

# HPC as an Ecosystem

Michael M. Resch

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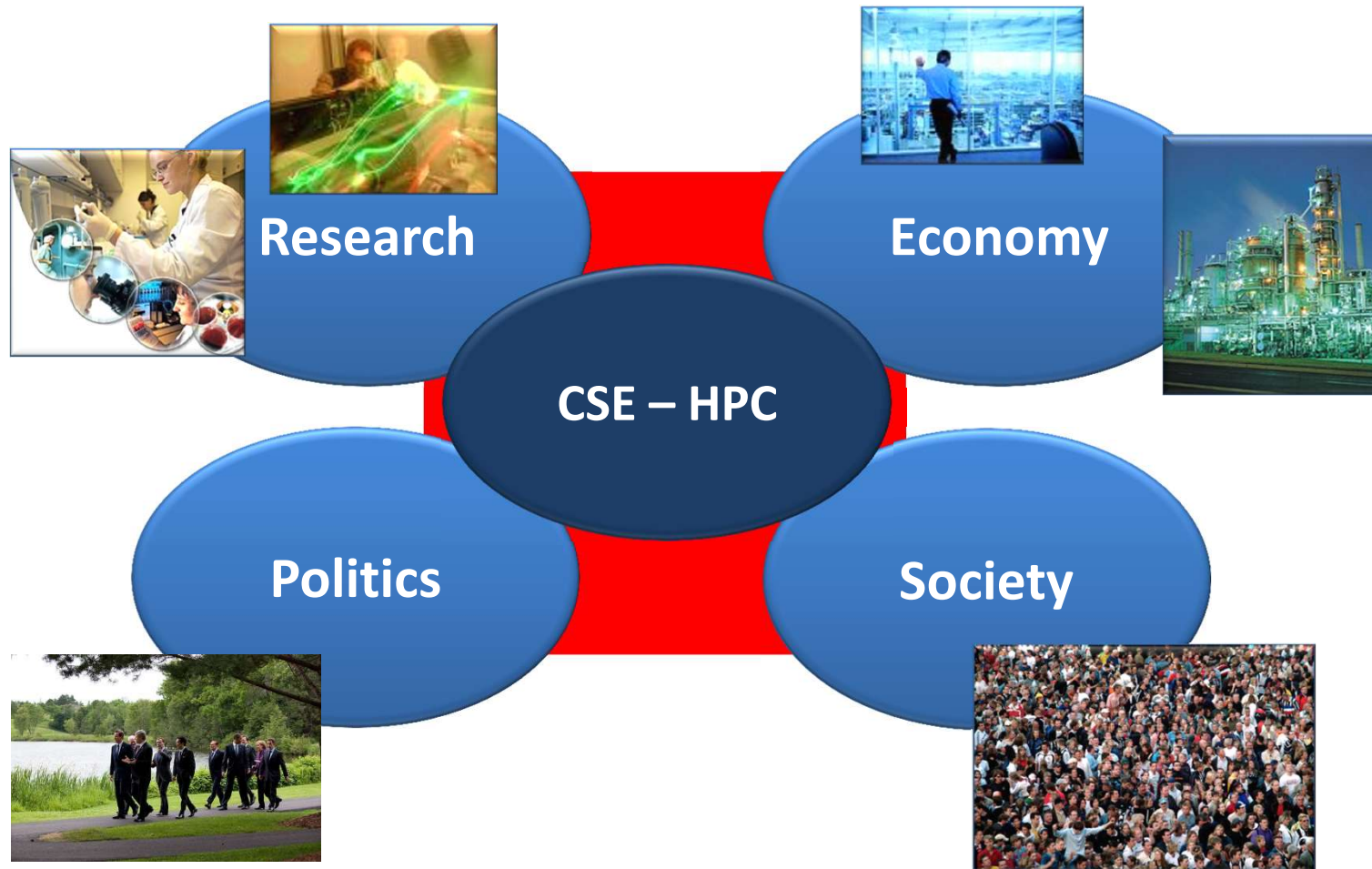


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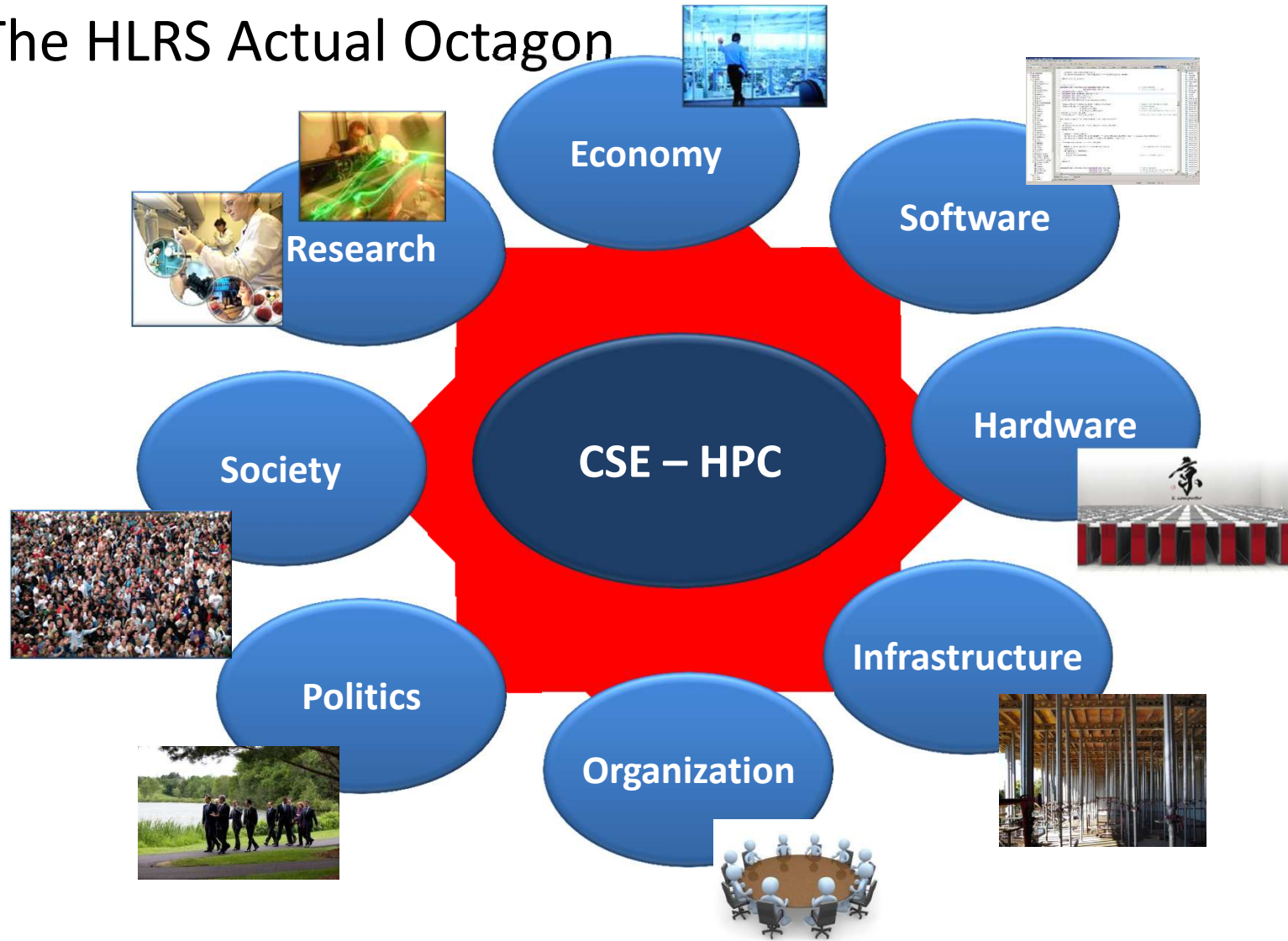
## Outline

- The HLRS Virtual Square
- The HLRS Actual Octagon
- The Unbalanced Octagon
- The Regular Octagon

# The HLRS Virtual Square



# The HLRS Actual Octagon



# The Unbalanced Octagon



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## The Actual Octagon ctd.

- Research
  - Everything was grand challenges
  - Do we lead or follow?
  - Should we lead? Should research follow HPC?
- Economy
  - Everything was about innovation
  - Better, faster, cheaper products?
  - What is our contribution to national economy?

## The Actual Octagon ctd.

- Society
  - There are a number of challenges (finance, energy, environment, health, mobility,...) and HPC was a promise for a better life
  - What is our promise today?
  - What can we deliver?
- Politics
  - HPC was important but not at the center of attention
  - What is our new political role? Arms race?
  - Are we becoming vicarious agents of politics?



## The Actual Octagon ctd.

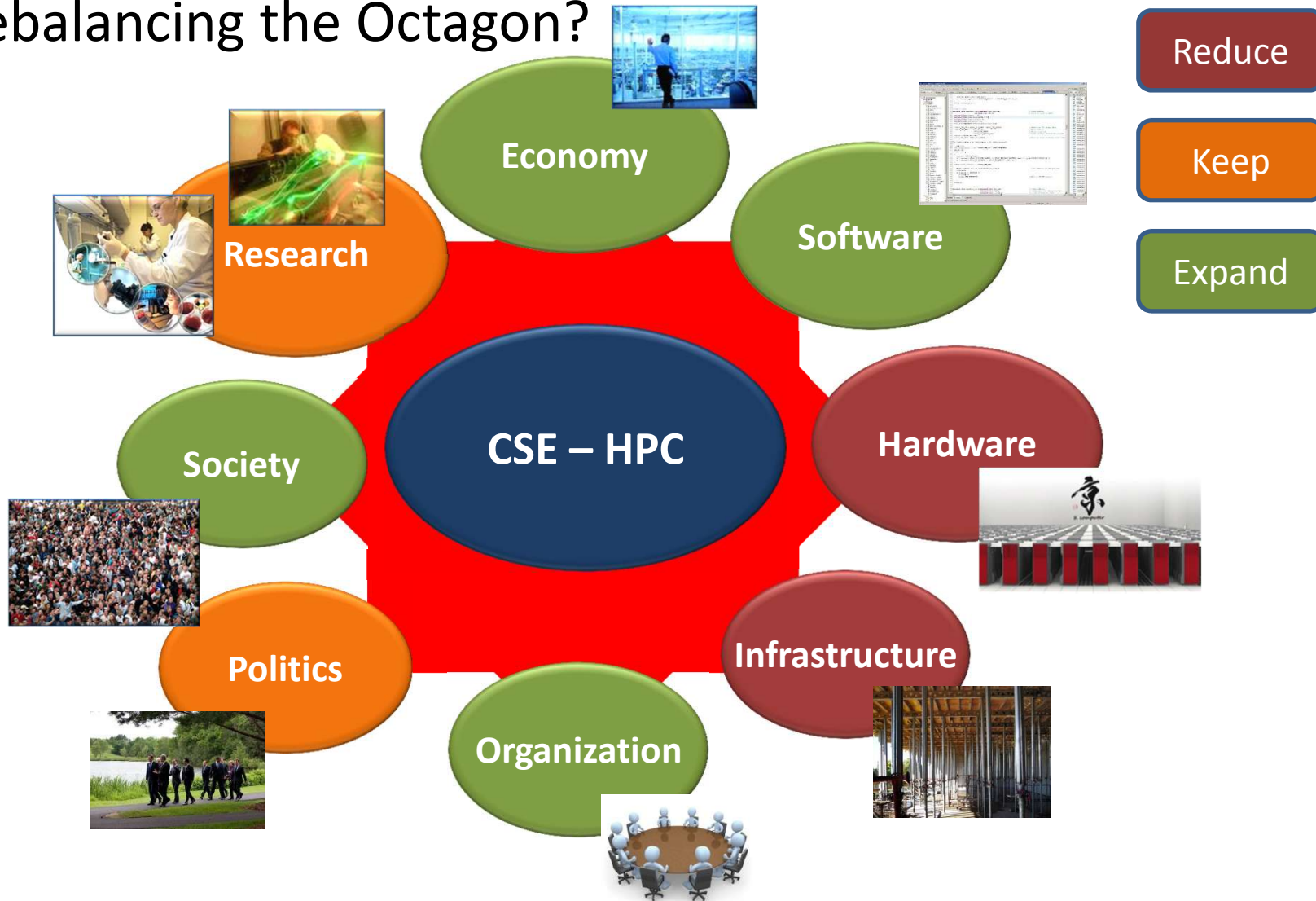
- Hardware
  - Moore and Parallelism solve all problems
  - Where are we headed without increase in speed?
  - How much time do we spend with play stations?
- Software
  - Algorithms were getting better
  - Software was focused on serial architectures
  - How long until we understand the meaning of software?
  - How long until we rewrite our software?

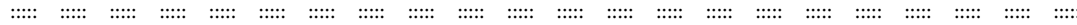


## The Actual Octagon ctd.

- Infrastructure
  - Infrastructure had to be improved over time
  - Are we going to just grow our infrastructure?
  - Who is going to pay for 100 MW?
- Organization
  - Operate, Organize, Manage
  - Find nice people to work with you
  - What are the requirements for an HPC center organization?
  - When we change our octagon, how do we have to change the organization?

# Rebalancing the Octagon?





# Questions

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