CCC – Robotics
Introduction & Welcome

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Outline

- Introduction / objective
- Overall outline
- The process
- Timeline
- Summary

Welcome

- Welcome to this planning workshop
- The general theme
  - From internet to robots: the next transformative technology
- An effort to formulate an agenda for robotics in the US
- Trying to address problems across:
  - End users, providers and academia

Introduction

- Robotics as an industry was born in US
- The field of robotics has diversified since the start
- Today industrial robot manufacturing is largely in Europe and Japan
  - FANUC, ABB, KUKA, …
- The service industry still has a strong presence in the US
- Military robotics has a leading position

Perspective

- EU:
  - Cognitive Systems
  - EURON / EUROP & EU-nited
- Korea:
  - A 10 year perspective and a national driver
- Japan:
  - MITI program on industry / service robotics
- USA
  - No coordinated national program on robotics

Perspective

- A diversified set of efforts
  - Congressional Caucus
  - National Leadership Panel
    - The presidents of the 10+ major universities
    - Key community/industry leaders
  - Computing Community Consortium (CCC)
    - Definition of a broad agenda for civilian robotics
  - JRC / RTC
    - Defense definition of an agenda for military systems

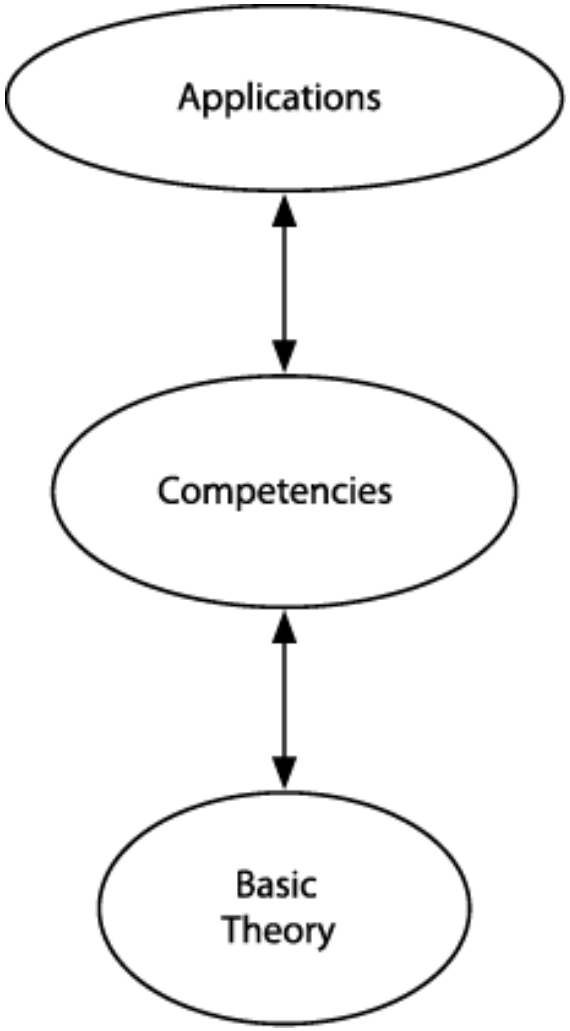
CCC-Robotics

- CCC Sponsored by NSF to suggest national agendas
  - There is no NSF endorsement to any agenda!
- Based on the model adopted by GENIE
  - Assembly of key actors to generate a compelling program
- Robotics was chosen as one of the first CCC programs to define an agenda

Overall Outline

- A need to phrase any effort from a society point of view
  - Why do we need robots?
  - Is there a clear economic / societal motivation?
- R&D does not always have a clear view of its use.
  - A good quality for basic research
  - For applied research this is not a great model

The research chain

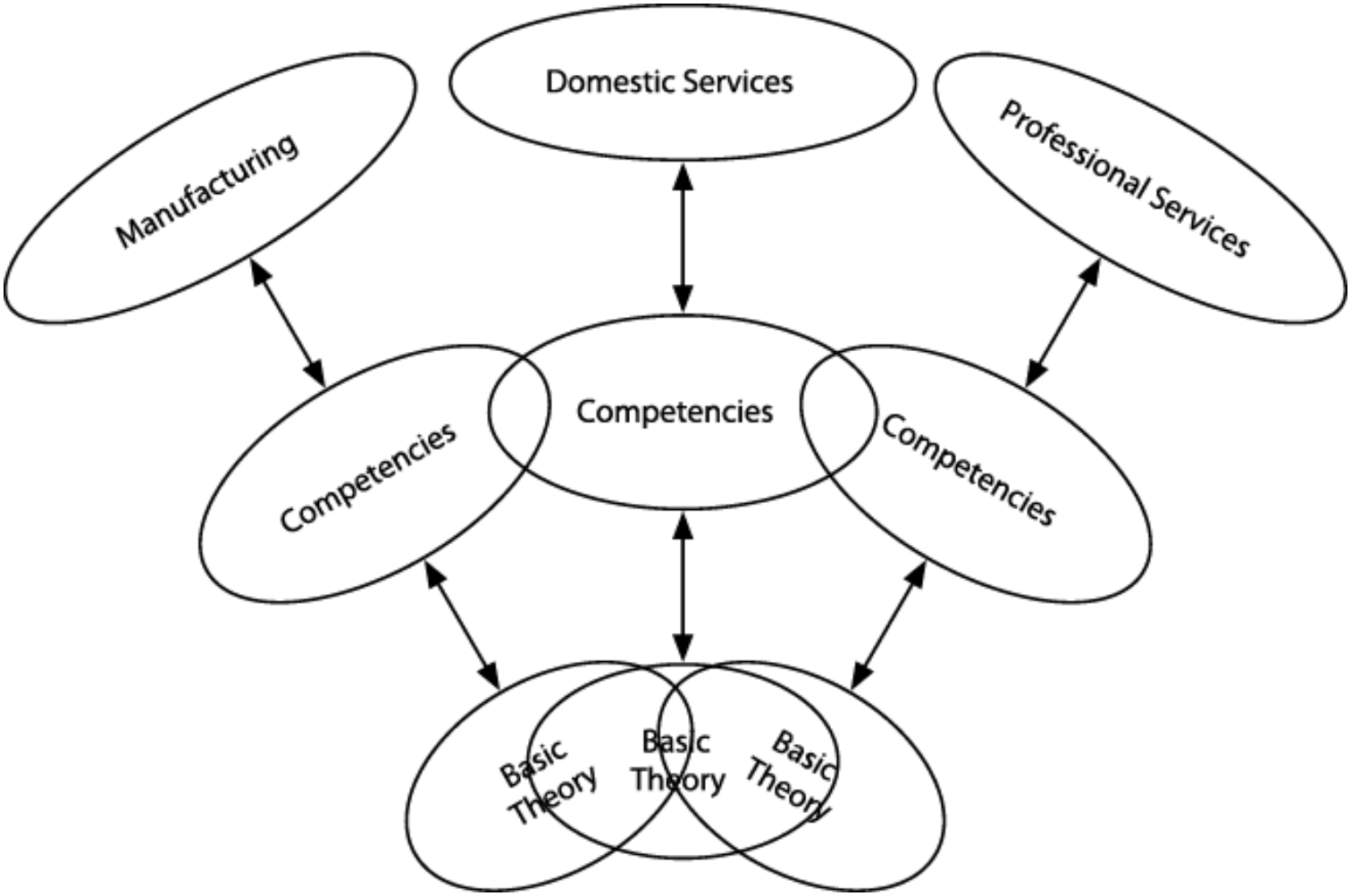


Topical Coverage

- Robotics for Manufacturing and Automation
  - Kumar, Goldberg, Trinkle & Christensen
- Robotics for Healthcare and Medicine
  - Okamura, Matarić & Christensen
- Service Robotics – Domestic and Professional
  - Brock, Thomasmeyer & Christensen
- Emerging Technologies
  - Hollerbach, Mason & Christensen

- Defense covered by RTC / JGRP

Synthesis?


Domestic Services
Manufacturing
Professional Services
Competencies
Competencies
Competencies
Basic Theory
Basic Theory
Basic Theory

Global Timing

- Manufacturing & Automation: June 17
- Medical & Rehabilitation: June 19-20
- Service Robotics: August 7-8
- Emerging Technologies: August 14-15

- Synthesis workshop: ~October 08
- National Leadership Panel: ~December 1

The Format of Workshops

- Intro
- Intro talks to set the stage
- Group: Societal/Economic Drivers
- Synthesis
- Group: Obstacles to Progress
- Synthesis
- Group: Obstacles -> Research
- Synthesis
- Summary / Wrap Up

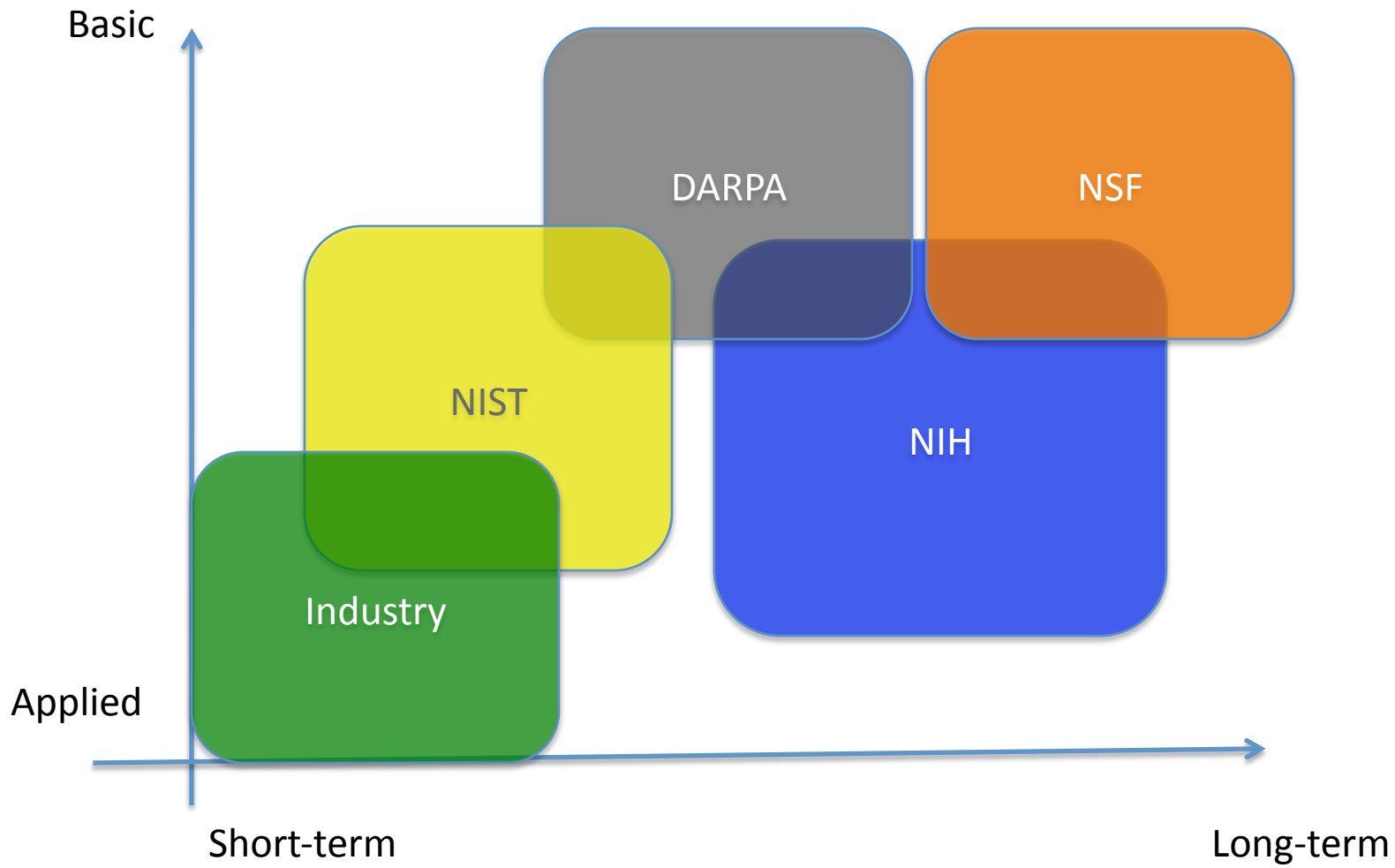
Post Workshop

- Generation of a synthesis report
  - A fair representation of discussions
- Made available at the workshop website
- Organization of "Blog Space" to continue discussion(s)
  - Community discussion on issues
  - http://www.us-robotics.us/blog
- Revision based on workshop + blog comments
- Input to synthesis workshop

Report outline

- Introduction
- Strategic Findings
- Technical Challenges
- Open Issues
- Roadmap (5, 10 and 15 years)
- Summary

The Funding Space



Local Arrangements

- Local Arrangements
  - Jake Huckaby, GT – Assistance with data collection
  - Joyce Dohanian, CRA – local arrangements
- Travel Reimbursements
  - Standard NSF model (economy fare,…)
  - Reimbursement form on the web site
- Breaks / meals

Summary

- Welcome to the workshop
- We hope for very engaging discussions
- Your participation is crucial to success
- This is a process in the making
  - Your input and feedback is most welcome
- Overall this should be rewarding to everyone
- The schedule for each workshop is tight
  - We will do our best to stick to the agenda. Without a summary report the impact will be limited!
- Note there are no funding agency representatives. We are trying to formulate a broad agenda across agencies.
- We need broad coverage of topics from real-world use to basic research