Creating Tools for Research and Instruction

Dr. Gerry McCartney
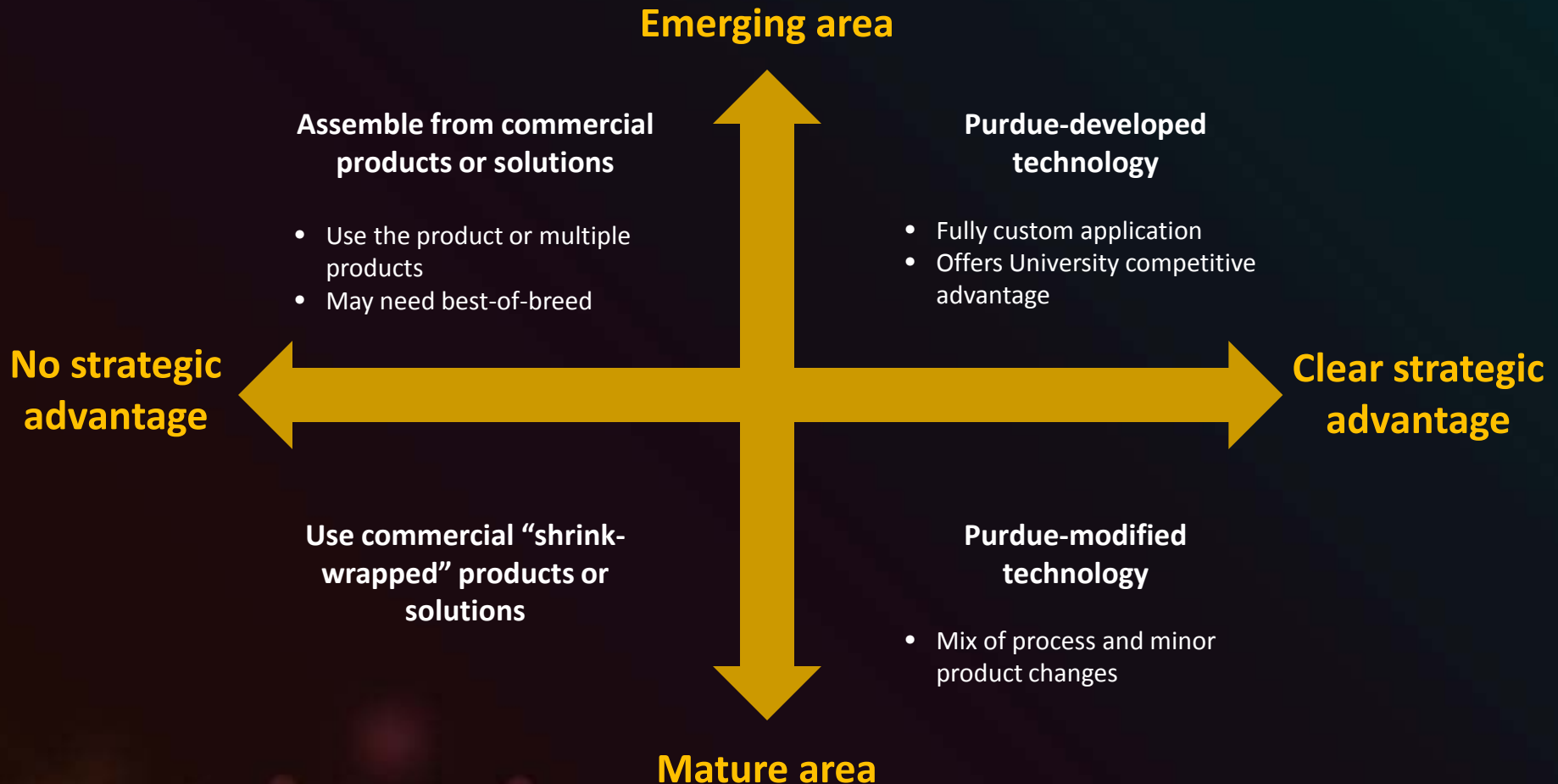Vice President for Information Technology and CIO
Inaugural Director, Innovation and Commercialization Center
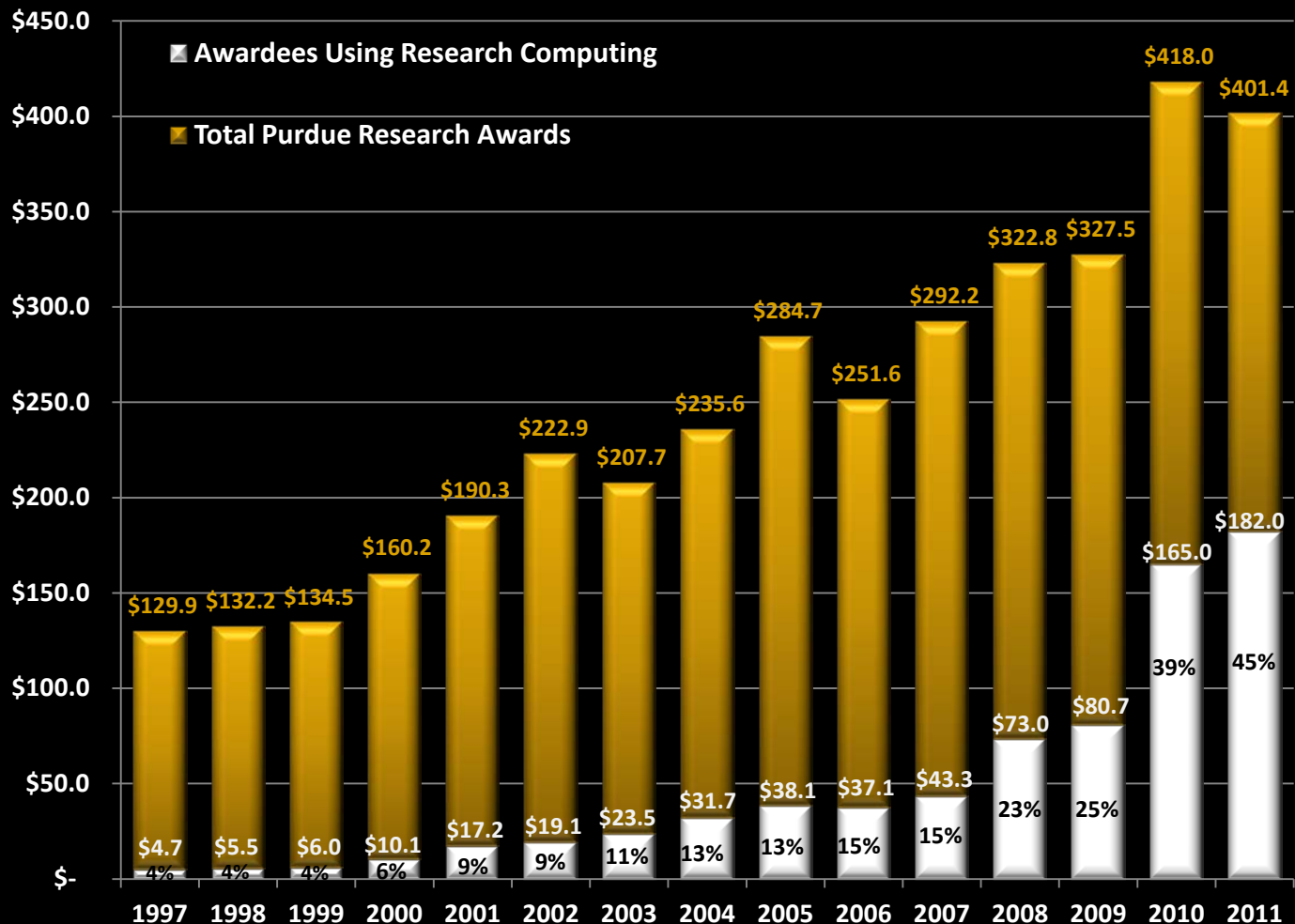Olga Oesterle England Professor of Information Technology

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PURDUE
UNIVERSITY

Innovate where strategic, standardize everywhere else

Emerging area

Assemble from commercial products or solutions

- Use the product or multiple products
- May need best-of-breed

Purdue-developed technology

- Fully custom application
- Offers University competitive advantage

No strategic advantage

Clear strategic advantage

Use commercial "shrink-wrapped" products or solutions

Purdue-modified technology

- Mix of process and minor product changes

Mature area

PERCENTAGE OF RESEARCH AWARDS INVOLVING HIGH-PERFORMANCE COMPUTING

- Awardees Using Research Computing
- Total Purdue Research Awards

Year	Total Purdue Research Awards	Awardees Using Research Computing	Percentage
1997	$129.9	$4.7	4%
1998	$132.2	$5.5	4%
1999	$134.5	$6.0	4%
2000	$160.2	$10.1	6%
2001	$190.3	$17.2	9%
2002	$222.9	$19.1	9%
2003	$207.7	$23.5	11%
2004	$235.6	$31.7	13%
2005	$284.7	$38.1	13%
2006	$251.6	$37.1	15%
2007	$292.2	$43.3	15%
2008	$322.8	$73.0	23%
2009	$327.5	$80.7	25%
2010	$418.0	$165.0	39%
2011	$401.4	$182.0	45%

RESEARCH COMPUTING

Community clusters — Five supercomputers ranked in the TOP500. Including "Carter," the nation's fastest campus supercomputer

HUBzero — "Social media with supercomputers for scientists": hubs in 42 science disciplines supporting nearly 700,000 researchers

DiaGrid — Largest federated academic distributed computer network: nine institutions, 43,000 cores, 300 peak teraflops

Purdue - developed learning technologies

All-time users

hotseat	**mixable**	**doubletake**	**Jetpack**
13,173 users	**6,885** users	**3,630** users	**1,112** users
launched Nov. 2009	launched Oct. 2010	launched Feb. 2011	launched Nov. 2011

course Signals

28,619 users

launched Sept. 2007
licensed to SunGard in 2010

NAVISTAR to run engineering simulations on Purdue's supercomputers

"At the forefront of aerodynamic commercial vehicles, we have a continuing need to perform computationally intensive simulations to evaluate the external aerodynamics to drive fuel economy improvements while creating envious styling. We look forward to working with Purdue as a key enabler and partner, *not only because of their state-of-the-art computational resources, but also the high level of technical expertise and the overall quality of the staff*."

—John Cagney, Vice President
Advanced Technology & Engineering
Navistar

- **Mobile platform** for creating learning paths

- **Customizable badges** earned for completing learning objectives

- **Repository** for academic accomplishments

- Accepting beta testers for Fall pilot

purdue.edu/studio

"We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run."

--Roy Amara's Law