



University-Industry Collaborations: Agilent's Perspective

2012 Engineering Deans Institute/Kauai

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A Brief History of Agilent

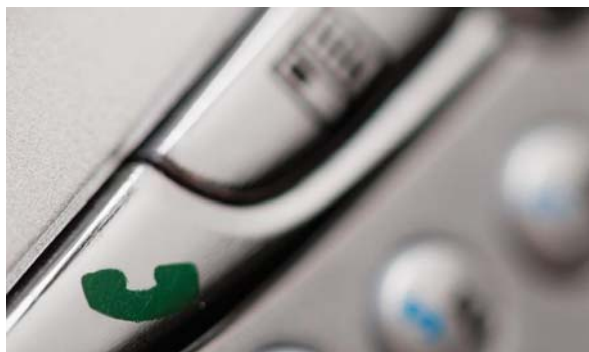
- 1939: Hewlett-Packard Company formed with the encouragement of Dr. Terman
- 1999: Agilent split from HP
- 2005: Strategic alignment: Phase I: *focused measurement company*
- 2006: Launched “Phase II”: *profitable, sustainable growth*
- ***initiated a global program for university research***
- 2011: Net revenue = \$6.6 billion; employees = 19,000



Agilent Technologies

Addressing critical measurement challenges

FY11 Revenue: \$6.6B



Electronic Measurement Group

FY11 Revenue: \$3.3B

Wireless technologies

Mobile phone R&D and manufacturing

Aerospace/defense

Low-cost instrumentation



Chemical Analysis Group

FY11 Revenue: \$1.5B

Food safety, quality

Energy research, production

Quality of air, water, soil

Forensics, drugs of abuse



Life Sciences Group

FY11 Revenue: \$1.8B

Pharmaceutical research and manufacturing

Genomics, proteomics, metabolomics tools for disease research

Agilent Research Laboratories
Enabling technology breakthroughs across Agilent



University-Industry Collaboration Framework

Activity in U → Our role ↓	Short Term Development	Advanced Development	Applied Research	Basic Research
Co-PI				
Mentor		DARPA, NSF, NIH		
Funding	R&D contract		ACT-UR program	
Tools		Thought Leaders		
Business impact-Biz	Short term Results Months – 1-3 years	Medium Term Results 2-5 years	Long Term Results 5-10 years	Very Long Term Results 7-20 years
Strategic Impact-Biz	Extends R&D capacity	Gives more technology options	May not affect products, could start new fields	Corporate Image
Strategic Impact-Univ's	Money for students or educational	A bit too applied but can work for MS	Core of PhD programs	Nobel Prize and prestige

Role of an Industrial Mentor

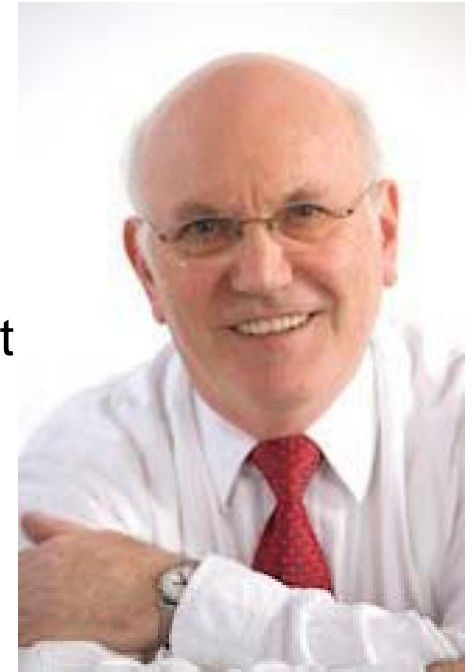
*The **key** to adding value through university relationships*

- **Cooperatively define programs** of mutual interest
- **Actively contribute** expertise, judgment, knowledge of commercial technical trends, technology, and experience to the research program
- **Participate.** Spend time on campus. Attend related seminars and research group meetings. Invite faculty to Agilent sites
- Build a circle of **acquaintances** with faculty and students
- Help talented students find employment (internships and long term)
- **Assess** and access research
- Report findings, motivate use, be a technology transfer conduit
- Share best practices with other mentors

Examples of Collaboration:

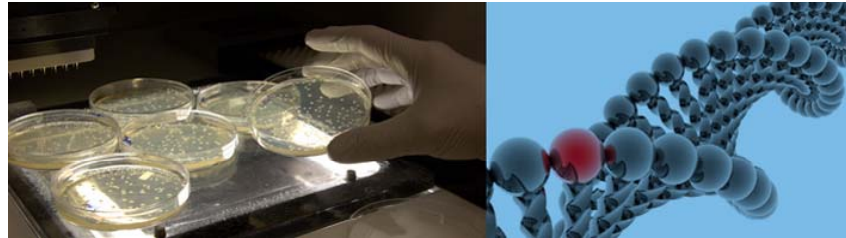
Roger Pollard

- Joined HP for a sabbatical in 1980
- Returned every summer through 2011; made significant contributions to our instruments
- Progressed to Dean of Engineering at U of Leeds
- Held many leadership roles in the IEEE
- Advisor/mentor to many PhD students from HP/Agilent
- Many hires from Leeds into HP/Agilent
- Retired from his Deanship in September 2010; joined Agilent as a half time employee
- In Memoriam, Roger Pollard (1946-2011); He left a powerful legacy!



Examples of Collaboration:

UC Berkeley Synthetic Biology Institute



- 10 year, multi-million dollar partnership
 - 40% for SBI Infrastructure
 - 60% for 4 sponsored research programs
 - advisory board spot for Agilent
- One topic: “faster and cheaper DNA synthesis”
- Goal: Create a standardized platform to quickly assemble and engineer new synthetic pathways
- Agilent can leverage this into new products and applications with strong commercial impact

Learnings

Build structures to foster collaboration

Build collaborative ties among students, faculty, and an industrial partner's technical staff

Focus on excellent academic work in areas of industrial relevance and help our academic partners get funding for their research

Avoid short-term deliverables and IP

Engage frequently 1:1 with partners

Expect *more* than money from industrial partners

Share results broadly within both the academic and industrial organizations



Agilent Technologies Education Grant Support

- Agilent Technologies has been providing University research laboratories with state-of-the-art test and measurement equipment for many years
- Agilent already offers education promotions and discount programs for Universities, but is now providing assistance in the area of grant applications
 - Provide recommendations in defining equipment specifications to ensure you have the electronic test and measurement systems that best meet your program requirements
 - Provide access to key equipment to collect critical supporting data for technical proposals
 - Prepare grant support letters to demonstrate industry/academia collaboration
 - Promote programs of interest to Government agencies
 - Or any other collaborative effort to strengthen your grant proposals



For additional information please contact:

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Summary: University-Industry Collaborations

- These are very important to Industry because they provide technology for the future, students for employment, and researchers as customers
- These are very important to Universities because they can provide focus and funding for research, employment for students, and meaningful research relationships
- There are many possible levels of engagement but 1:1 involvement (i.e. mentorship) is a powerful way to amplify the positive impacts of collaboration
- Agilent, as a measurement company, needs to be at the frontiers of technology and Universities need the best possible measurements to advance their research: Our mutual collaboration is a major way to accomplish this

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