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# Innovative technologies in rural areas improve agriculture, health care

The latest issue of 'Technology and Innovation' also explores the benefits of tech transfer to universities

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TAMPA, Fla. (June 18, 2014) – The current special issue of *Technology and Innovation* is devoted to articles on both innovations in rural regions and general articles on technology and innovation, including an article from the National Academy of Inventors (NAI) by McDevitt et al. that discusses the value of technology transfer for universities beyond money.

The five papers in this special issue of *Technology and Innovation* dealing with innovations in rural regions include an editorial, an analysis of the value of networks for European organic farmers and conventional farmers, the use of technology to demonstrate the impact of rural health care organizations, precision agriculture in the Northern Great Plains, and how modern communications technologies are changing communities in Northeast India.

## RURAL INNOVATION

### Not just about fancy tractors

In her introductory editorial, Kumi Nagamoto-Combs, assistant professor in the Department of Basic Sciences at the University of North Dakota School of Medicine and Health Sciences and a former technology transfer officer in the Office of Intellectual Property Commercialization and Economic Development at the University of North Dakota, suggests that the terms "technology" and "innovation" may not often be associated with rural areas. Yet, as readers of this special issue of the journal will find, the articles are about the use and implementation of information technology in rural communities, including the delivery of remotely acquired information, web-based data management, telecommunications, and distance learning. "In order to help rural regions thrive, it is important to not only develop technologies that target specific needs of particular regions but also to educate the users so they can embrace new ways and utilize them efficiently," she said.

### Survey on German organic and conventional farming

Interpersonal networks among farmers within the European Union are important, said Ilkay Unay Gailhard of the Leibniz Institute of Agricultural Development in Transition Economies and Miroslava Bavorova of the Martin Luther University, Halle, Germany. They studied two types of ties – friendship ties and affiliation/association ties. Surveying 72 farmers in Germany, they found that farmers who communicate more frequently with other farmers (friendship ties) are likely to be highly innovative. "But for affiliation/association

ties, membership in at least one association is positively interconnected with high inventiveness of conventional farmers, yet large network size indicates low inventiveness on the part of organic farmers," said the researchers.

### **Information technology demonstrates impact of rural health care**

TruServe is a web-based tracking system developed at the Center for Rural Health at the University of North Dakota to demonstrate the impact of the Center's efforts to improve rural health care. The TruServe reporting technology allows nonprofits to better demonstrate the results of their efforts and procure funding for their work. The article, by Kelly Quigley and colleagues, describes the development of TruServe and the launch of the newest version.

### **Precision agriculture comes to the Northern Great Plains**

Precision agriculture is defined as the addition of technology and information management to traditional agricultural assets of land, labor, and capital. The use of remote sensing by satellite or unmanned aerial vehicles offers potential for precision crop management, said Xiaodong Zhang, Department of Earth System Science and Policy at the University of North Dakota, and co-authors. Spatial data from satellites – delivered in a timely manner by the Internet – and high resolution, real-time imagery, are among the useful technologies. "We lowered the barrier for end users to understand and learn the technologies effectively from peers as well as professionals," said the authors.

### **Remote and tribal areas in NE India get E-governance**

Northeast India, mostly inaccessible and home to a large number of tribal peoples, has become less remote with the introduction of technologies that help the Indian government to narrow the "digital divide" and the gap between rich and poor. This was accomplished by establishing Community Information Services (CIS), a web-based technology that interfaces the government and the people and aims at improving the health and socioeconomic status of residents. This paper, by Bhaskar Mazumder, Department of Pharmaceutical Sciences at Dibrugarh University, in collaboration with Vijay Swami and Ista Pulu, Research Institute of World's Ancient Traditions, Cultures, & Heritage (RIWATCH), and Yashwant V. Pathak, College of Pharmacy at the University of South Florida, discusses the services and facilities provided by CIS and the impact on education, agriculture, health care, employment, and public policy.

## **GENERAL SECTION**

### **More than Money**

Just how valuable is "technology transfer" for universities? This question is addressed in "More than Money: The Exponential Impact of Academic Technology Transfer," the latest article from the National Academy of Inventors (NAI). The article examines the impact of landmark 1980 legislation that facilitated technology transfer from the academic inventors' "bench" to commercialization and the far-reaching and beneficial changes for universities and communities that have resulted. Valerie Landrio McDevitt, former associate vice president for technology transfer and business incubation at the University of South Florida and current executive director of the Association of University Technology Managers (AUTM), and colleagues, wrote on the

benefits to academic institutions, the most significant of which include public benefit, the creation of a vibrant entrepreneurial culture, local economic development, faculty recruitment and retention, student success, and increased prestige for the institution.

### **Food and Food Additives**

Jonas Kamlet, founder of Kamlet Laboratories in 1940, received 81 patents over the ensuing 39 years. Eighteen of those patents involved food and food additives, such as preservatives and food coloring. Authors Dean F. Martin and Barbara B. Martin of the University of South Florida Institute for Environmental Studies, examined his food and food additive patents using records available at the University of South Florida library and write about "...how shrewd he was in writing contracts and generating compensation for his ideas and innovations."

### **Human Thymus and Infant Deaths**

The purpose of this study was to "investigate and quantify the morphological and molecular changes in the thymus for common causes of human infant death." Lead author Mark C. Lloyd, H. Lee Moffitt Cancer Center and Research Institute, Tampa, Florida, and colleagues, who analyzed thymuses from victims of Sudden Infant Death Syndrome and also examined rat thymuses of animals modeled with head trauma, report that "head trauma can lead to a disruption of the thymic, corticomedullary border and molecular expression patterns in a robust and quantifiable manner."

### **Ancient Aligned Megaliths and Stone Circle**

Human artifacts at Nabta Playa, near the Egypt-Sudan border, include a stone circle and aligned megaliths. An estimated 7,000 years old, the complex appears to have functioned as a ceremonial center during an extended period of reduced aridity in the region. The stone circle points north and at the rising azimuth of the Sun on the summer solstice. The site, said Don Haynie, Department of Physics, University of South Florida, may represent an early effort to mark direction, track time, and measure space – all crucial to technology and innovation as we think of them today.

### **Commentary: Improving World Infrastructure**

Weak intellectual property policy or its enforcement can be a barrier to innovation and creativity in many developing nations, said Alexander Camarota of the Office of Innovation Development, United States Patent and Trademark Office (USPTO). Through its Office of Policy and International Affairs, the USPTO works with intellectual property organizations and foreign governments around the world to help improve the innovation climate for developing nations. The impact of good intellectual property policy is already helping to return value to producers in rural areas as well as aid in cultivating conditions for innovation, wrote Camarota.

The Fourth Annual Conference of the National Academy of Inventors will take place Mar. 19-20, 2015, at the California Institute of Technology in Pasadena, Cal.

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The National Academy of Inventors® is a 501c3 organization comprised of U.S. and international universities and non-profit research institutes. It was founded in 2010 to recognize and encourage inventors with a patent issued from the U.S. Patent and Trademark Office, enhance the visibility of academic technology and innovation, encourage the disclosure of intellectual property, educate and mentor innovative students, and translate the inventions of its members to benefit society. Email [info@academyofinventors.org](mailto:info@academyofinventors.org); web <http://www.academyofinventors.org>

The editorial offices of *Technology and Innovation* are located in the USF Research Park, 3702 Spectrum Blvd., Suite 165, Tampa, Florida, 33612 USA. Tel: +1-813-974-1347. Email [TJJournal@research.usf.edu](mailto:TJJournal@research.usf.edu)

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### Media Contact

Judy Lowry

[jhlowry@usf.edu](mailto:jhlowry@usf.edu)

Office: 813-974-3181