

**The Albright Strategy Group**

---

Roadmaps and Roadmapping

Technology Futures

Strategy

[www.albrightstrategy.com](http://www.albrightstrategy.com)

# Connecting Your ERC Strategic Plan with Industry

**NSF Engineering Research Centers Annual Meeting  
December 2, 2009**

Richard E. Albright  
[realbright@albrightstrategy.com](mailto:realbright@albrightstrategy.com)

# Roadmaps and Roadmapping

---

Key points:

- A Roadmap is a *customer driven* strategic plan with a strong action focus.
  - Connecting customer needs to research challenges to technology development
- The Roadmapping process results in an *aligned* view of the way forward and *shared ownership* of actions to get there.
- Engineering Research Centers can use Roadmapping to develop and gain support for strategic research and technology plans...

Case Study:  
***The Technology Roadmap for the Fluid Power Industry***  
*2009 Edition*

# Technology Roadmap for the Fluid Power Industry

---

- The purpose is to provide companies, universities, governments, and other research providers and funders with an industry wide consensus regarding the *research and development needs* of the fluid power industry.
- It charts a research and technology development agenda for the next *ten years* to realize industry elevating advancements in mobile hydraulics, industrial hydraulics, and pneumatics.
- These advancements will help the industry:
  - Meet the future needs of fluid power customers;
  - Expand fluid power into new customer markets; and
  - Attract the best and brightest young engineers to fluid power.
- This Roadmap also describes an *action plan of research investments* and technology developments needed to achieve those advancements.



# Roadmapping Process

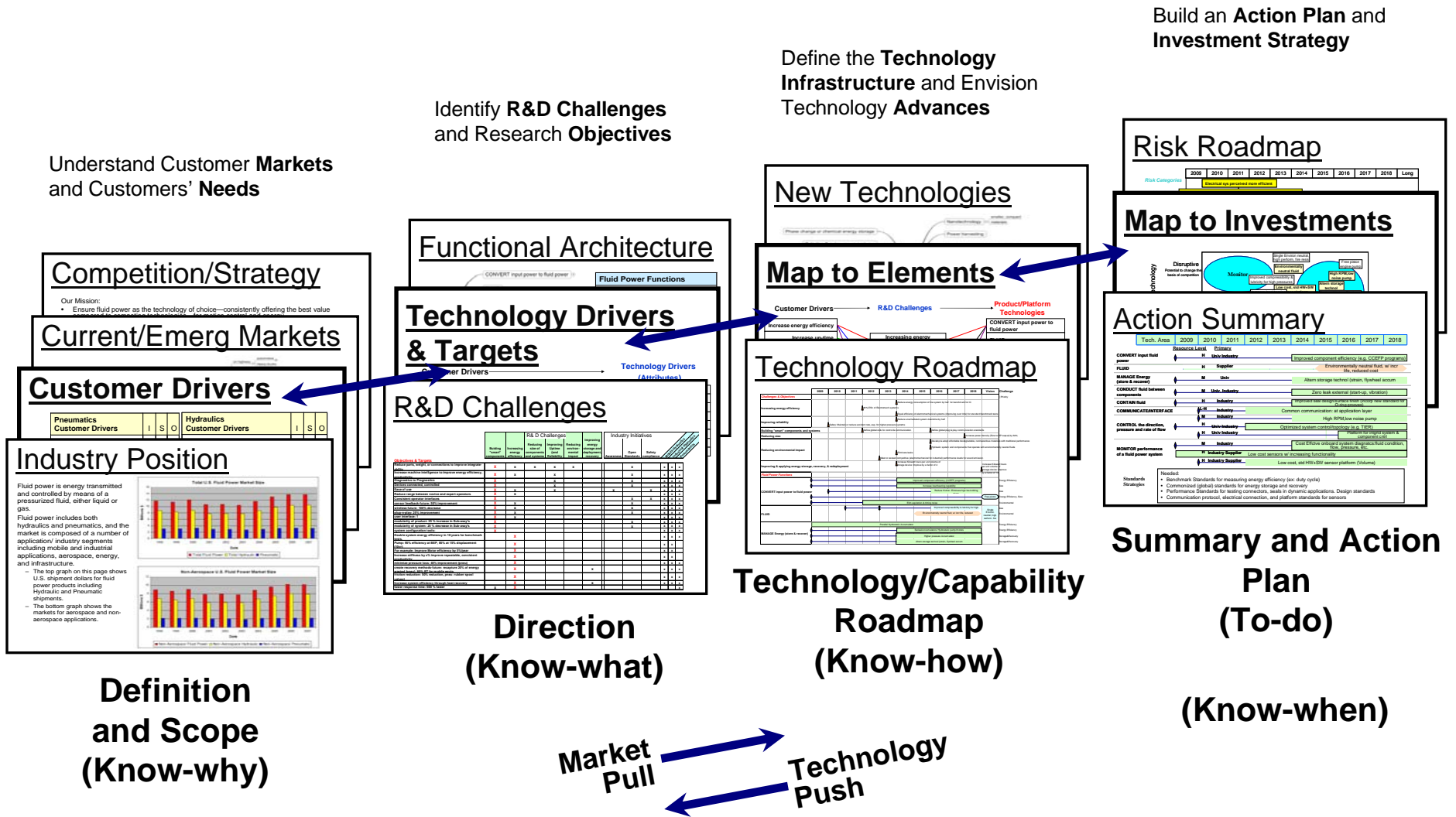
---

- The Roadmapping effort was organized by the National Fluid Power Association (NFPA).
- NFPA selected the National Center for Manufacturing Sciences (NCMS) and the Albright Strategy Group to facilitate its roadmapping process.
  - NCMS is a leader in developing collaborative partnerships to promote research & development and the advancement of manufacturing.
  - The Albright Strategy Group, LLC works with corporations, industry groups and government organizations on roadmapping, technology planning and assessment, and developing competitive strategies.
- Two 2 ½ day facilitated sessions at NCMS Headquarters, Ann Arbor, MI
- Participating organizations
  - 20 fluid power industry participants (NFPA members)
  - The Center for Compact and Efficient Fluid Power (CCEFP)
- Created technology roadmaps for
  - Hydraulics (Industrial & Mobile)
  - Pneumatics



**The Albright Strategy Group**  
Roadmaps and Roadmapping  
Technology Futures  
Strategy

# Fluid Power Technology Roadmap Framework



# Roadmapping: Industry Involvement

---

## Benefits from the Fluid Power roadmapping engagement:

- Participation from a wide cross-section of the industry.
- Active sharing of (pre-competitive) ideas
- Developed a shared understanding of competitive threats to the industry.
- Developed a common set of industry objectives.
- A concise communication tools to describe the industry future:
  - To industry participants
  - To suppliers
  - To customers
- Defined several potential industry initiatives:
  - New technologies
  - Standards development
- Many discussions among participants of their common interests.

# Roadmapping: Implications

---

Roadmapping by Engineering Research Centers with industry teams can provide:

- Industry involvement in direction setting.
- Context and priorities for research roadmaps.
- Shared ownership of a research agenda.
- Pre-qualified research partners.
- A timeline for expected research deliverables.
- A framework for evaluation of research progress.
- Engaged industry participants ready to commercialize new technologies.
- A framework and forum for revisiting and updating a research agenda over time.

## Summary

- A Roadmap is a *customer driven* strategic plan with a strong action focus.
  - Connecting customer needs to research challenges to technology development
- The Roadmapping process results in an *aligned* view of the way forward and *shared ownership* of actions to get there.
- Engineering Research Centers can use Roadmapping to develop and gain support for strategic research and technology plans.