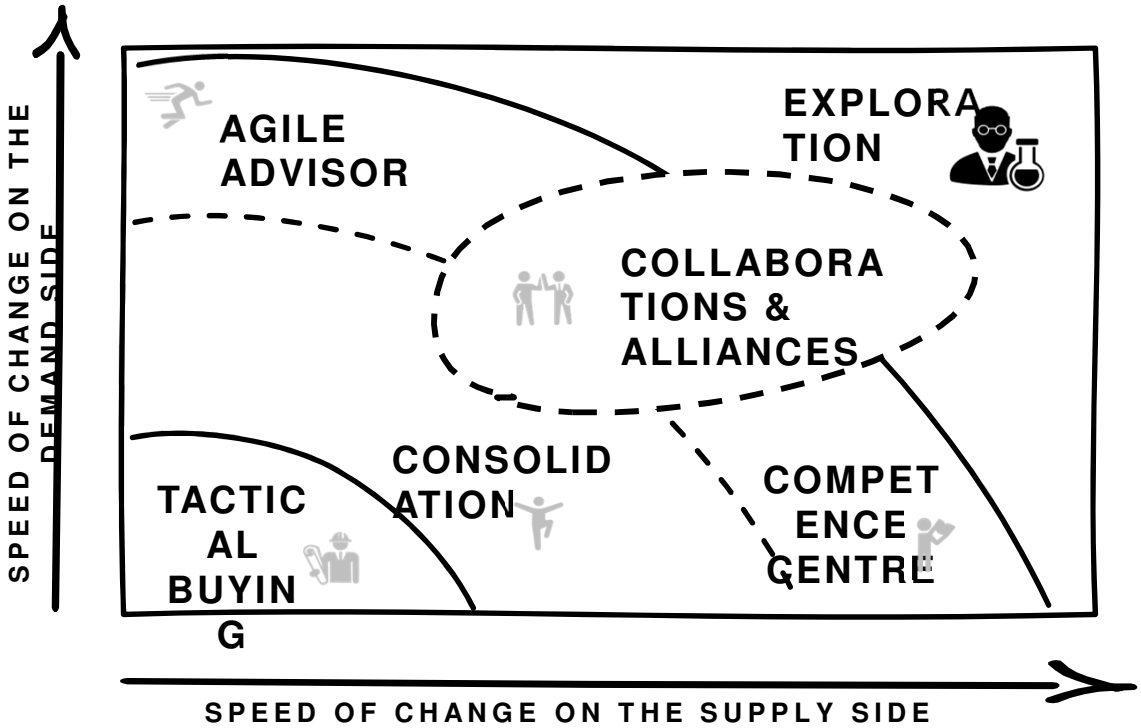
Key ideas they aspire to

- They map Ecosystems, look for opportunities and threats
- They try to be attractive for innovative players
- They need cognitive fluidity

What makes a company attractive for innovation providers



Exploration



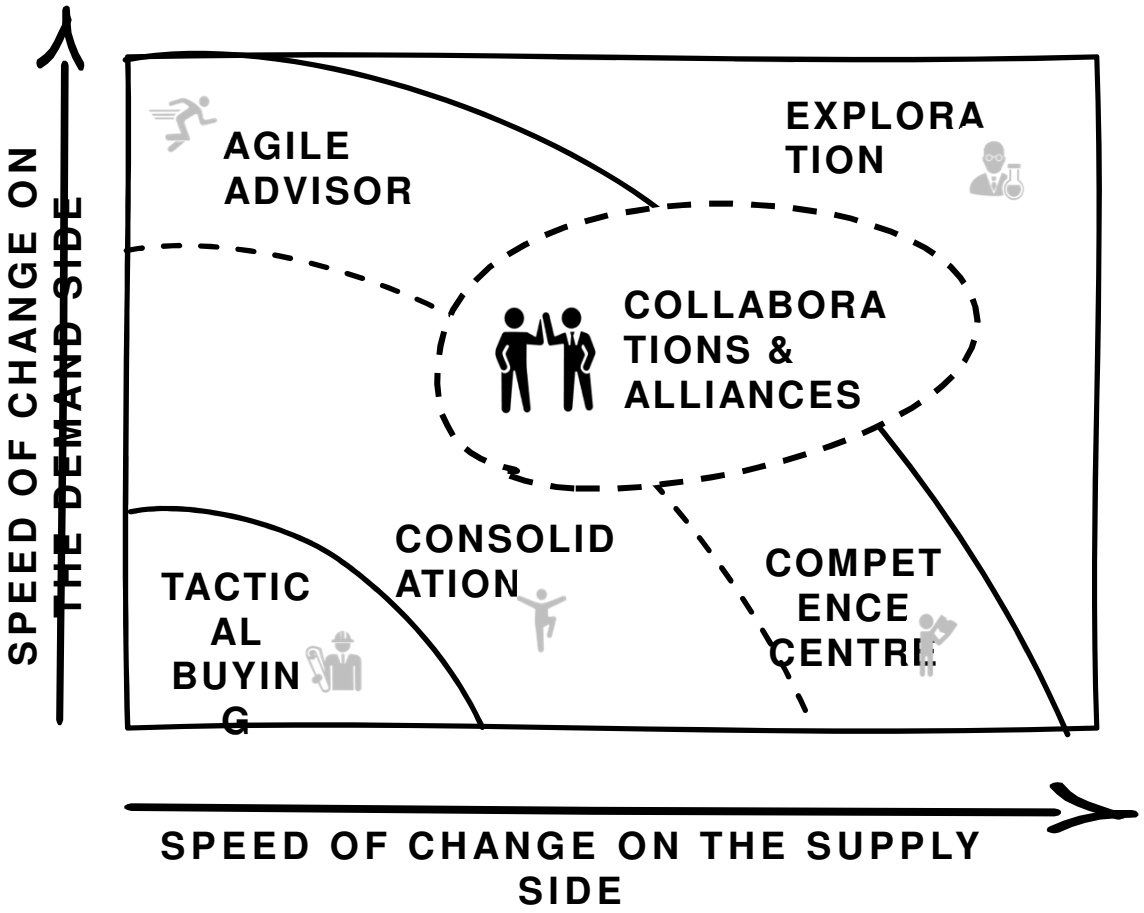
Motto is **Fail Fast! Learn Fast!**

Companies need to find innovative solutions to respond to their challenges

Key ideas they aspire to

- They convince internal stakeholders to start Proof of Concept
- Work closely with providers to test their solution
- Scale up the most promising ones

Collaboration & Alliances



Motto is: **I Grow, you Grow, we Grow together!**

Companies want to partner with a few key companies that help them grow and Develop

Key ideas they aspire to

- Never fight for crumbs! Grow the Pie!
- Treat partners as an extension of your own organisation
- Recognise people and cross company teams. You want their best people to work for you

Discussion / cases

Discussion / Cases?

Discuss with one of your neighbour of your project

Who did you talk to?
What surprised you?
What did you learn?

General managers
They influence who works with whom

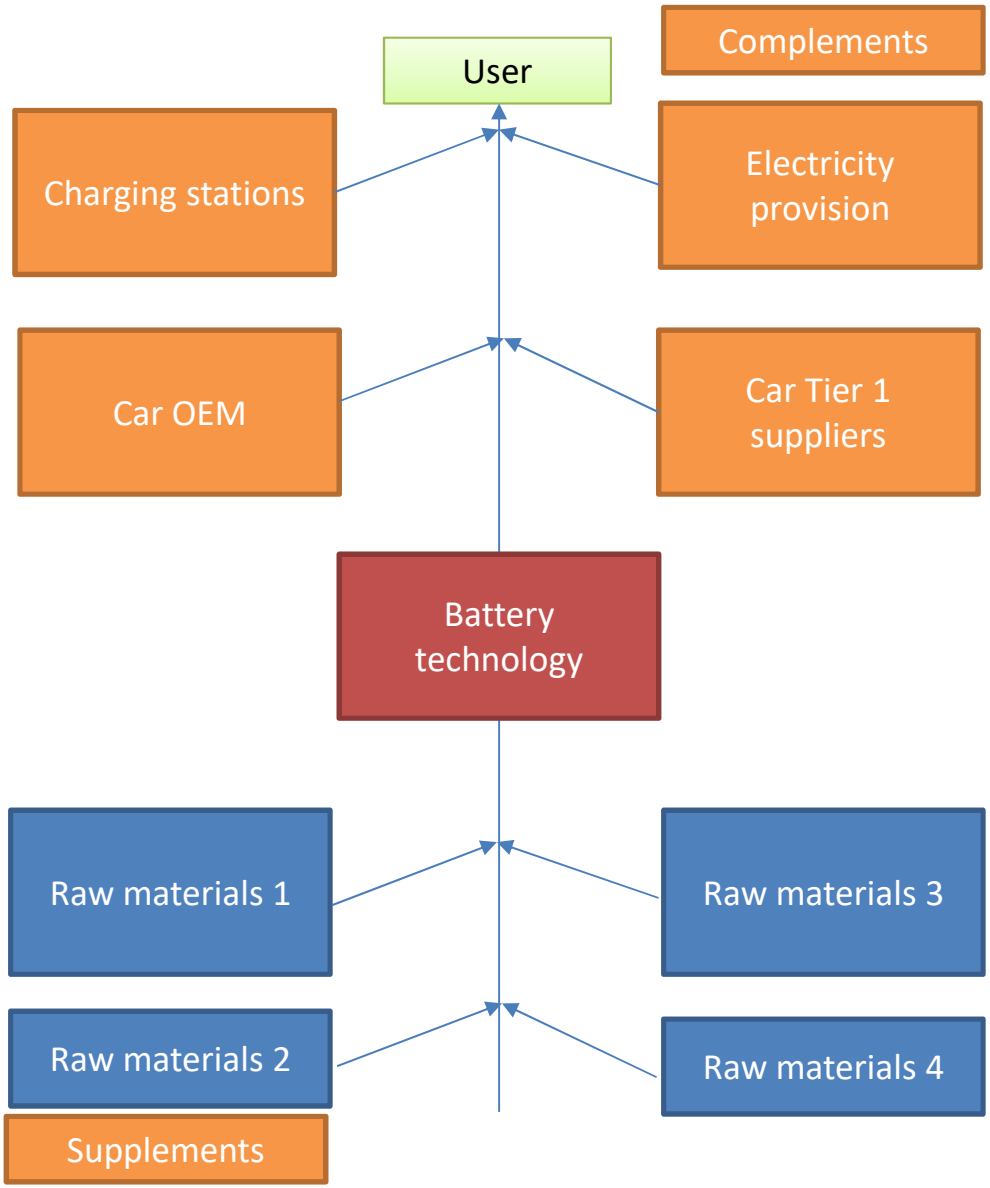
R&D
They are concerned about resources and performance
They focus on technology readiness
They love proximity

Innovation Team
They build bridges
They link with Innovation intermediaries
They facilitate innovation workshops

Procurement
They facilitate supplier selection
They are obsessed by dependencies, scale, cost and compliance

ECOSYSTEMS

Supplements and complements & the three types of bottlenecks



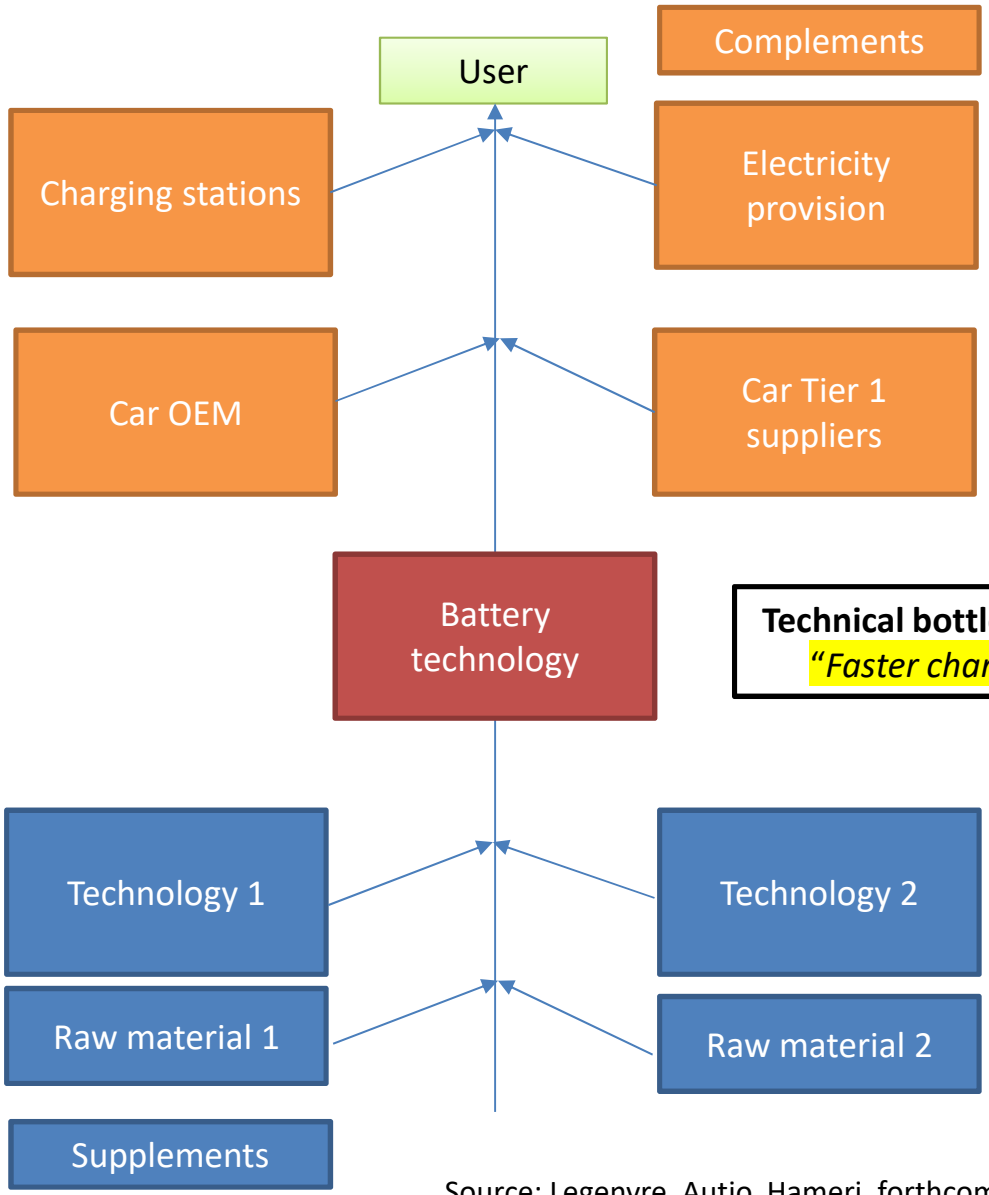
The Story of the EV batteries

A Cup and coffee are loosely coupled complements

Intel and Microsoft are tightly coupled complements

As everything becomes orchestrated by software complements are everywhere We move towards more open architecture and technology

Three types of bottlenecks



Ecosystem bottlenecks
"Compatibility issues"

A lack of community momentum hinder the development and adoption of innovation and prevents value from flowing towards users

Technical bottlenecks
"Faster charge"

A Technology hinder the performance of the technical system

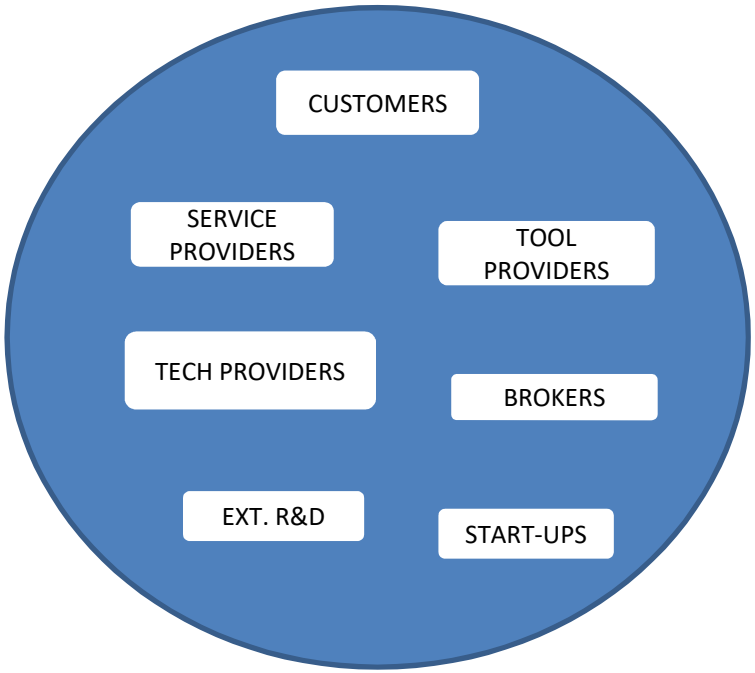
Strategic bottlenecks
"Some firms control the supply of raw materials"

A firm extract disproportionate share of value out of an industry by exerting proprietary controls on technologies

Source: Legenvre, Autio, Hameri, forthcoming

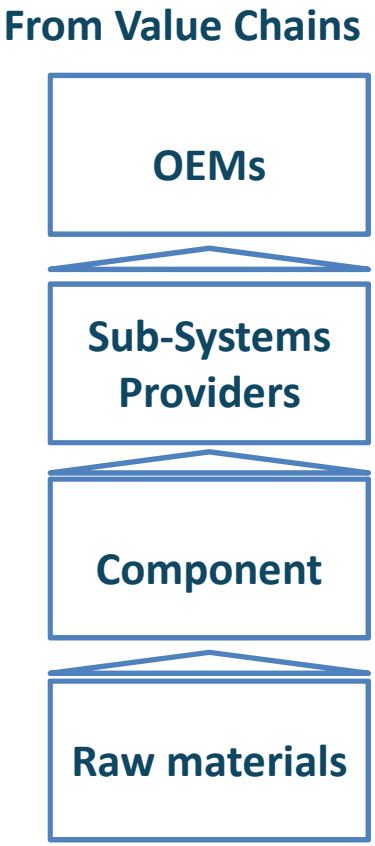
Ecosystem and value chain complement each other

Ecosystem at technology development stage

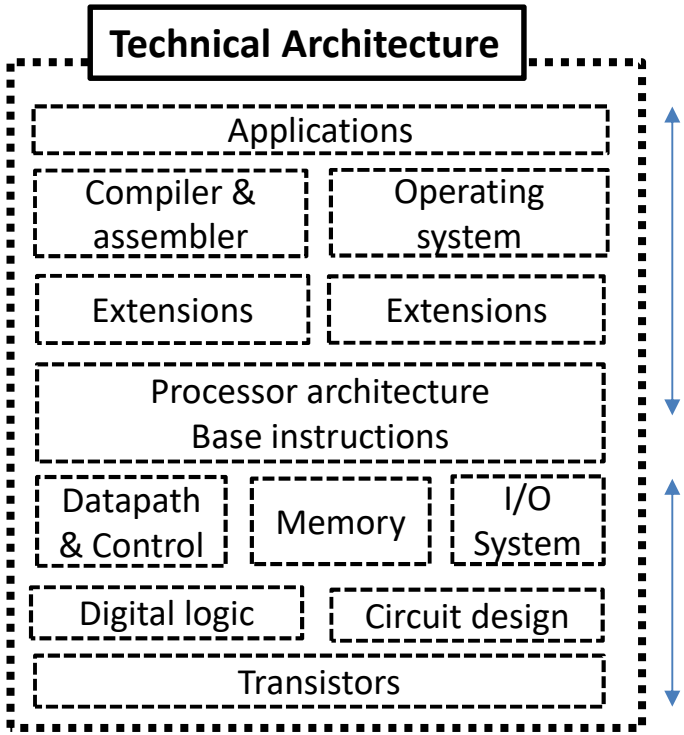


Building a pool of technology and eliminate all sorts of bottlenecks (except the raw materials ones)

For a use case, a product you still build a dedicated value chain

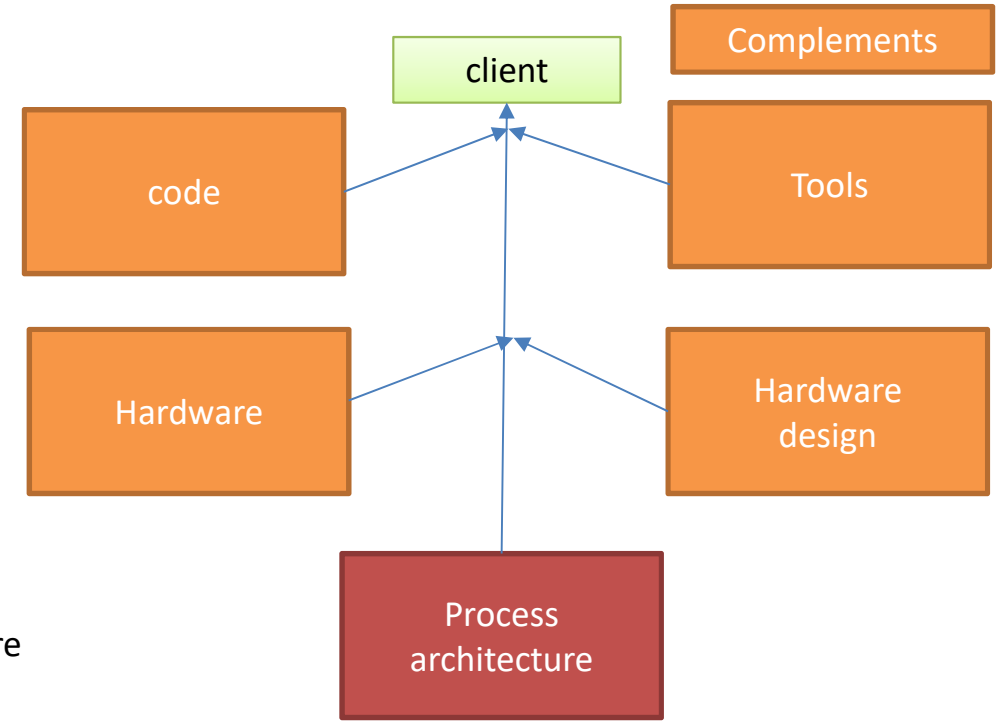


Processor technical architecture



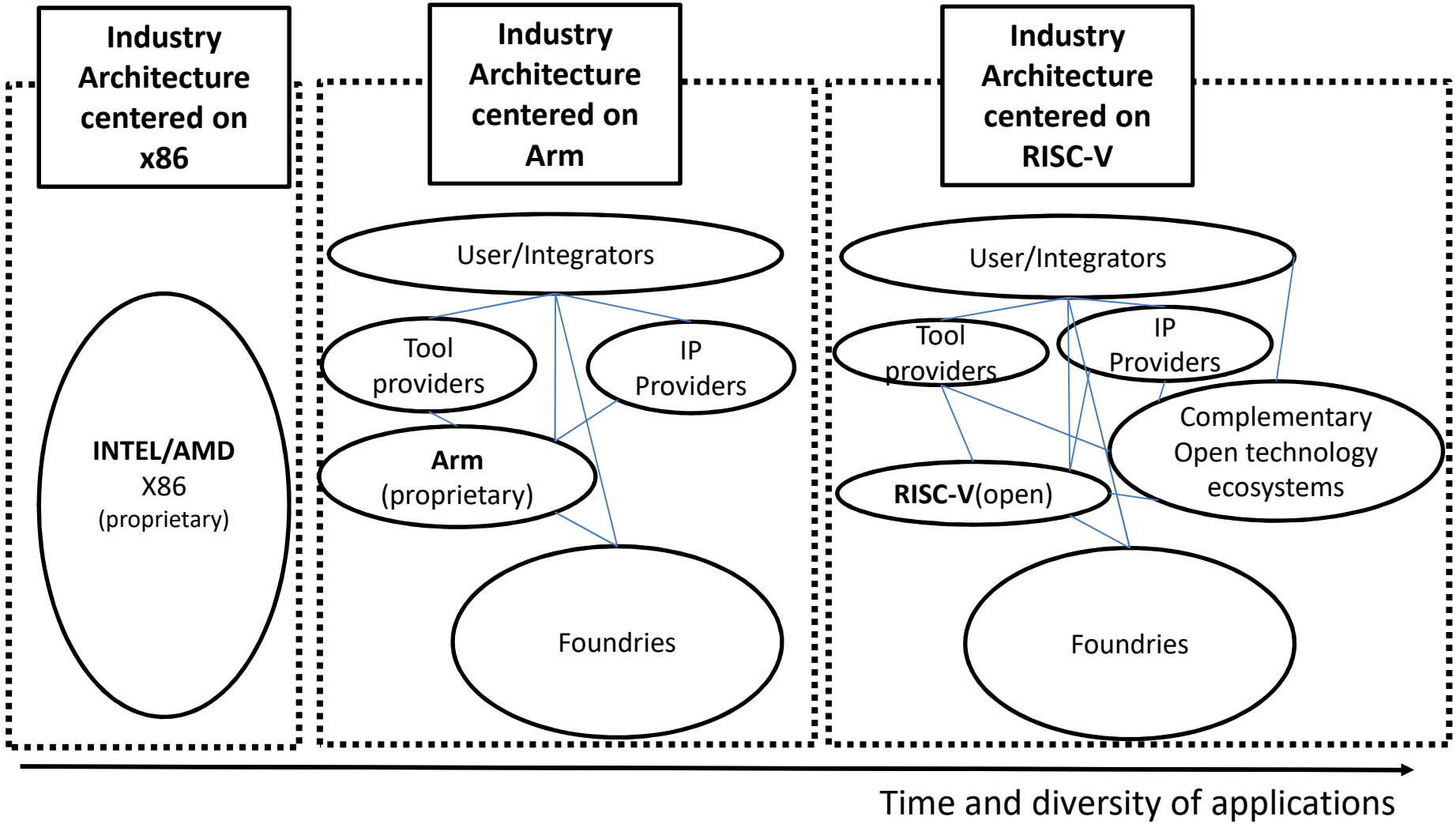
Code

Hardware and its design



Source: Legenvre, Autio, Hameri, forthcomingc

Processor : Towards more open technology over time



From The Monopoly of Silicon to the Democracy of Silicon

Source: Legenvre, Autio, Hameri, forthcoming

Qualifying an ecosystem: Thales and RISC V

- Cost impacts
- Design speed
- Stability and upgrades
- Transparency
- Dependency
- License constraints
- Ecosystem momentum

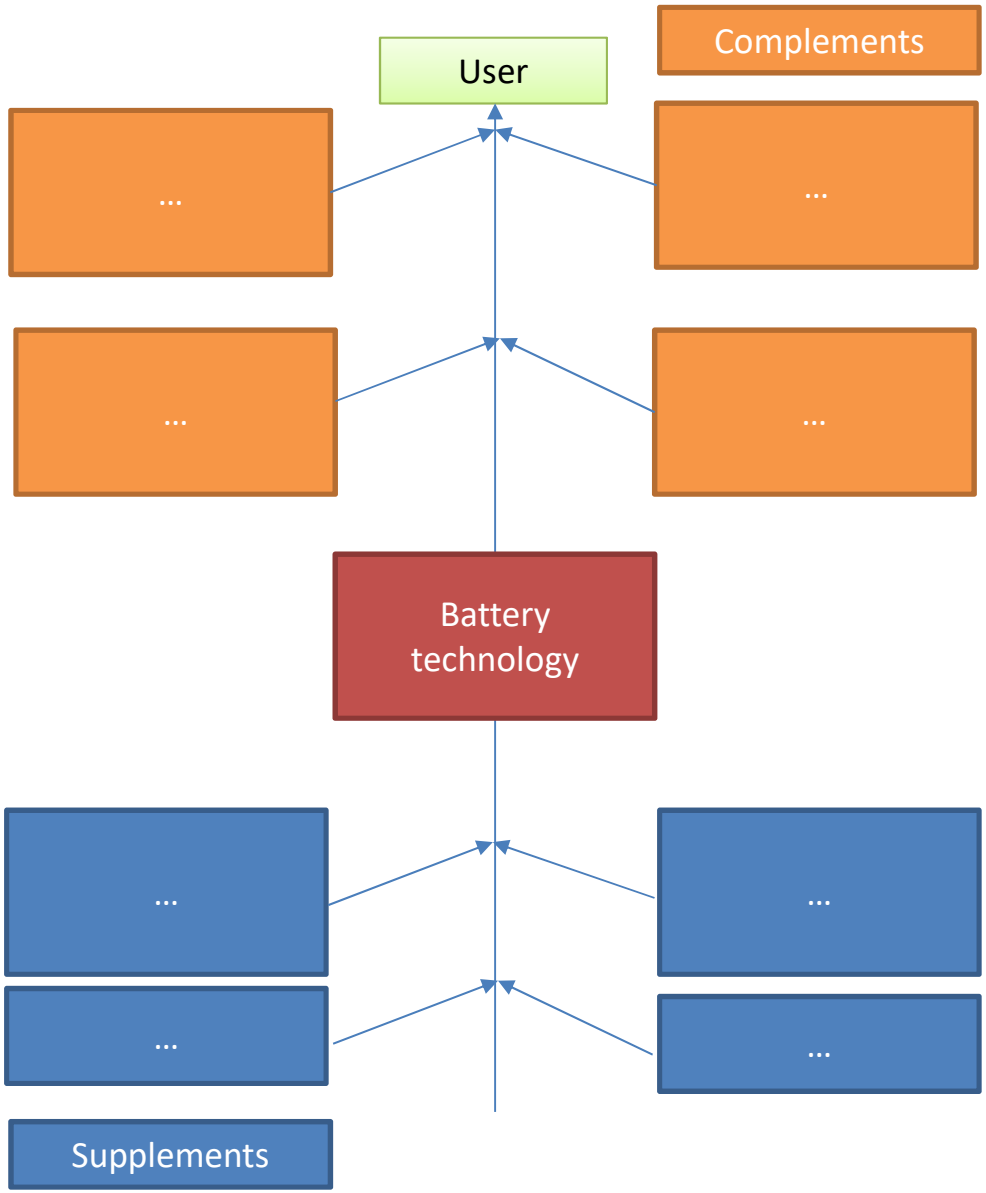
TABLE 3. Adoption factors

Factor	Sub-Factors
Factor 1: Total Cost Optimization, Including the Cost of Accessing Innovation	Adoption advantages: – Lower intellectual property cost – Lower design cost through reuse of open source building blocks – Pooling of creativity and resources needed to innovate Limitations: – Advantages can be limited to specific applications
Factor 2: Flexible and Rapid Design Process	Adoption advantages: – Reduction of administrative steps and upstream innovation barriers – Possibility of accessing a broad set of rapid design and prototyping capabilities Limitations: – Advantages are more specific to custom-purposed processors – Industry leaders have started to adapt their offerings
Factor 3: Stability and Modularity	Adoption advantages: – Stability of the solution – Modularity of the solution Limitations: – Lack of complete verification tools
Factor 4: The White Box Approach	Adoption advantages: – Ability to inspect the content of the solution (software, hardware, IP) is key for safety and security* – Transparency in terms of intellectual property prevents potential IP infringements Limitations: – Traceability of IP is difficult to ensure, but this is an industry-wide challenge
Factor 5: Possibility to Select Suppliers Outside of Dominant Players	Adoption advantages: – Ability to develop a dual-source approach to mitigate supply risks – Provides flexibility for maintenance and repair* – Provides flexibility for end-of-life issues* Limitations: – Some long-term advantages in a hard-to-predict context
Factor 6: Permissive License Agreements	Adoption advantages: – Possibility to create proprietary derivative solutions Limitations: – Fear that open source licenses will oblige firms to disclose their design – Less incentives to contribute back to the ecosystem
Factor 7: A Growing and Active Ecosystem	Adoption advantages: – Development of a critical mass of adopters on the user side – Development of a critical mass of developers – Governance rules of the ecosystem Limitations: – Lack of active contribution could prevent the development of the ecosystem

*Factors more significant for the aerospace and defense industry than for other industries.

Source: Legenvre et al. 2020

Three types of bottlenecks



Discuss with one of your neighbour of your project

Who is the final client?
Who are the complements?
Technical bottlenecks
Strategic bottlenecks
Ecosystem bottlenecks

Workshop

Main obstacles you are facing today?

Main solutions that work for you?

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