



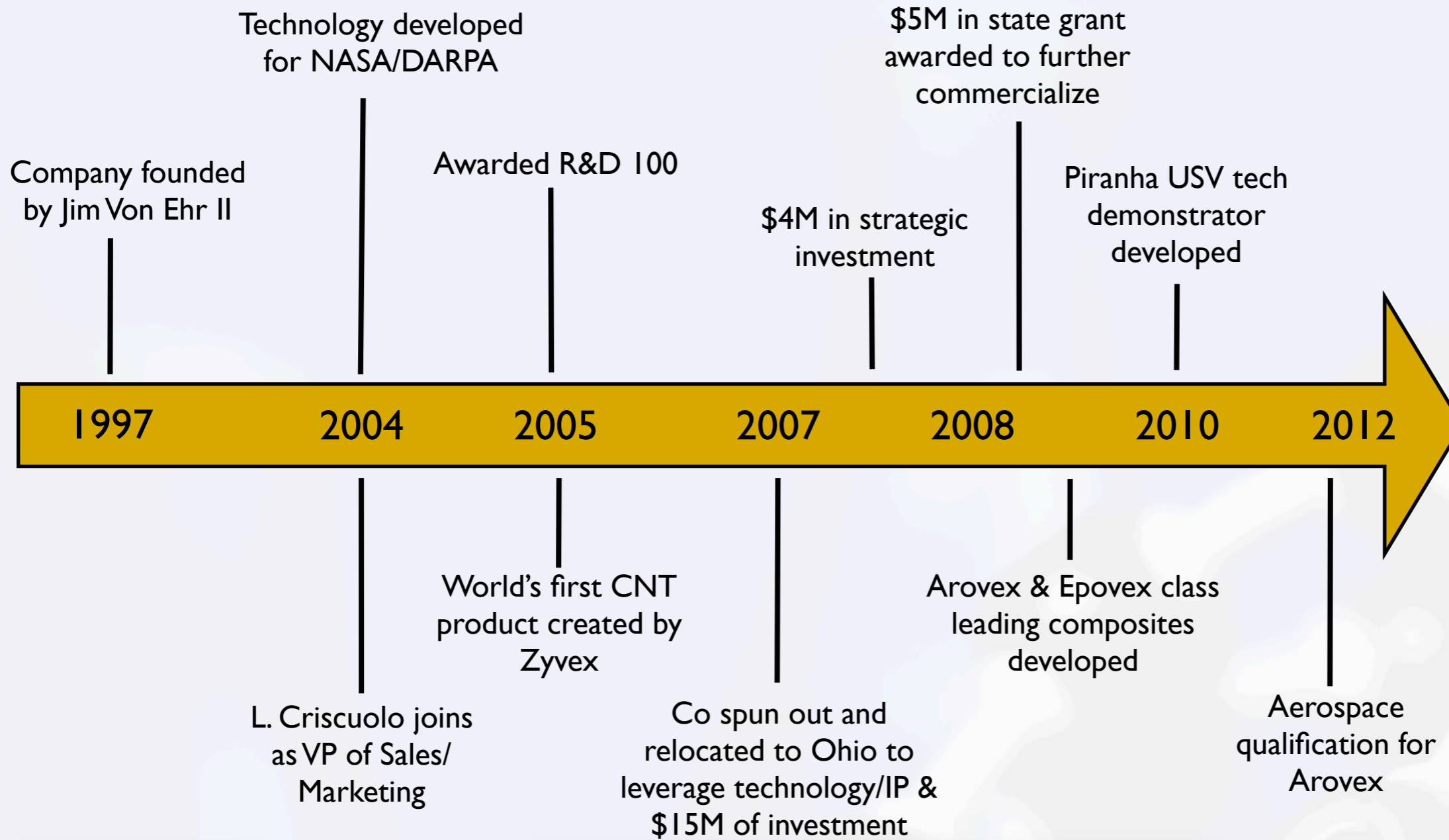
Commercialization of nanomaterials

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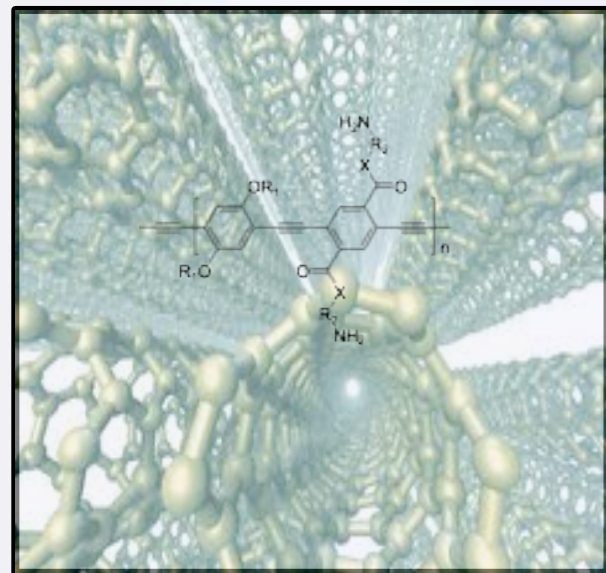
Zyvex Technologies' history



Who we are:



ZYVEX is a nanomaterial and advanced molecular chemistry company

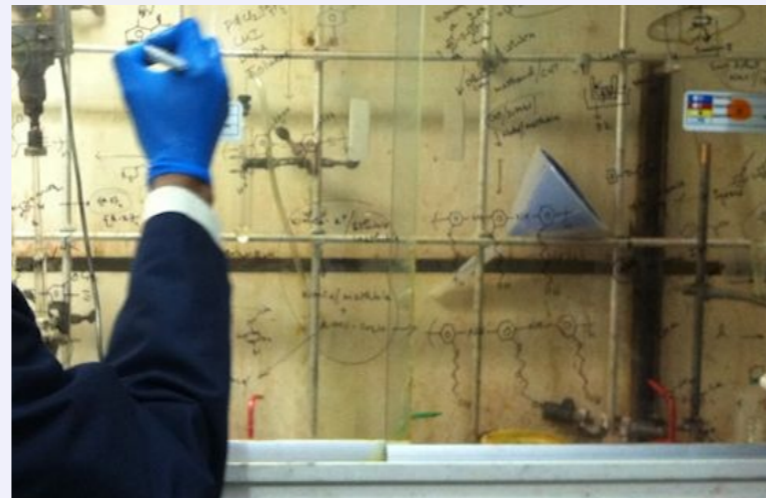


- ▶ Founded in 1997 as the world's first molecular nanomaterial company.
- ▶ The first company with real commercial products with CNTs



What we do:

- ▶ Develop and license nano-chemistry technology
- ▶ Design and build products for our customers



- ▶ **ZYVEX** creates chemical bridges between nanomaterials and other materials including carbon fiber, resins and plastics – that make nanomaterials useful

Current product portfolio

Commercial products that leverage advanced materials (CNTs & NGPs)

arovex™

epovex™
next generation epoxy

 **ZyMER**™

 **ZySER**™

Made possible with

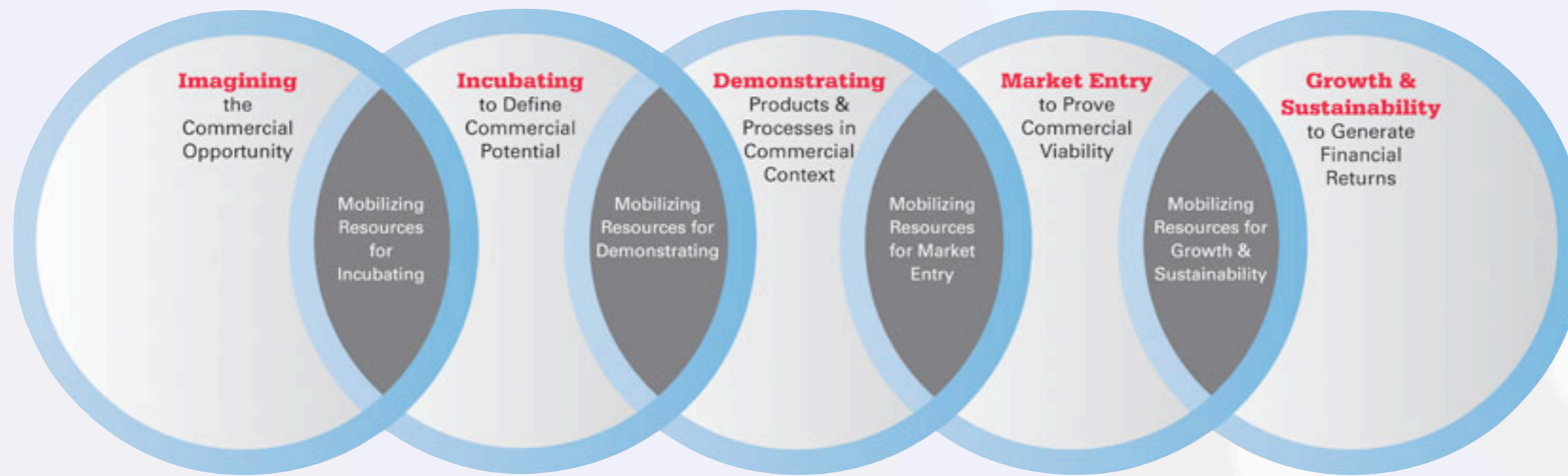
kentera™

Patented.

Trade secret protection.

Commercialization:

Typical commercialization path



Commercialization:

Multiple valleys for nano in the US...

- ▶ Government regulations (known/unknown)
- ▶ Red tape and processes
- ▶ Public perception of nano
- ▶ Slow adoption from big industry
- ▶ Competition from organized Nations
 - ▶ China
 - ▶ Belgium
 - ▶ Germany
 - ▶ Iran!
 - ▶ and others



Commercialization:

It often feels like this...



and ends like this...



How can we lower them?



- ▶ Find more productive ways for Govt. to help
- ▶ Provide certainty where possible (think EPA)
- ▶ Move away from programs that historically don't have a good track record
- ▶ Incentivize big companies to work with smaller technology companies
- ▶ Project a positive message wrt benefits/risk

Not this type of assistance...

- ▶ Not a subsidy



- ▶ Not something with short term (or no) benefit



What about something like this?

- ▶ Follow more of this model

or



- ▶ “Tier I” SBIRs
 - ▶ More established, but still a small company
 - ▶ Track record of revenue
 - ▶ Track record of products/commercialization
 - ▶ Not an SBIR “mill” company...

Collaboration can work...



- ▶ Airbus and Zyvex (along with a few others)
 - ▶ Working together to commercialize
 - ▶ Funded efforts - little companies need it
 - ▶ Reasonable IP rights for all involved
 - ▶ Advanced technology for Airbus
 - ▶ Revenue and channel access for small Cos...

- ▶ Where will it lead?
 - ▶ Time will tell
 - ▶ First step of many to get to commercial...
 - ▶ Is it a metric of successful development?

Metrics...



- ▶ What are the metrics that provide insight to...
 - ▶ A healthy development?
 - ▶ A worthwhile return on investment?
 - ▶ How we stack up against the ROW?
 - ▶ What is the net job creation?
 - ▶ What is the “real” economic impact?

Metrics...

- ▶ What about these?
 - ▶ How many companies started in nanotech?
 - ▶ How many are left?
 - ▶ How does it compare at same point in time?
 - ▶ If there is a similar technology for a comp
 - ▶ How many should to be in the game to see that enough survive (based on a known example)?
 - ▶ How many universities offer degrees related to nanotech?
- ▶ Publications & Patents????

That has the perception of importance but what is the correlation to economic growth?

Metrics...

- ▶ Focus less on funding academia (no offense)
 - ▶ They do research for a higher cause
 - ▶ Seldom is it application driven
 - ▶ Patents don't always = commercialization
 - ▶ Reduce funding for SBIR mills
- ▶ Fund market competition, not companies
 - ▶ Better chance you get commercialization
 - ▶ Set higher standards for who can apply
 - ▶ Commercialization is what creates jobs
 - ▶ Isn't jobs one of the best metrics as well

Thank you for listening

- ▶ What can Zyvex do to help?
- ▶ What can I do to help?
- ▶ Any questions I can answer?