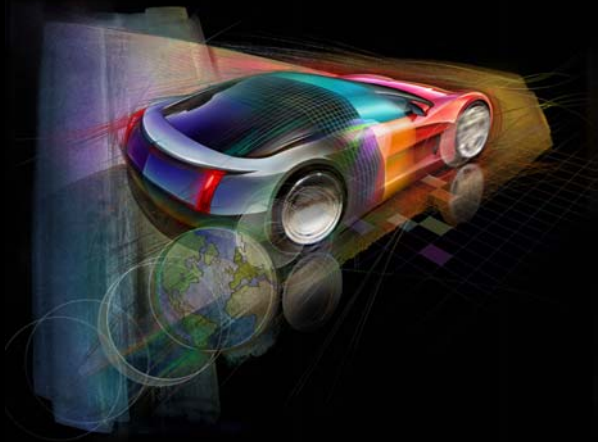
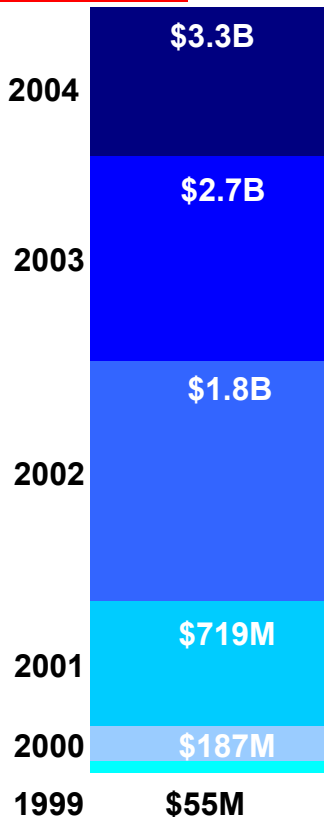


# 2004 ANNUAL REPORT



## IN-KIND COMMERCIAL VALUE OF PACE CONTRIBUTIONS TO DATE:

**\$3.3 BILLION**



## 2004 PROGRAM HIGHLIGHTS

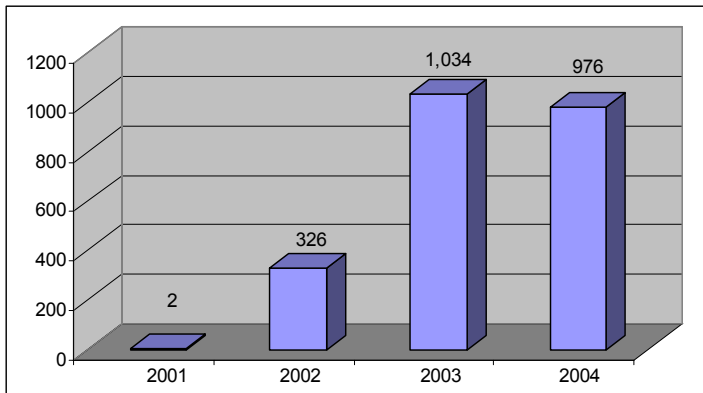
- PACE extended to PC platform by adding Hewlett Packard as PACE Contributor
- PACE Institution Grant Program established; funded by GM Foundation
- PACE added Alias as a PACE Contributor to better support digital creative design
- Sun Microsystems established as the official PACE server platform for Unix, Windows & Linux operating systems
- 13 of 28 (46%) PACE Institutions introduced PACE tools in the first year
- 12 of 28 (43%) PACE Institutions introduced PACE tools in the second year
- Global Expansion of PACE:
  - Deployed pilot institution in Australia
  - Selected PACE Institution in South Korea and Brazil

## Diversity Initiatives

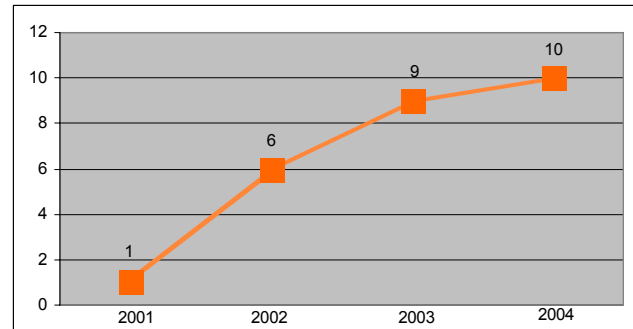
PACE seeks to increase the diversity of students selecting careers in design, engineering, manufacturing and computer-related disciplines. In 2004, four institutions held activities that promoted diversity in these technical areas.

For example, ITESM-Toluca consistently strives to attract students from various backgrounds and genders to the field of engineering. Each term, they stage more than 20 activities to introduce students to engineering life. During the fall 2004 term, PACE-related professors and students provided six UG and MSC.ADAMS introductory courses for approximately 100 high school students. In total, over 700 students visited the campus to explore engineering as a career.

### **Greater Number of Student Projects Using UG in 2003 & 2004 than 2001 & 2002**



### **PACE Institutions are Increasing the Number of CAD/CAM/CAE-Related Courses in Their Curriculum**



### **Collaborative Cross-Discipline Teams**

PACE emphasizes collaborative projects – both intra-university and inter-university. In 2004, there was a 50% increase in the number of these activities compared to 2003.

#### 2004 Highlights:

- At Brigham Young University, the College of Engineering & Technology worked with the School of Management to develop cross-disciplinary approaches to implement the use of PACE tools.
- Howard University's Capstone Design Course projects were comprised of student teams from mechanical engineering, electrical engineering, and fine arts.
- Michigan Technological University students in the "Enterprise Program" participated in multi-disciplinary teams to design, analyze, build, and market products and processes.

### **2004 PACE Competitions**

Four institutions participated in student design competitions: Kettering University, Michigan State University, Michigan Technological University, and University of Missouri-Rolla. Many students reported that the questions, feedback, and comments from judges were especially valuable in enhancing a deeper understanding of the engineering design process and the importance of design tools in real product development.

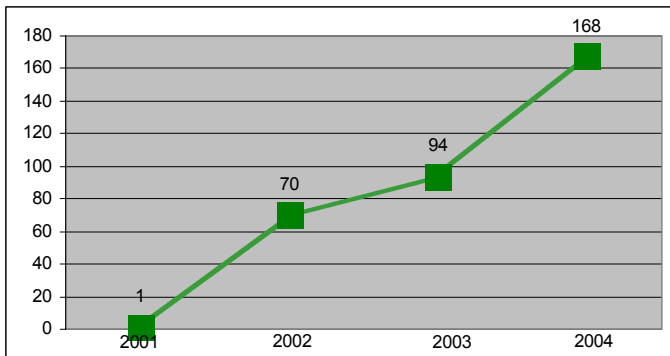


## 2004 PACE Annual Forum

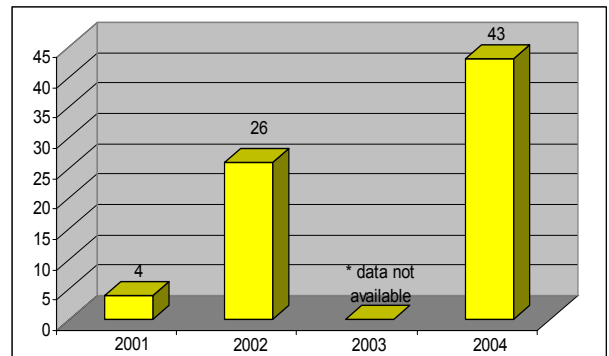
The 2004 Annual Forum occurred on May 19 at UGS' PLM World conference in Anaheim, CA. 23 representatives from 17 PACE Institutions attended this one-day conference, consisting of several faculty presentations including:

- *Using Check-Mate in the Classroom* by Bob Chalou, Michigan State University
- *Enhancing Engineering Education Using PLM* by Tord Dennis & J. Woo, Georgia Institute of Technology
- *Creating Prototypes with Math-Based High-Speed Milling & UG* by Pedro Orta & C. Rodriguez, ITESM – Monterrey
- *Development of Industry-Related Education Using UGNX* by Henrik Johansson, University of Trollhättan
- *Developing PACE Projects with GM de Mexico* by Pedro Orta, ITESM – Monterrey

### **Dramatic Growth in Faculty/Staff PACE-Related Training**



### **Upward Trend in Number of Research Projects Using UG Exclusively**



### **New Hardware and Software Offerings**

**Hewlett Packard** offered 100 new workstations and 4 large format printers through a competitive grant process. 2004 recipients were Brigham Young U., Tuskegee U., U. of British Columbia, Kettering U., ITESM-CEM, Michigan Tech U., TU-Darmstadt, ITESM-Toluca and U. of Missouri-Rolla.

**Sun Microsystems** offered 11 new servers through a competitive grant process. 2004 recipients were Michigan Tech U., Kettering U., Georgia Institute of Tech, ITESM-Toluca, ITESM-Monterrey, U. of British Columbia, Northwestern U., Shanghai Jiao Tong U., Monash U. and Hongik U.

**UGS** expanded their software offer to include UG Stand-Alone licenses and Teamcenter Community collaboration tools.

### **2004 PACE/GM Foundation Grants**

In 2004, PACE obtained a GM Foundation Grant for PACE Institutions in the U.S. Using a competitive grant process, 25 proposals from 11 institutions were selected that directly supported PACE-related curriculum development and diversity initiatives.

One grant was for a collaboration project between eight PACE Institutions to pilot and promote the use of GM-compatible collaboration tools—Teamcenter Engineering and Teamcenter Community.

## ADDITIONAL PACE PROGRAM METRICS

- 8 institutions (28%) offered automotive-focused engineering curricula
- 132 courses utilized UG
- 12,737 students enrolled in courses using UG
- 86% of 1<sup>st</sup> & 2<sup>nd</sup> year engineering students in PACE Institutions used UG
- 10 institutions have AutoWeb Data Exchange accounts
- PACE Competitions increased by 100% from 2003 to 2004
- 69% of institutions linked PACE activities with high school and/or community colleges to promote technical capabilities/interest
- 28% of institutions use UG exclusively in CAD courses

## PACE Contributors - 2004



## PACE Supporter - 2004



## PACE Institutions – 2004

### AUSTRALIA

**Monash University\***

### CANADA

Dalhousie University  
Queen's University  
University of British Columbia  
University of Toronto  
University of Waterloo

### CHINA

Shanghai Jiao Tong University

### GERMANY

Technische Universität Darmstadt

### MEXICO

Instituto Politecnico Nacional  
ITAM  
ITESM-Estado de Mexico  
ITESM-Monterrey  
ITESM-Toluca  
Universidad Iberoamericana

### SWEDEN

University of Trollhättan/Uddevalla

### UNITED STATES

Brigham Young University  
**Georgia Institute of Technology\***  
**Howard University\***  
Kettering University  
Michigan State University  
Michigan Technological University  
MIT  
Northwestern University  
Prairie View A&M University  
Purdue University  
Tuskegee University  
University of Michigan–Ann Arbor  
University of Missouri-Rolla

\* Institutions that were formally announced during 2004