PANEL - EMERGING IT CHALLENGES IN THE LIFE SCIENCES, BIOTECH, AND PHARMACEUTICAL INDUSTRIES

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Abstract

Life Sciences, biotechnology, and pharmaceutical industries are recognized globally as key drivers of modern economic progress, offering enormous potential for linking basic research innovations with new market opportunities. The impact of the progress in the biosciences is being felt particularly across the United States, as demonstrated by bioscience job growth, up 5.7 percent between 2001 and 2006, and the number of bioscience establishments, up 15.7 percent nationwide during the same time period. A key to development of this industry is information technology. This panel will explore the emerging IT challenges faced by healthcare, biotechnology and pharmaceutical organizations.

Keywords: biotechnology, healthcare, pharmaceutical, IT

1. Panel Summary

Healthcare, biotechnology, and pharmaceutical industries are recognized globally as key drivers of modern economic progress, offering enormous potential for linking basic research innovations with new market opportunities. Advances in human, plant, and animal biosciences have led to the growth of companies in many areas, from drug development and molecular diagnostics to biomaterials and bio-composites, bio-fuels, and other bio-related products. New discoveries are increasingly finding their way into new applications and products leading to new medical treatments, new sources of energy, and new industrial products made out of bio-based materials. Recognizing this, countries around the world are investing to create a business climate that supports the specific needs of the biosciences sector. These efforts focus on technology, talent, and capital, the key ingredients needed to grow a bioscience-driven economy.

The impact of the progress in the biosciences is being felt particularly across the United States, as demonstrated by bioscience job growth, up 5.7 percent between 2001 and 2006, and the number of bioscience establishments, up 15.7 percent nationwide during the same time period. This growth is spread across the United States with clusters of bioscience firms focused on specialized niches of the biosciences found in states and regions. States are supporting the development and commercialization of bioscience discoveries by investing in bioscience R&D and in R&D facilities and infrastructure, supporting programs aimed at attracting and retaining world class academic researchers, creating and maintaining mechanisms to encourage collaborations between bioscience companies and academic researchers, and facilitating the commercialization of university intellectual property. A key to development of this

industry is information technology. This panel will explore the emerging IT challenges faced by biotechnology, life sciences and pharmaceutical organizations.

2. Sudha Ram, McClelland Professor of MIS, University of Arizona

Sudha Ram is McClelland Professor of Management Information Systems in the Eller College of Management at the University of Arizona. She received a B.S. degree in chemistry from the University of Madras, a PGDM from the Indian Institute of Management, Calcutta, and a Ph.D. from the University of Illinois at Urbana-Champaign.. Dr. Ram has published articles in such journals as Communications of the ACM, IEEE Transactions on Knowledge and Data Engineering, Information Systems, Information Systems Research, Management Science, and MIS Quarterly. Her research deals with issues related to Enterprise Data Management. Her research has been funded by organizations such as, IBM, Intel Corporation, Raytheon, US ARMY, NIST, NSF, NASA , and Office of Research and Development of the CIA. Specifically, her research deals with Interoperability among Heterogeneous Database Systems, Semantic Modeling, BioInformatics and Spatio-Temporal Semantics, and Business Rules Modeling, Dr. Ram serves on several journal editorial boards. She is currently a Senior Editor for Information Systems Research. She has chaired several workshops and conferences supported by ACM, IEEE, and AIS. She is a cofounder of the Workshop on Information Technology and Systems (WITS) and serves on the steering committee of many workshops and conferences including the Entity Relationship Conference (ER). Dr. Ram is a member of ACM, IEEE Computer Society, INFORMS, and Association for Information Systems (AIS). She is also the director of the Advanced Database Research Group based at the University of Arizona.

3. Brian Ellerman, Tucson SIS Site Head, Sanofi-Aventis

Brian Ellerman holds a bachelor's degree with honors from Marist College in Medical Technology (1994) and a master's degree in Management Information Systems from the University of Arizona (2000). He is currently pursuing a PhD in Organization and Management, with an emphasis on Leadership, at Capella University. Brian's professional career began in clinical pathology, working for numerous hospitals, physicians, and reference laboratories in New York, Los Angeles, and Tucson over a period of 6 years. During this time, he started P^3 Computers, a computer sales and repair business that gradually grew into a second company, Pacharimay, focused on IT consulting. In August of 1999, he stepped down as senior medical technologist for clinical chemistry at St. Mary's Hospital, merged the two companies he owned into a new entity, Siesta Consulting, and completed the prototype of an electronic medical record and patient scheduling system for care-provider offices. That fall, Brian architected the development of the system into a commercial product, and Siesta Software was born. The venture was short-lived, however, due to the impending implementation of HIPAA, so Brian sold the product and company to a larger competitor and returned to consulting full-time. In February of 2000, he took on the role of Strategic Solutions Architect for Maddenmedia, a Web solutions developer. While there, he led the development of an intranet portal for a Fortune 500 company and architected a new business venture in online banking. The following year, he moved to Sunquest Information Systems, soon to become Misys Healthcare Systems, where he served as Implementation Manager for the company's clinical laboratory product. During that time, Brian successfully led a division initiative to reduce implementation time by 25% while also managing the largest ever contract for laboratory systems in the U.S. In the fall of 2002, Brian joined Aventis as a consultant, and was hired as an associate the following year. As program manager with what is now Sanofi-Aventis, the third largest pharmaceutical company in the world, Brian directs the Scientific Computing and Information Program. His responsibilities include championing the strategic use of information, finding innovative approaches to analyzing and interpreting data, ensuring the support of local and global scientific applications, and managing a diverse portfolio of informational projects that greatly impact the company's pursuit of novel therapeutic compounds.

4. David J Kempson, Vice President and CIO, Maricopa Integrated Health System

David J. Kempson is Vice President and CIO of Maricopa Integrated Health System (MIHS), an integrated healthcare delivery network in Phoenix, AZ. MIHS had revenues of $370 million in 2008 and employs more than 4000 people in Maricopa County. Mr. Kempson is also an Adjunct Professor with the Arizona State University Department of Biomedical Informatics and is currently serving as a Lieutenant Colonel in the Arizona Air National Guard Medical Corps. Mr Kempson received a Masters Degree in Business Administration from the University of Arizona and a Bachelor's of Science in Mechanical Engineering from Lehigh University. Mr Kempson has also held certification as a Project Management Professional (PMP) since 2003.

5. Dan Stanzione, Deputy Director – Texas Advanced Computing Center (TACC) at The University of Texas at Austin and Co-Director – iPlant Collaborative

Dr. Stanzione is the deputy director of the Texas Advanced Computing Center (TACC) at The University of Texas at Austin. He is the Co-Director of "The iPlant Collaborative: A Cyberinfrastructure-Centered Community for a New Plant Biology," an ambitious endeavor to build a multidisciplinary community of scientists, teachers and students who will develop cyberinfrastructure and apply computational approaches to make significant advances in plant science. He is also a Co-PI for TACC's Ranger supercomputer, the first of the "Path to Petascale" systems supported by the National Science Foundation (NSF) deployed in February 2008 (at the time, the largest open science supercomputer in the world). Prior to joining TACC, Dr. Stanzione was the founding director of the Fulton High Performance Computing Institute (HPCI) at Arizona State University (ASU). Before ASU, he served as an AAAS Science Policy Fellow in the Division of Graduate Education NSF. Dr. Stanzione began his career at Clemson University, his alma mater, where he directed the supercomputing laboratory and served as an assistant research professor of electrical and computer engineering. Dr. Stanzione's research focuses on parallel programming, scientific computing, bioinformatics, and system software for large scale systems.

6. Edward Suh, CIO, TGen

Edward Suh is the Chief Information Officer of the Translational Genomics Research Institute (TGen), where he leads and manages Biomedical Informatics, Software engineering, Information Technology and High Performance Biocomputing programs. Dr. Suh and his team develop and provide data mining and data management systems, computational algorithms and application software, and high-performance biocomputing and secure information technology infrastructure for rapid collection, integration, analysis and dissemination of biomedical data for the discovery of novel biomarkers and diagnostics, leading to the treatment of diseases. Dr. Suh has served multiple NIH grants in the capacity of a PI, IT director and an investigator. Dr. Suh began his career in electrical engineering. After earning a Doctor of Science degree in computer science, he married the two career fields and now specializes in the application of computational science and engineering methodologies to biomedical data management and high performance biocomputing. Dr. Suh authored and co-authored numerous articles in journals such as Science, Journal of Computational Biology, Bioinformatics, and Cancer Research.