

# Energy Innovation

## Invention + Commercialization

**Nick Tillmann**  
**Director Energy Acceleration**  
**Houston Technology Center**  
[Nick.Tillmann@houstontech.org](mailto:Nick.Tillmann@houstontech.org)

**SPE Members in Transition Seminar**  
February 3, 2017

# **Our Challenge**

**Global energy demand will double by 2050**

**Supply will struggle to keep up**

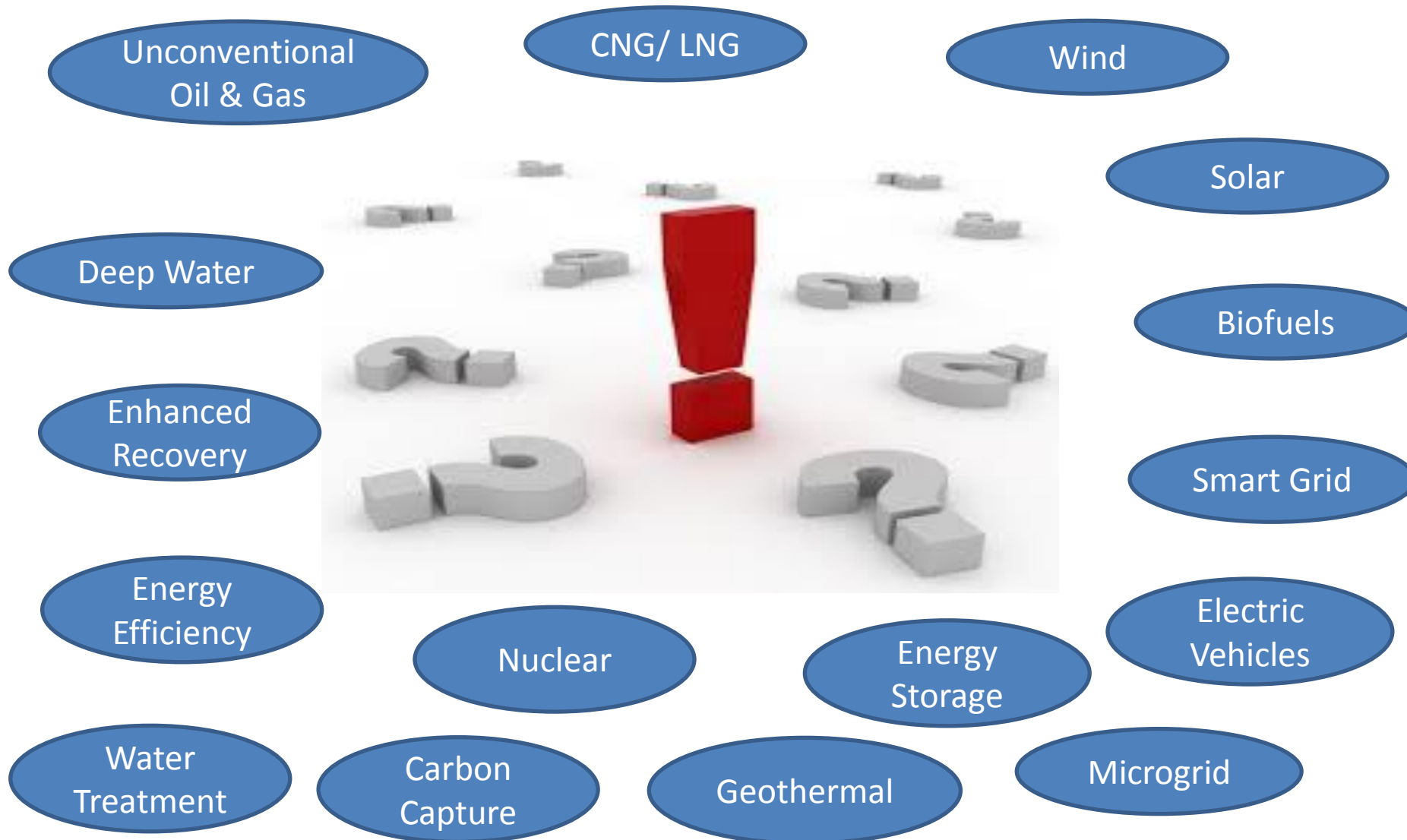
**Continued dependence on fossil fuels**

**Need rapid growth in renewables**

**Urgent need for low carbon technologies**

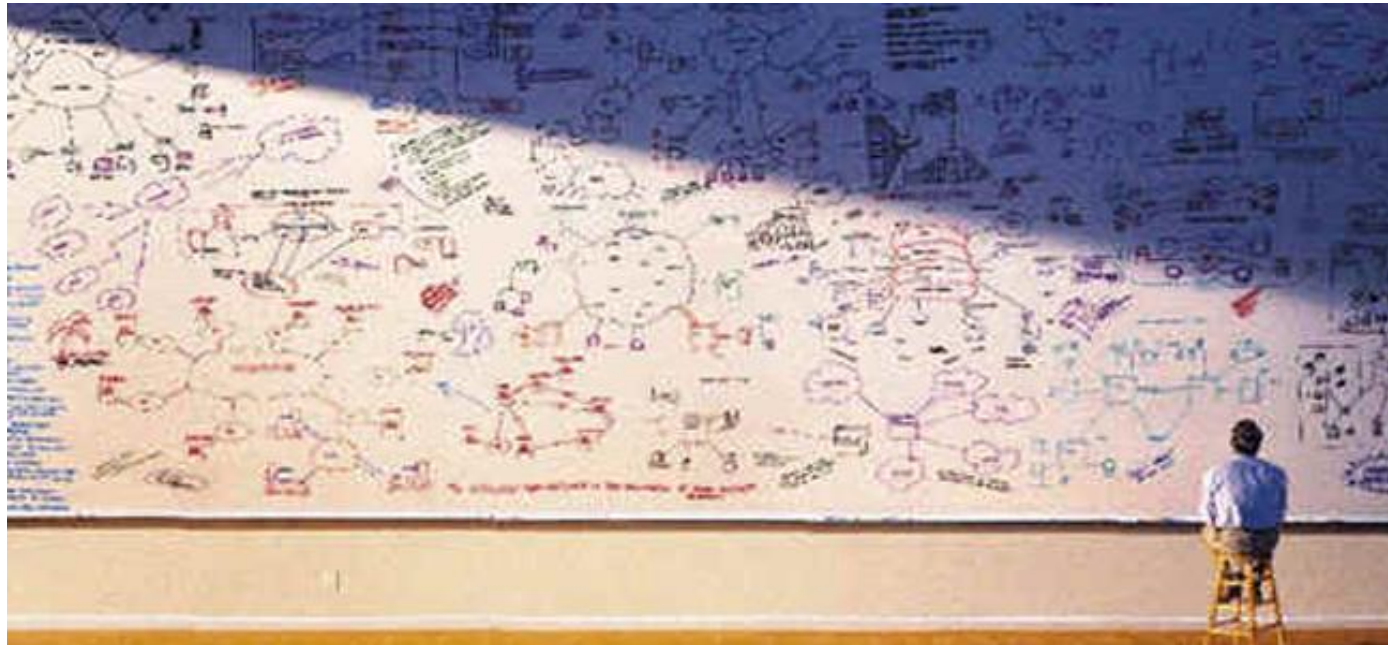
**Need: Scientific and Technology Breakthroughs &  
Unprecedented Collaboration**

# Solution: Speed up Energy Innovation

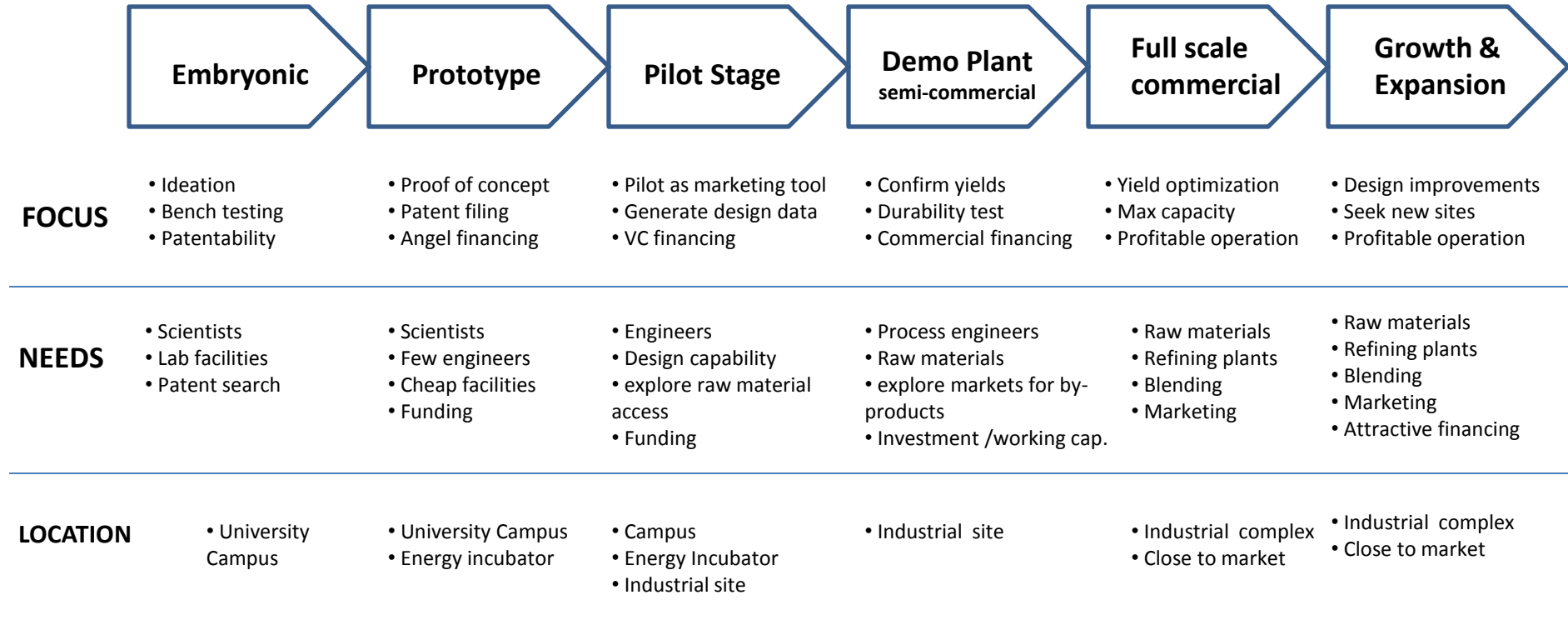


# But energy innovation is complicated....

**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**

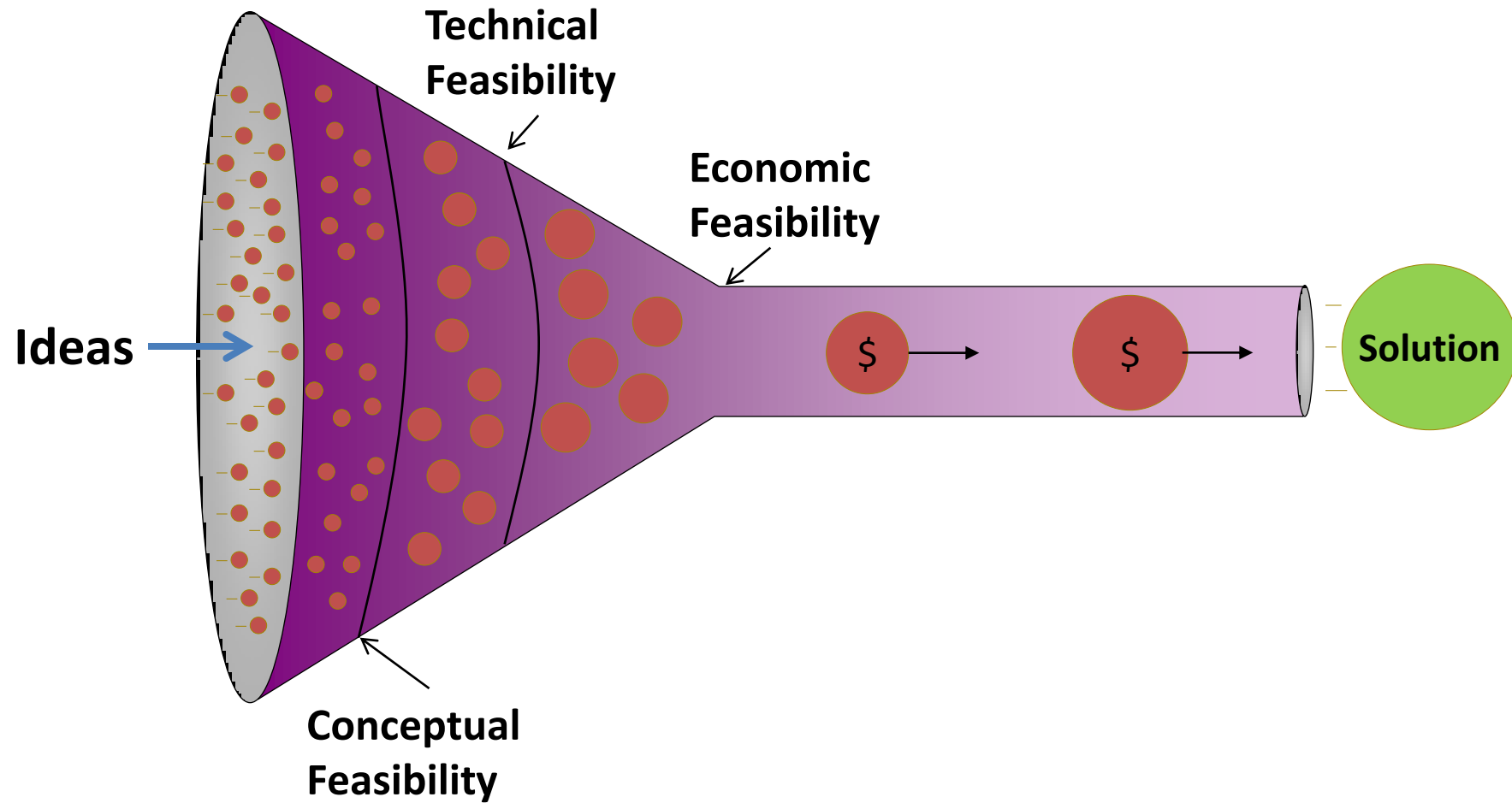


...takes a long time....

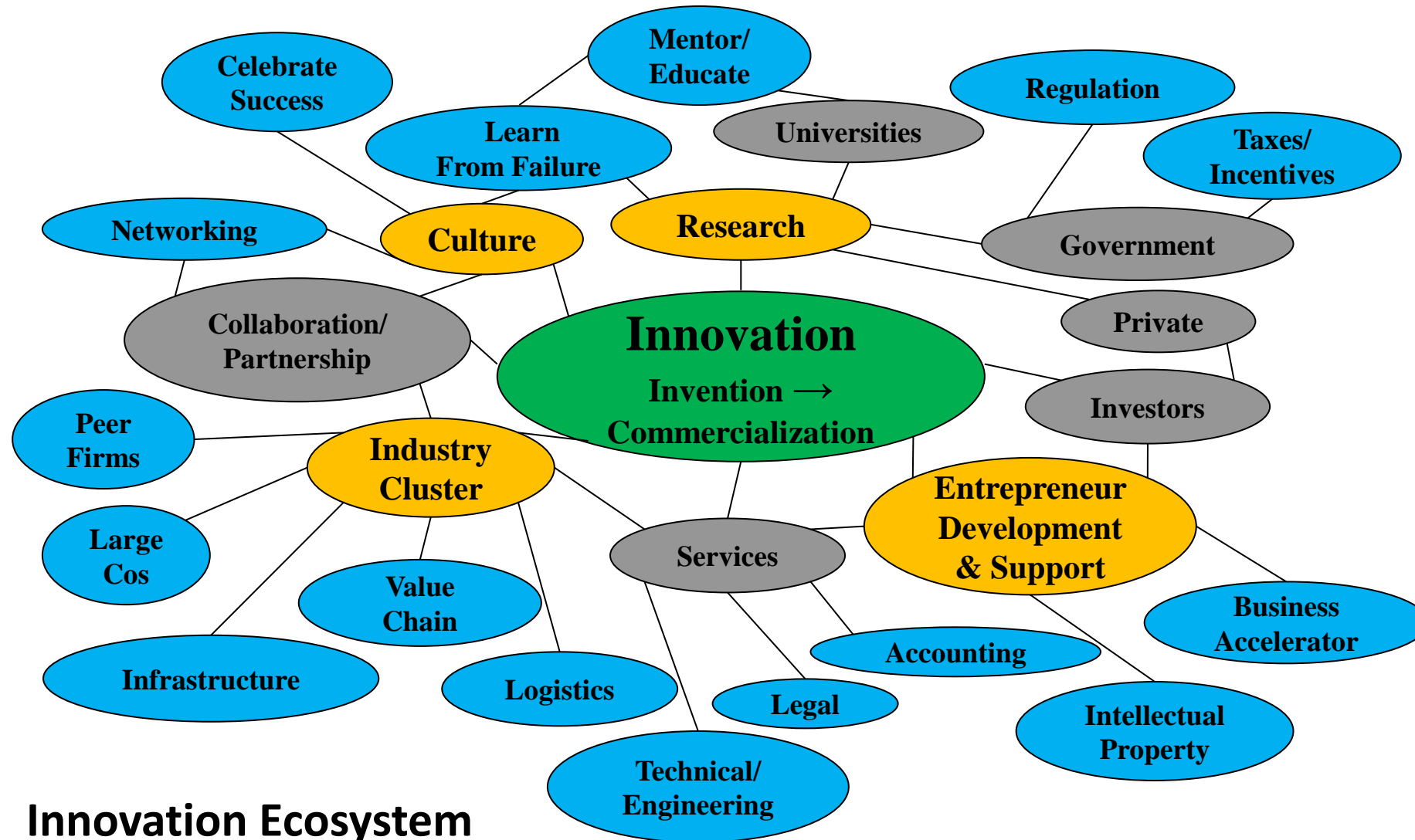


## Stages of Development

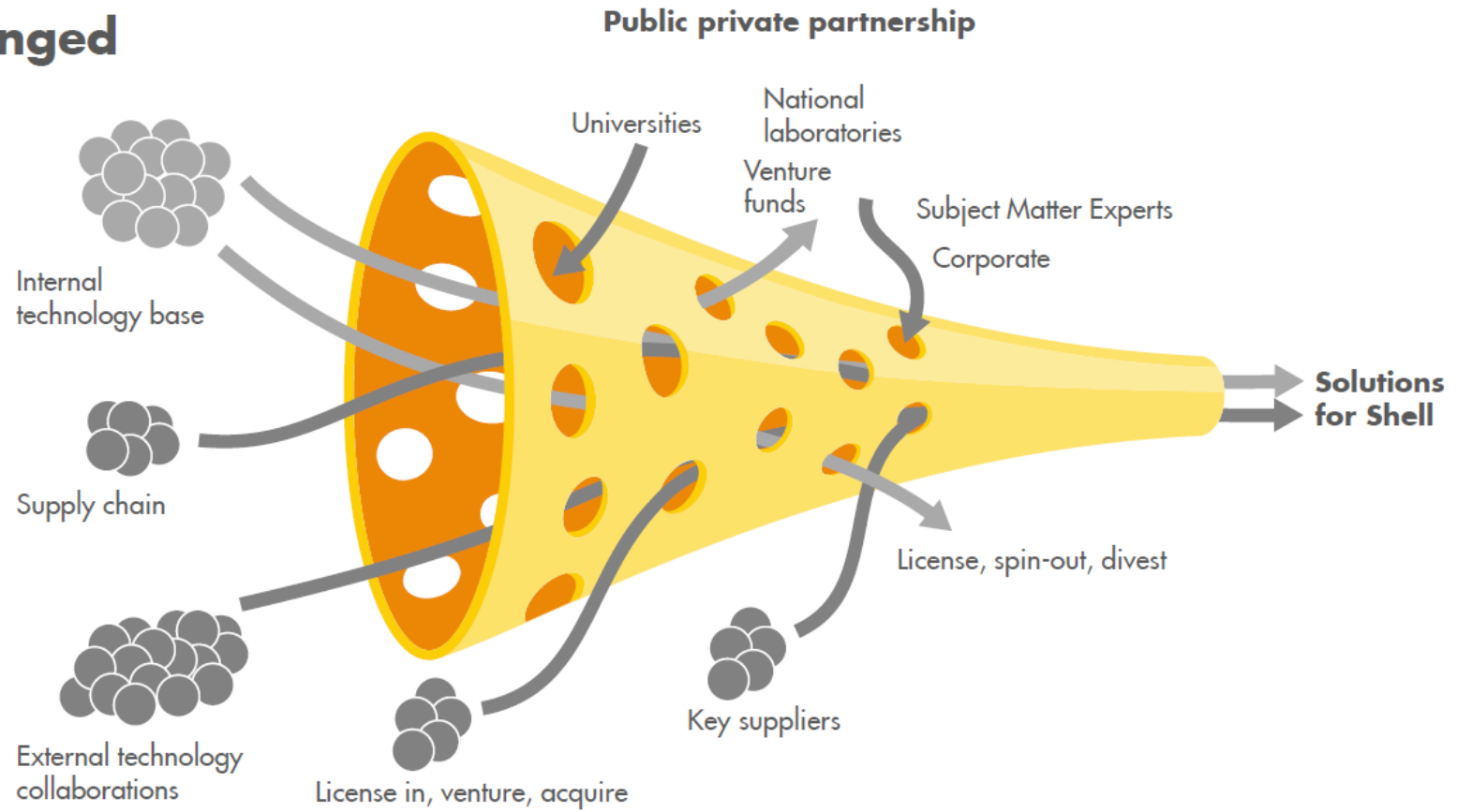
...has a high failure rate....



# ...innovation needs a lot of support and resources



## Routes to innovation have changed



Copyright of Royal Dutch Shell



# Innovation Best Practices

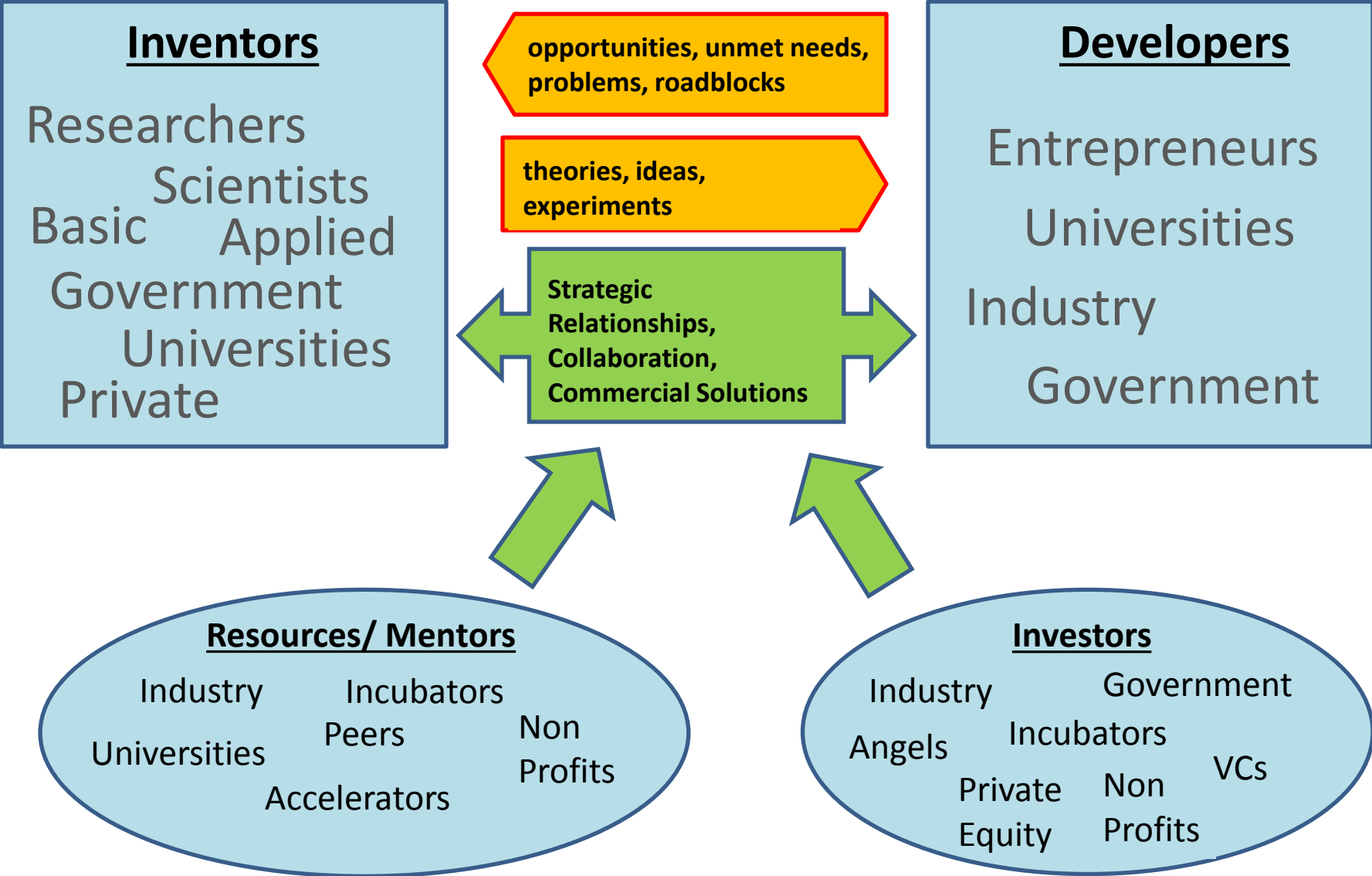
- **Entrepreneur development and support**
- **Engaged industry cluster, government, academia**
- **Culture of collaboration**
- **Funding**
- **Patience, stamina, flexibility, long term view**
- **Global connections**

**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

**Nick Tillmann**  
**Director Energy Acceleration**  
**Houston Technology Center**  
[Nick.Tillmann@houstontech.org](mailto:Nick.Tillmann@houstontech.org)

**SPE Members in Transition Seminar**  
February 3, 2017