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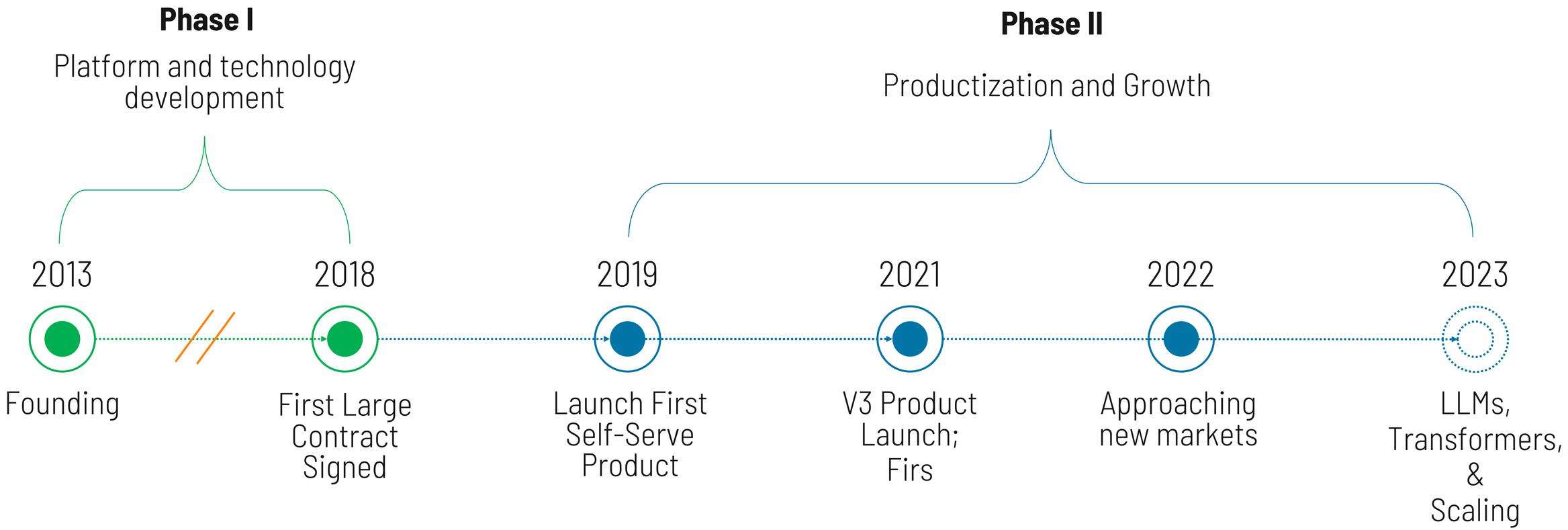
AI + Materials 材料 | AI + Industrials 工业 | AI + New Energy 新能源

The First Company in AI-for-Materials

Gregory Mulholland, CEO, Citrine Informatics

Timeline

Finding Product / Market / Technology Fit



Lessons Learned as a Startup

If I were giving advice to myself, but 10 years ago…

Technology isn't enough

- Having great technology is important
- Having technology built into a product with clear ROI is important
- Some companies with technology that doesn't work reliably still market under AI, most materials companies can't understand the difference among AI approached

Materials Companies incentives aren't what you think they are

- Most companies make money by producing a lot of a material very efficiently
- Most companies want innovation but see it as nice-to-have

Timing is critical

- We are an overnight success ten years later
- In 2013, people thought we were crazy, not AI for materials is a hot space

Lessons Learned about Industry

How I would think about these technologies if I was a leader at a materials company

Don’t try to build in house

- AI talent is hard to find
- Software is expensive to maintain
- Most materials companies don’t know how to build software (5-10% will be successful at all)

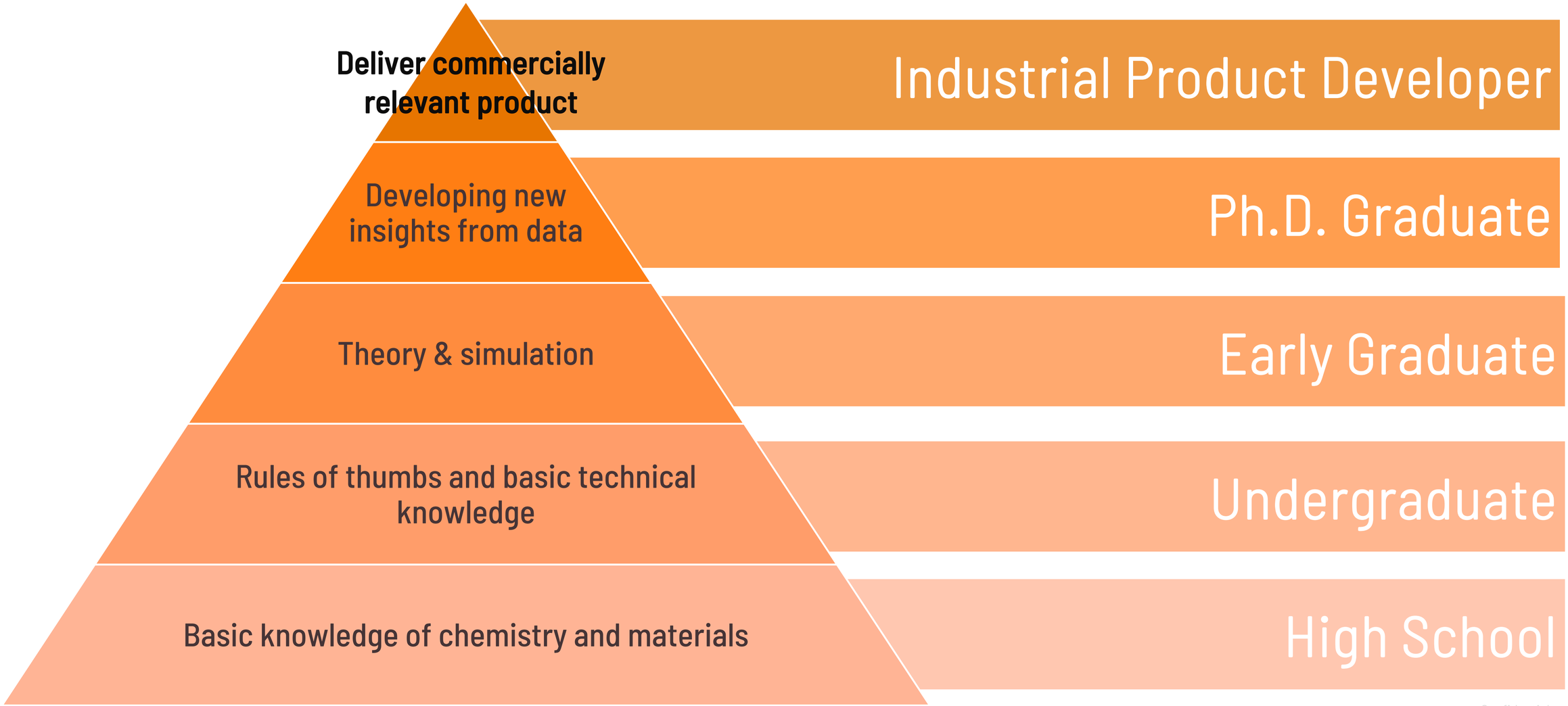
Don’t try to “get all the data”

- Not all data is created equal; do not go back and digitize all of your data
- Focus on current high priority projects and collect/digitize that data, use it to create a roadmap

Empower your whole team

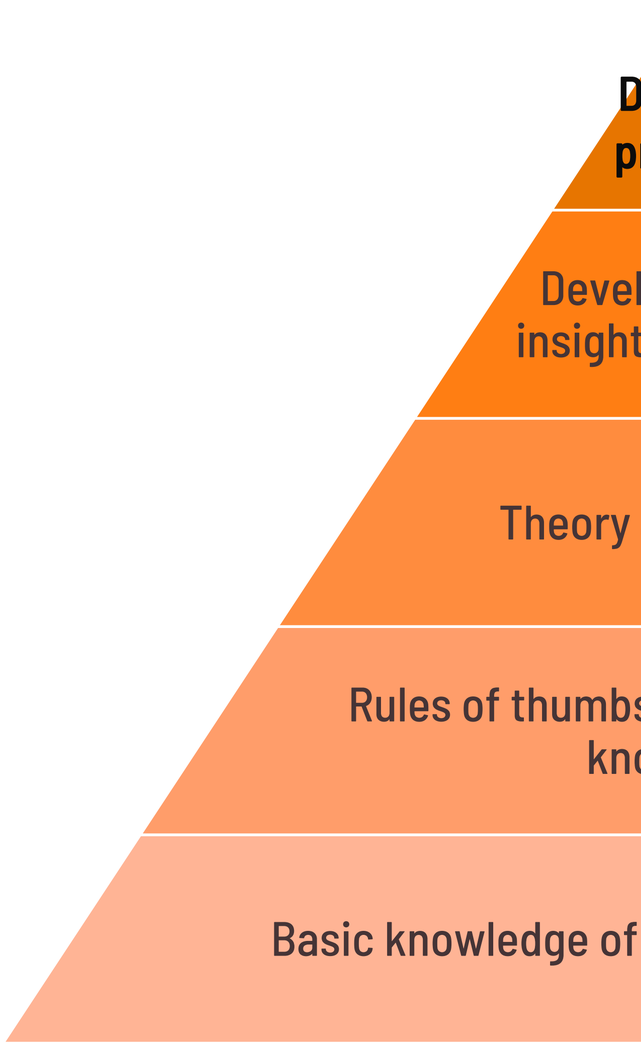
- Do not just hire one person to be your “data science expert,” this doesn’t scale
- Use tools that every technical expert at your company can engage with so every person is getting the benefit

HOW DO WE TEACH PEOPLE TO BE EXPERTS IN OUR FIELD?



We can teach a computer the same way

Why should we expect a computer to learn everything from data?



Use your understanding of market need, how your products can be used, and chemistry in concert with the AI to find the right answer

Use AI to identify subtle relationships in the data and exploit those relationships to get to new, innovative solutions

Use MD, DFT, and other simulation techniques to teach the AI about physics theory

The relationships we have learned during our careers

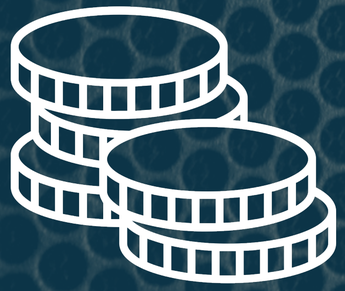
Electron counting, crystals, known phenomena integrated into models from the outset

WHAT THIS APPROACH LEADS TO

5-10x
faster product development

80%
Reduction in time responding to customers

Rationalize product portfolio dynamically



Invest only in products with a high likelihood of success

Constantly learn from people and data, durably

Sources: comScore, internal data