

Energy Innovation

Invention + Commercialization

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SPE Members in Transition Seminar
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Our Challenge

Global energy demand will double by 2050

Supply will struggle to keep up

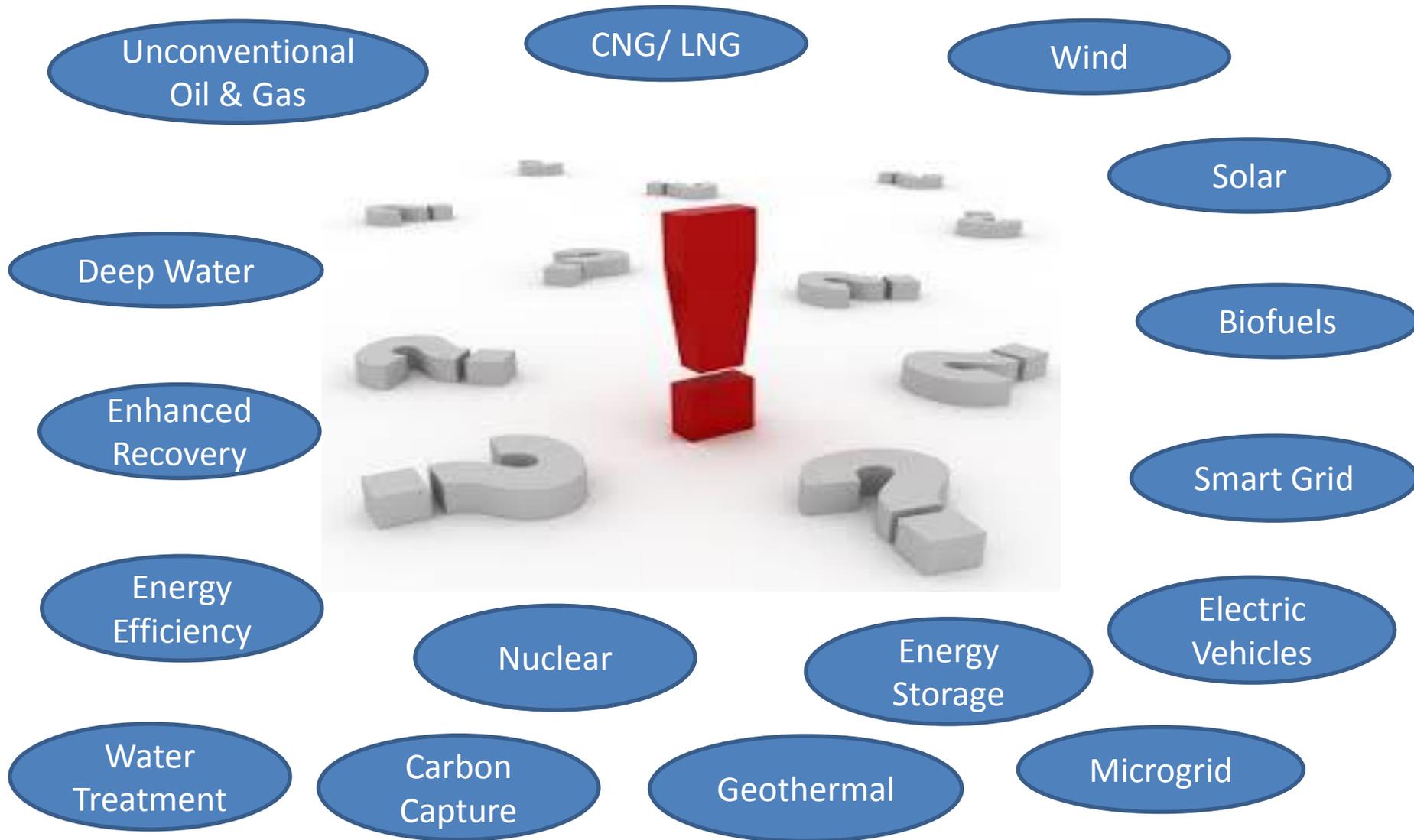
Continued dependence on fossil fuels

Need rapid growth in renewables

Urgent need for low carbon technologies

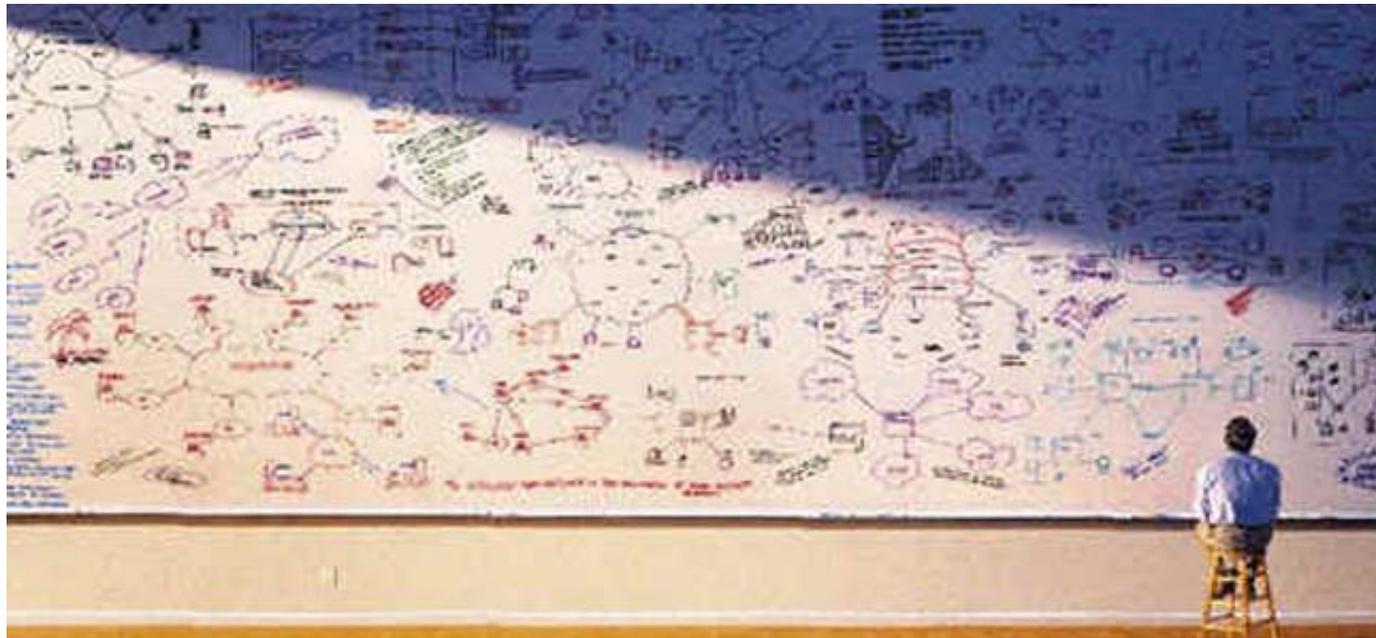
**Need: Scientific and Technology Breakthroughs &
Unprecedented Collaboration**

Solution: Speed up Energy Innovation

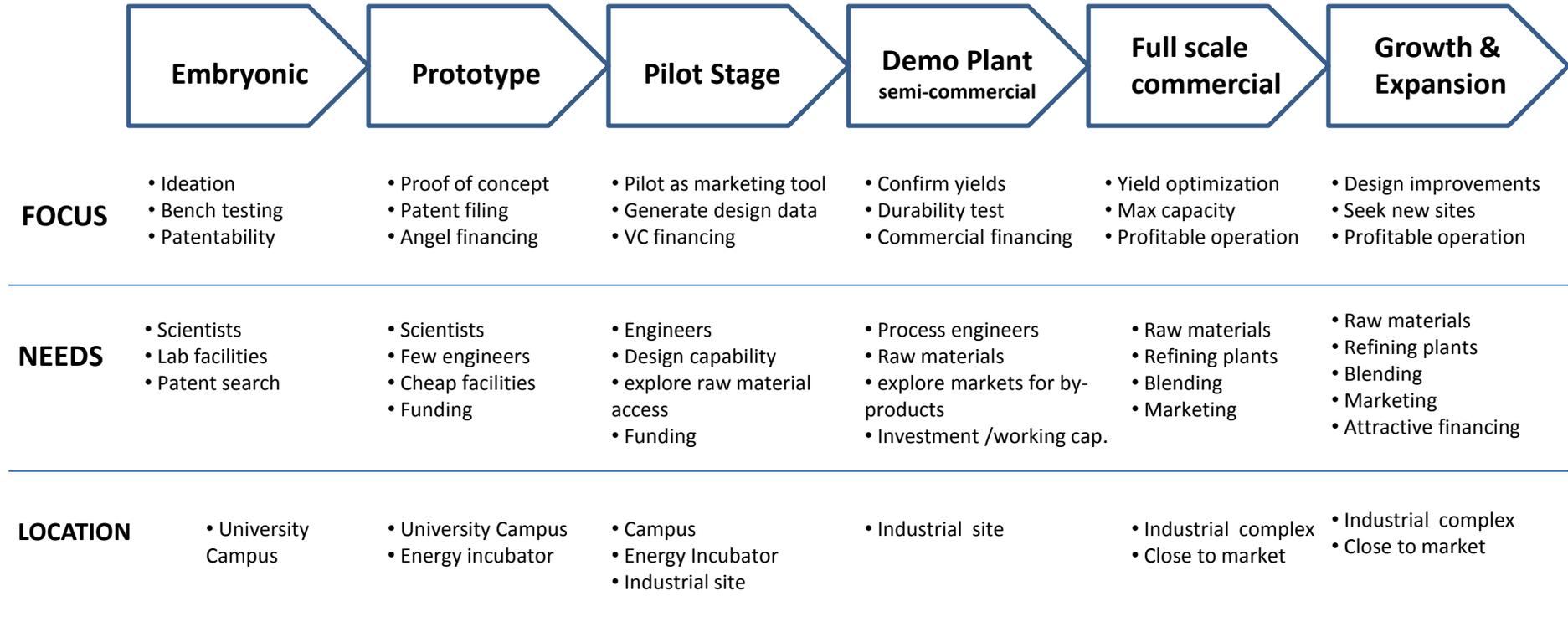


But energy innovation is complicated....

Geoscience **Battery Technology** **Marketing** **Internet of Things**
Agriculture **Physics** **Distribution** **Logistics** **Machine Learning**
Chemistry **Power Generation** **Mobility** **Big Data**
Environmental Science **Commodities Trading** **Smart Grid** **Compliance**
Genetics **Engineering** **Nanotechnology** **Engine Technology**
Bioscience **Materials Science**

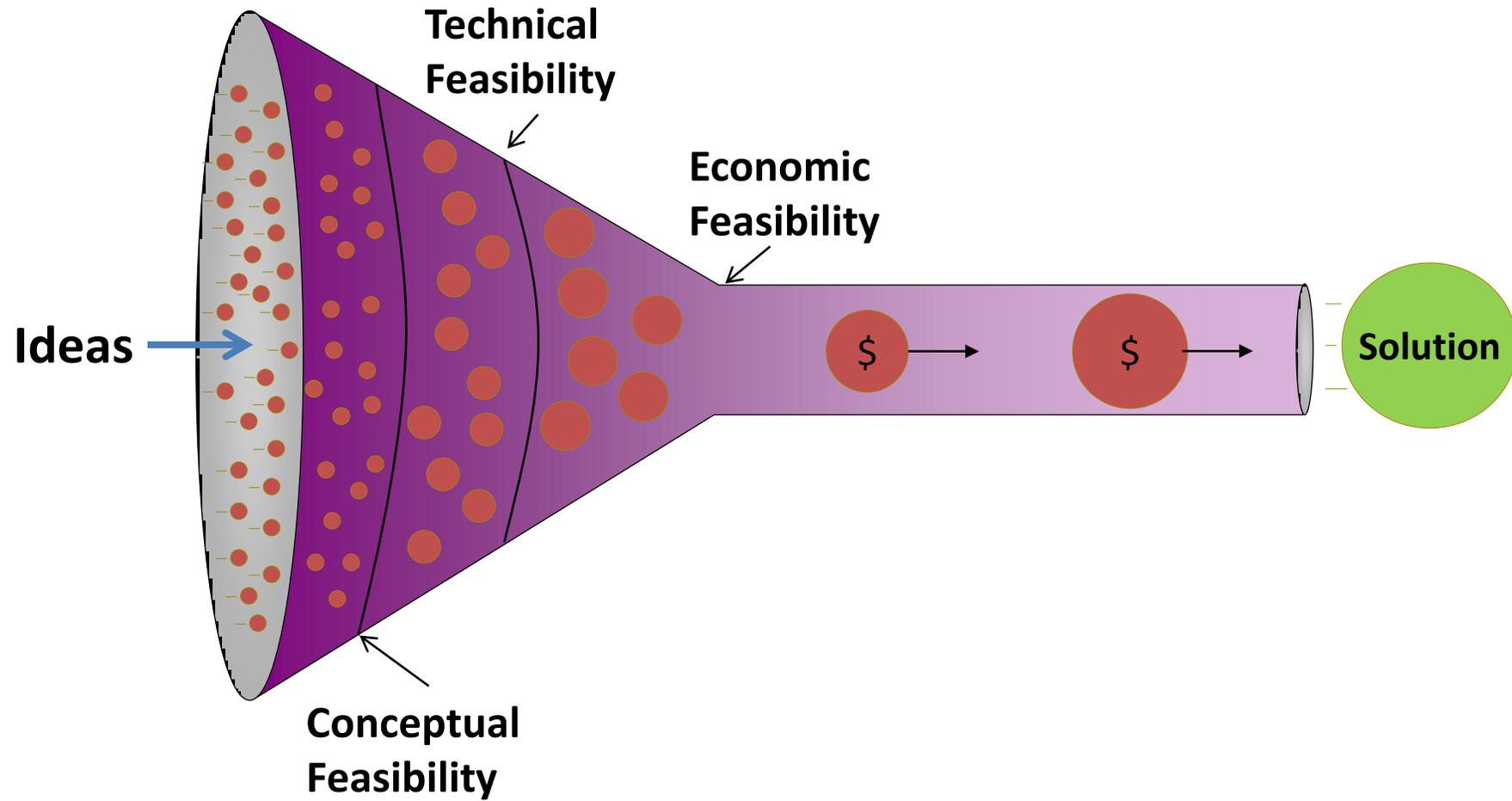


...takes a long time....

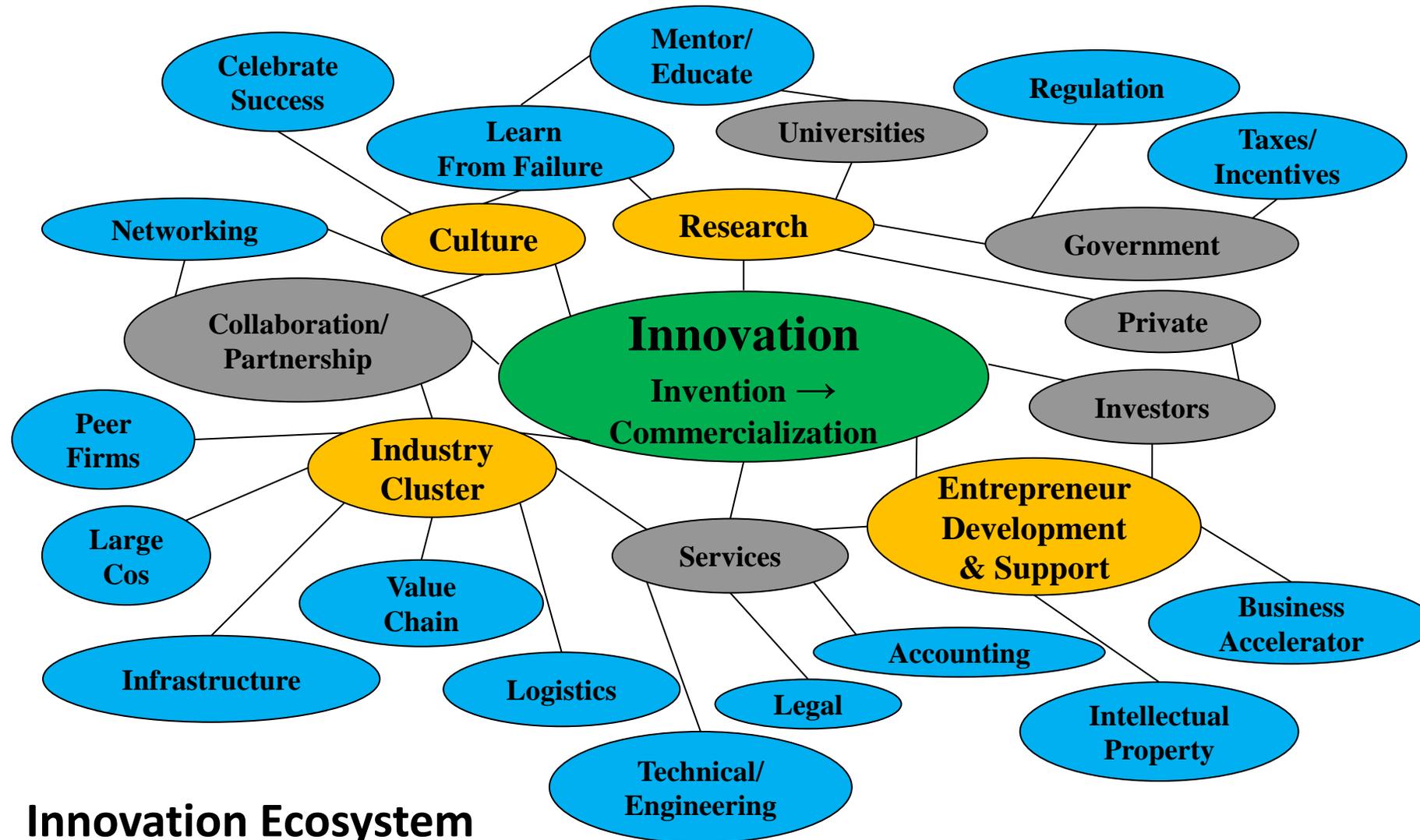


Stages of Development

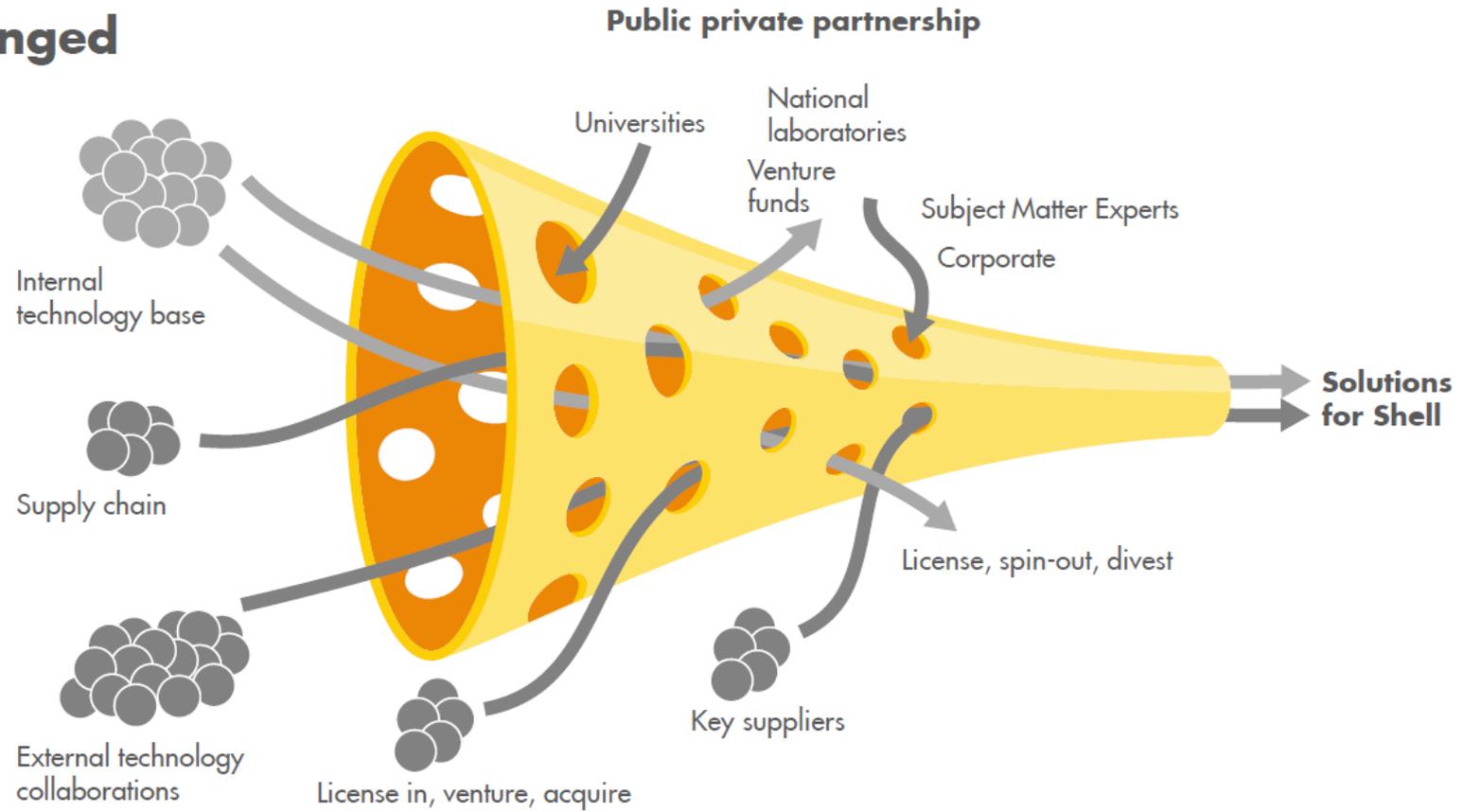
...has a high failure rate....



...innovation needs a lot of support and resources



Routes to innovation have changed



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Innovation Best Practices

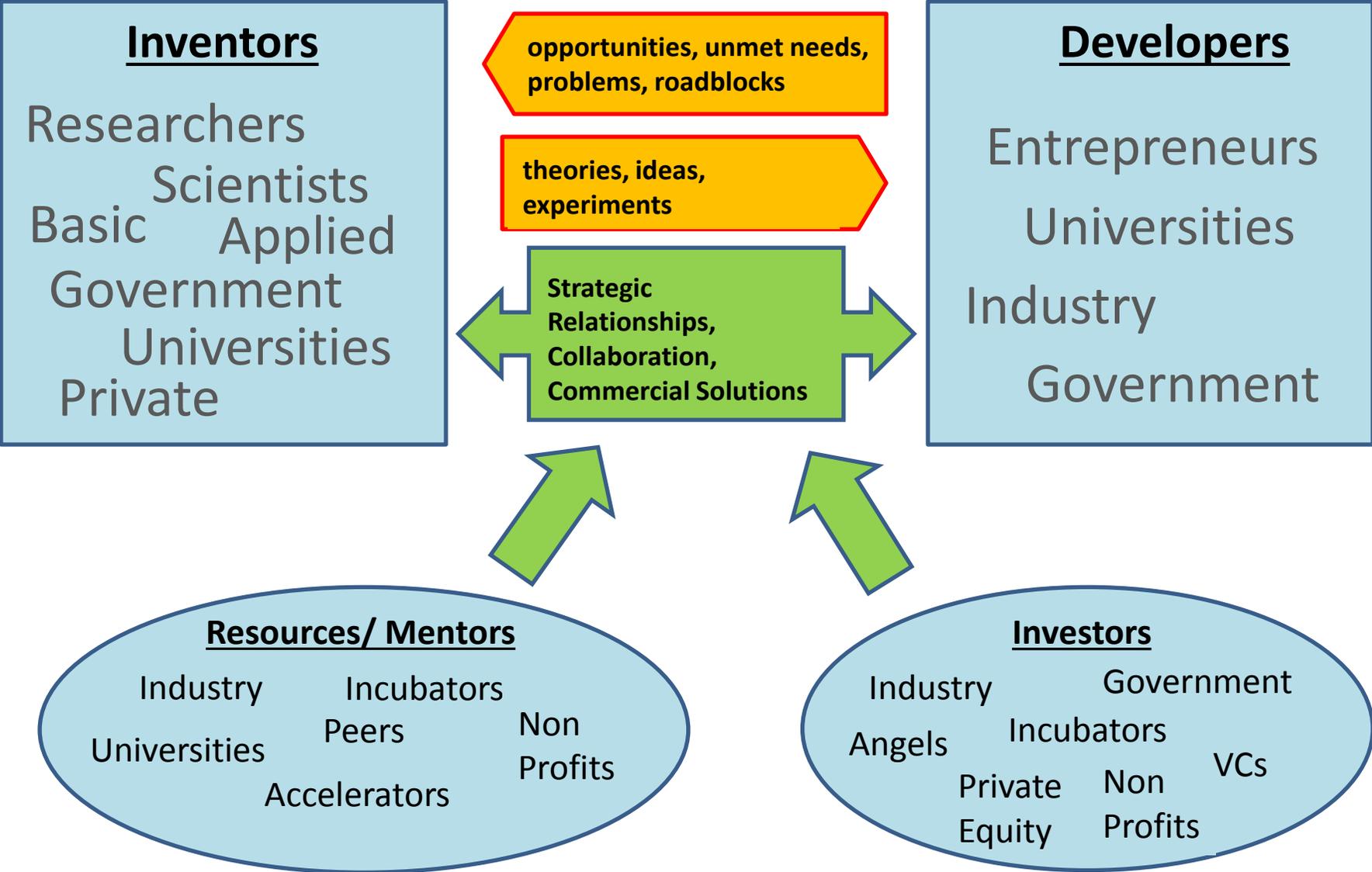
- **Entrepreneur development and support**
- **Engaged industry cluster, government, academia**
- **Culture of collaboration**
- **Funding**
- **Patience, stamina, flexibility, long term view**
- **Global connections**

Local Support, Global Connectivity

HOUSTON TECHNOLOGY CENTER ENERGY CLIENTS

 AIDAP AUTOMATING EXPERTISE		 BSW Bluenergy Solarwind	 CBM Enterprise Solutions, LLC	 DYNAMIC TUBULAR SYSTEMS	 m-trigen Power Generation Systems Solutions	 EBIO
 EKU POWER DRIVES	 OARS 360	 GreenGroup Systems	 DEEDATABASE	 RIG CHAT	 EIFFEL TRADING	 PETROLESSONS
 MUDLABS TECHNOLOGY	 Rheidiant	 OCIANNA INTERNATIONAL	 SOUNDOCEANICS	 PURIFY FUEL NAVOTECH FUEL TECHNOLOGIES	 iReamer	 Pterosail Systems, Inc.
 INGENUeering Robotics Environmental Green Tech	 PhDsoft	 ORBITAL TRACTION	 KINETIC PRESSURE CONTROL	 LTEOIL	 TITAN Oil Recovery, Inc.	 INDUSTRIES

Open Innovation Accelerator



The Future

NEXT EXIT



Questions / Discussion

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