

**Dr. Raymond L. Stark**  
*Vice President of Technology for Specialty Materials*  
*Honeywell Specialty Materials*

**Biography**

Ray is responsible for developing and executing technology strategies across all Honeywell's Specialty Materials businesses, including the translation of market needs and new technology into performance solutions for our customers. He is responsible for developing a technology organization with the performance excellence required to execute growth strategies in each of our businesses both short and long term.

Ray collaborates with other global Honeywell businesses and serves as a member of Honeywell's Corporate Technology Leadership Board. He has a solid background in developing technology roadmaps aligned with growth markets and the ability to execute growth programs.

Ray was most recently the Director of Technology for our Specialty Chemicals business. He joined Honeywell in 1999 from Dow Corning where his accomplishments included establishment of joint venture laboratories globally and the creation of an international team to formulate and develop strategies for new product introductions. Ray holds BS, MS, and Ph.D. degrees in the microbiology field.

# Living the Big Picture

**Dr. Ray Stark**  
**Honeywell Specialty Materials**

**Honeywell**

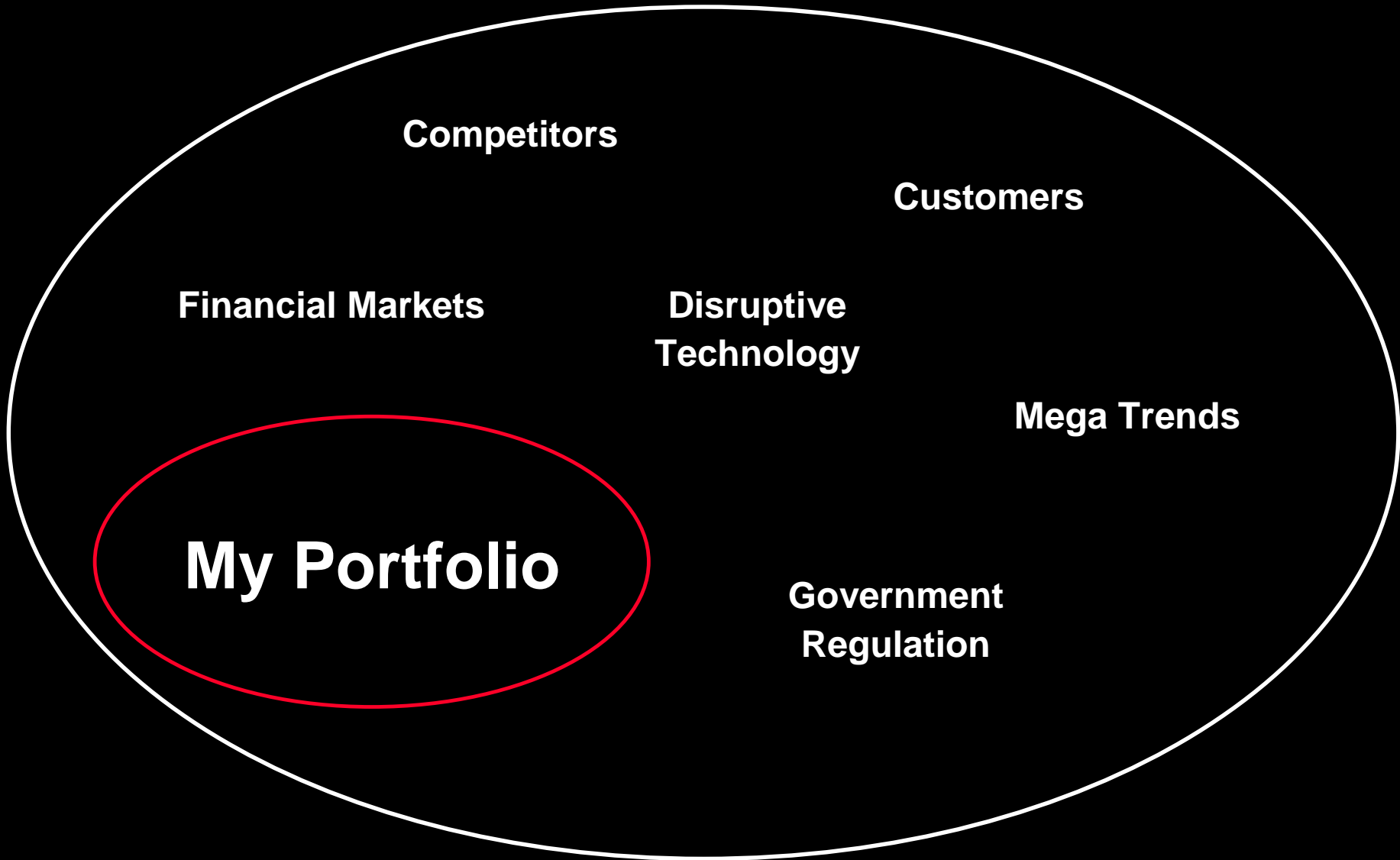
# The old days

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## Manage the Technology

# Broader view



# Mega Trend: Population Growth

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- World population to grow by 2 billion by 2025 (32% increase)
- 50% of growth in eight countries including China, India and U.S.
- Many European countries' populations to decline
- Today 20% of the population is in developed world – to shrink to only 15% by 2025

# Mega Trend: Urbanization

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- By 2010, 50% of world population in urban areas, which growth mainly in urban areas.
- In 10 years, 25 cities with greater than 10 million people
- Number of cities with 1 to 5 million will grow by 50%

# Mega Trend: Environmental Concerns

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- **Carbon Emissions - Kyoto protocol requiring reduction in global warming gases**
- **Rising sea levels and hurricanes affecting large populations in the coastal areas**
- **Air Pollutants – Environmental impact of rising energy production introduces cost/uncertainty to industries**
- **Added value of energy efficiency**

# Mega Trend: Resource Management



- **Water: Widening imbalance between population growth and freshwater availability leading to poor sanitation and public health, Inadequate irrigation**



- **Food: With diminishing land resources and growing demand, there is a need for, higher agricultural productivity, better storage, handling and logistics**



# Mega Trend: Energy Usage and Efficiency

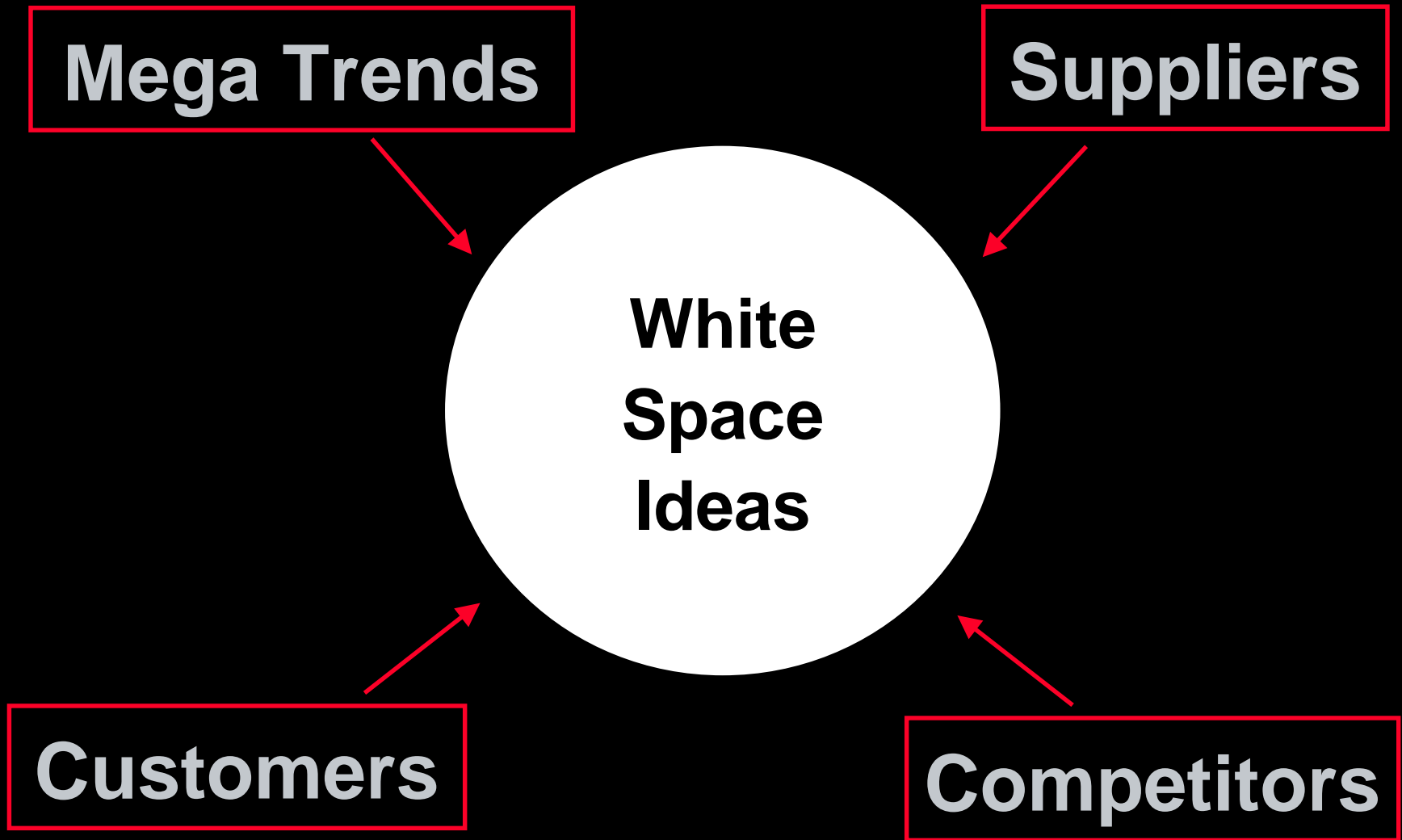
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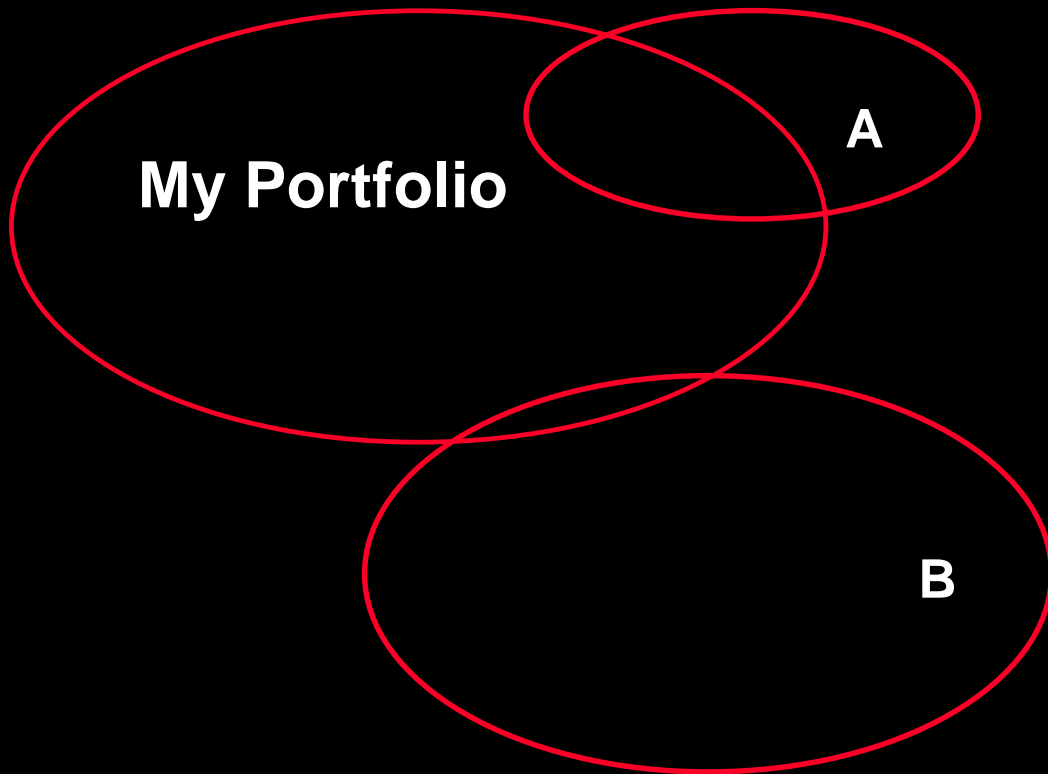
- Energy consumption growing slower than GDP (2.1%) thanks to improvements in energy efficiency in the developed world.
- In developing nations, energy consumption is growing twice the rate of GDP growth.
- Dependence on hydrocarbons to continue, with NG as faster growing sector (3.4%)
- Renewable energy - fastest growing non-fossil segment

# Seeking the Opportunities

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# Good Ideas, but Which One?



## Opportunity A:

- + Overlaps with existing portfolio
- Smaller revenue & profit opportunity

## Opportunity B:

- + Potential larger revenue and profit opportunity
- On the edge of current technology competency



**Timing: The market potential is huge, but when to invest?**

**Location: Where do I invest to be the most competitive?**

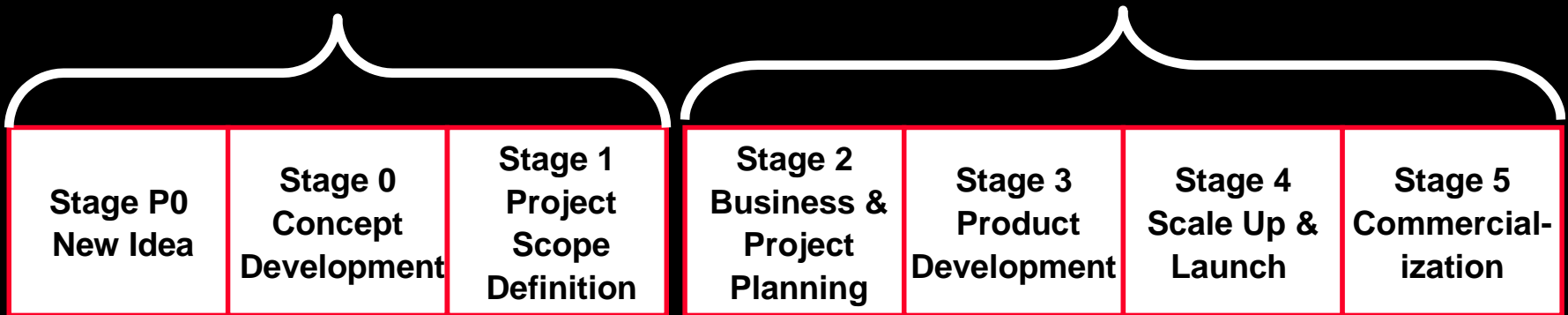


**Utilization: How could this technology be used be different regions faster and in a different way than expected**

# Great Idea to Great Product

## Idea Stages P0 to 1

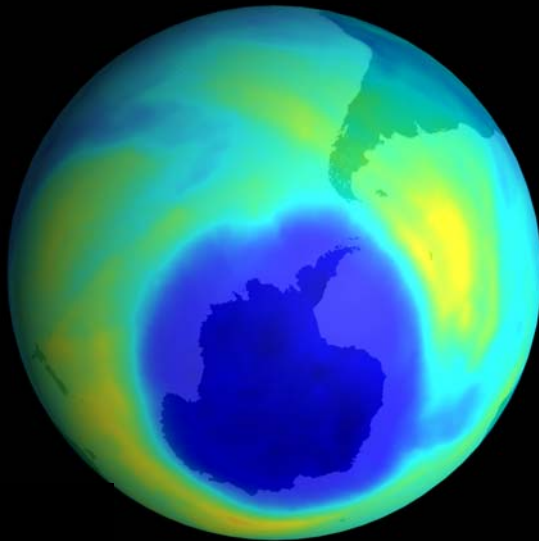
## Commercialization Stages 2 thru 5



# Genetron refrigerants

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The Montreal Protocol  
on Substances  
that Deplete the Ozone Layer



CFC → HCFC → HFC



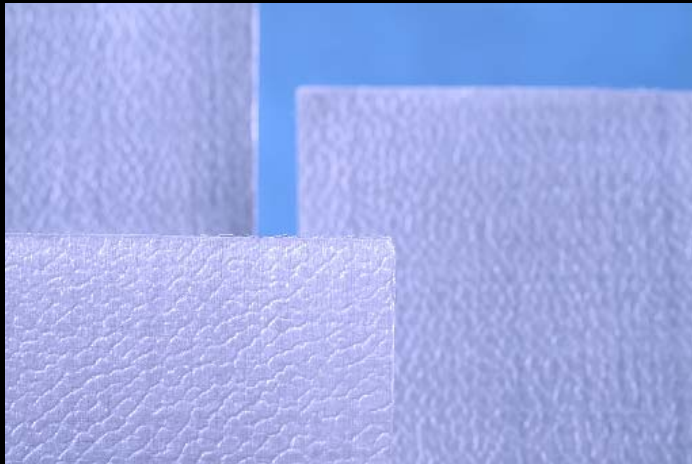
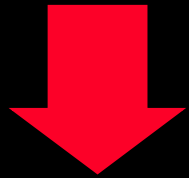
# Enovate 3000 blowing agent

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# Spectra Shield

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# Spectra rope

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