

CONFLUENCE OF TECHNOLOGIES-OPPORTUNITY FOR UNIVERSITIES?

Biotech people, of all people, ought to relate to an old quote often attributed to Charles Darwin. It's the one about how the strongest and most intelligent aren't necessarily the ones who survive—it's the ones who are most adaptable to change.

Steve Burrill, the San Francisco-based merchant banker with one of the best Rolodexes in the life sciences industry should know, For those who are unfamiliar, Burrill has been analyzing, prognosticating, investing, dealmaking, speaking, and writing about biotech for more than two decades. His organization has more than \$950 million under management to invest in drugs, devices, diagnostics, agricultural biotech, and biomaterials.

Burrill has had his hits and misses, like any venture investor in biotech, but he's enjoyed one huge home run with Princeton, NJ-based **Pharmasset** (NASDAQ: **VRUS**). The hepatitis C drug developer **agreed** to be acquired by Gilead Sciences (NASDAQ: **GILD**) recently for \$11 billion—a record-setting sum for a biotech company still in the late stages of product development. Burrill personally served as chairman of Pharmasset until January, and his firm had a 5.7 percent ownership stake in Pharmasset, according to the most recent **proxy statement**.

Burrill in his recent 25th Anniversary State of the Industry address talked about how healthcare entrepreneurs can survive a financial crisis, regulatory uncertainty, the coming disruption of genome-based personalized medicine, and a transformation in how insurers and governments will pay for new drugs, devices, and diagnostics.

Even with all those waves of doubt washing over people who create those new products for a living, there is still plenty of reason to keep doing what they do, Burrill said. The biggest problems facing the world today—climate change, national security, food production, and health care—are all problems that biotechnology seeks to address.

“We are lucky to be alive today and to be part of this revolution,” Burrill said.

A confluence of technology will vastly change diagnostics in the next decade. Biomedicine should be prepared for a consumer-driven health care system where patients will be connected electronically and pharmaceuticals will be priced globally in a pro-generics environment.

Burrill also flipped up some quick slides about how all sorts of medical tools will be able to plug and play with handheld devices, from blood pressure monitors to microscopes to ultrasound tools. Remote readouts on our personal health data can be taken, sent at electron speed, and stored somewhere in a computing cloud where our doctor can ultimately monitor our wellness. Plenty of people object to this vision, saying that people won't be willing to share this stuff because of privacy objections. Fat chance, Burrill said.

Healthcare being delivered by smartphone, homes containing treatment capabilities now only found in hospitals, groundbreaking innovations rising from the confluence of technology and science. **Healthcare will be ... Digitised!**

CONSUMER DIGITAL HEALTH

Home Diagnostics/Monitoring systems:

Drop blood onto your Blackberry or iPod, telecommunicated to central labs, real-time Dx/Px

- Home monitoring

Centrally Delivered

- Walmart & other consumer distribution centres
- Genetic Screening
- Pharmacy Distribution
- 'Doc-in-the-Box', staffed with nurse practitioners

Specialized Delivery

- Comprehensive cancer / cardiovascular centres
- Heart Transplants 'R' Us' (surgery centres)
- Mayo/Cleveland Clinic for complex diseases

A recent delegation of senior management from J&J visited NUI Maynooth last year as part of a tour of Irish Universities. One recent NUI Maynooth spin-out company **Mutebutton** (Medical device for Tinnitus) piqued their interest.

One Manager identified the convergence of applied mathematicians, scientists, psychologists, engineering, device and clinical expertise working as a unit towards a real unmet need, would be difficult for them to replicate even with their considerable resources.

Perhaps this represents a USP for Universities adapting to the future outlined by Burrill???

Paul.tyndall@nuim.ie