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2011

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### WALTON OUTREACH INFORMATION TECHNOLOGY RESEARCH INSTITUTE ANNUAL REPORT 2010-2011





### DEAR Supporters & Friends,

"The only constant is change, continuing change, inevitable change, that is the dominant factor in society today. No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be." This is a quote from Issac Asimov, the famous professor from Boston University. Change is a dynamic that the Information Technology Research Institute (ITRI) & Radio Frequency Identification Research Center (RFID) can relate to as we have experienced a great deal of it over the past year.

Our most significant changes have been to key personnel. Bill Hardgrave, the first ITRI executive director of the ITRI, has moved on to become the dean of the business school at Auburn University. From my role as the ISYS department chair, I took over as the interim ITRI and RFID Research Center executive director until I accepted a newly created position as the associate dean for Research and Graduate Programs. All of the Walton College Outreach Centers now report to me. Additionally, David Douglas became the interim chair of the Information Systems Department when the search began for a new department chair.

With the past as a solid foundation for success, and the missions of both the ITRI and RFID Research Center clearly defined we look to continue to provide valuable services to both the academic and business communities. We look to continue to provide valuable services to both the academic and business communities. We understand that our success is dependent on the involvement and support of our member organizations. Another key to our success has been and will continue to be the relationships that we've cultivated with the faculty, staff, and students. As we build upon these relationships, we also continue to develop high quality services and programs.

We'd like to thank all of our board members who provide direction and support for all that we do. In order to have continued success, we must have their continued support. So enjoy this edition of the ITRI Annual Report. Read about the many activities that touch the three main areas of the ITRI mission: Research, Interaction, and Interest.

As always, we welcome your feedback or comments.

Sincerely,

Dr. Moez Limayem Associate Dean for Research and Graduate Programs Edwin and Karlee Bradberry Chair

WALTON OUTREACH The annual report of the Information Technology Research

Institute at the University of Arkansas

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#### MISSION

The Information Technology Research Institute (ITRI) is an interdisciplinary unit for research within the Sam M. Walton College of Business. The Institute's mission is to advance the state of research and practice in the development and use of information technology for enhancing the performance of individuals and organizations; to provide a forum for multi-disciplinary work on issues related to information technology; to promote student interest in the study of information technology; and to facilitate the exchange of information between the academic and business communities.





## RESEARCH

The Information Technology Research Institute encourages the production and dissemination of academic research via its working paper series, which also provides industry practitioners access to leading academic findings. Additionally, the ITRI supports many research projects and regularly engages member organizations in projects.

## WORKING PAPER SERIES

Six papers were added this year to the working paper series, bringing the total to 157 papers in the library. We responded to more that 2,870 requests from IT professionals, faculty members, and students from more than 60 different countries, 410 companies, and 112 universities. Below are snippets of the papers added this year. You can read more about these topics and and others papers on our website: http://itri.uark.edu/91.asp?code=completed

### Title: Comparing Objective Measures and Perceptions of Cognitive Learning in an ERP Simulation Game: A Research Note

Reference #: ITRI-WP153-0910

Authors: Paul Cronan - University of Arkansas Pierre-Majorique Leger - HEC Montréal Jacques Robert - Université du Québec à Montréal Gilbert Babin - Université du Québec à Montréal

Abstract: Enterprise Resource Planning (ERP) systems have had a significant impact on business organizations. These large systems offer opportunities for companies with regard to the integration and functionality of information technology systems; in effect, companies can realize a competitive advantage that is necessary in today's global companies. However, effective training for the incorporation and use of these large scale systems is both difficult and challenging; improved strategies for effective training include the use of business simulations.

#### Title: RFID-Enabled Visibility and Retail Inventory Record Inaccuracy: Experiments in the Field

Reference #: ITRI-WP154-0910

Authors: Bill Hardgrave - University of Arkansas Sandeep Goyal - University of Arkansas John A. Aloysius - University of Arkansas

Abstract: Accurate inventory records are key to effective store execution, affecting forecasting, ordering, and replenishment. Prior empirical research, however, shows that retailer inventory records are inherently inaccurate. Radio Frequency Identification (RFID) enables visibility into the movement of inventories in the supply chain. Using two different field experiments, the current research investigates the effectiveness of this visibility in reducing retail store inventory record inaccuracy IRI.

Title: Improving Inventory Management in the Retail Store: The Effectiveness of RFID Tagging Across Product Categories

Reference #: ITRI-WP155-0910

Authors: Bill Hardgrave - Auburn University Sandeep Goyal - Southern Indiana University John A. Aloysius - University of Arkansas

Abstract: Though Radio Frequency Identification has proven to effectively improve inventory management, retailers have little guidance on best practices for implementation. One important unresolved issue is whether tagging is equally effective across different product categories, and if there is a way to predict which categories are better candidates for deployment. Through a field experiment, we found evidence that the effectiveness of RFID tagging is not homogenous for all products. Some categories saw a reduction in

stock outs from 21% to 36%, while tagging was not effective in others. We draw inferences for retail supply chains that are considering how best to allocate their resources in the most effective manner.

#### Title: An Empirical Study of Potential Uses of RFID in the Apparel Retail Supply Chain

Reference #: ITRI-WP156-0111

Authors: Matthew A. Waller - University of Arkansas David B. Cromhout - University of Arkansas Justin Patton - University of Arkansas Brent D. Williams - Auburn University Bill C. Hardgrave - Auburn University

Abstract: In the fall of 2010, a study of potential uses of radio frequency identification (RFID) in the apparel supply chain was conducted by the RFID Research Center and funded by GS1 US and the American Apparel and Footwear Association (AAFA). This ongoing Supplier ROI study is commonly referred to as the Many-to-Many study. Future experiments will involve the measurement of ROI for select use cases and study the effect of RFID on multiple suppliers simultaneously. Over a period of several months, we collected more than 60 use cases. The findings of the 2010 study show that the potential benefits of item-level RFID in the apparel supply chain reach beyond the retailer and include apparel manufacturers.

Title: Does Alignment Engender Capabilities for Design and Manufacturing? Independent versus Interactive Alignment on Operations versus Innovation Response Capabilities

Reference #: ITRI-WP157-0311

Authors: Pankaj Setia - University of Arkansas

Abstract: This paper investigates whether alignment of design and manufacturing related information technologies D&M-IT with supply chain practices affects a manufacturer's operational versus innovation response capabilities. Further, the research also examines the interdependence between alignments to assess if one form of alignment can be substituted for another. Three domains of supply chain practices are considered: "outside-in" external partnering practices, "spanning" internal integration, and "inside-out" integrative manufacturing practices. Our analysis revealed that the alignment of D&M-IT with all three domains of supply chain practices has a significant positive impact on operational response capabilities, but no effect on innovation response capabilities. For operational response capabilities, the results also showed that the alignment of D&M-IT with "spanning" practices can be substituted for alignment between these technologies and "inside-out" practices.

## RFID

The recent economic downturn has created a curious parallel trend in RFID adoption. While many companies considering pilots/rollouts of EPC-enabled RFID decided to postpone the projects, an equally large number of companies considered the "spend to save" abilities of RFID tracking and management as greater overall cost reduction through supply chain optimization.

There has also been a relative stabilization of RFID technology vendors as a whole. Continued retailer adoption and national rollouts have caused a long awaited sales volume increase and an overall boost in confidence about the future expansion of the market, with more retailer rollouts planned for 2012.

The RFID Research Center has expanded activities and is now taking a leadership role in the RFID community by helping to organize and execute many of the new standards and best practices of organizations. Testing operations have expanded tremendously in the past few months, and many retailers are now requiring the RFID Center's approval of RFID products before they can be implemented in a store environment.

The Center continues to provide support to product manufacturers and retailers. In order to study the value of RFID to product manufacturers in an international open loop supply chain, the center began a Retail Supply Chain study with 10-15 partner companies. Also, the center began a Multi-Retailer Shrink Prevention/Loss Prevention study to investigate the value of RFID in helping to combat rising problems of shrink and theft in retail environments.

Building upon the expansion of research while also investigating new ways to provide companies with beneficial information is the RFID Center's goal for moving forward.











### COMPANY REPUTATION SURVEY

In March of each year, the ITRI provides interested member companies feedback by running an anonymous on-line company reputation survey of IT students from the Walton College and the College of Engineering. All levels, freshmen through graduate students, were surveyed, and 84 responses were received out of 454 students (18.50 percent response rate). Students were asked to respond to questions that tested their knowledge about the ITRI member companies. By conducting this survey, we hope to enhance their understanding of the companies that hire technology students and ultimately to create more job opportunities in the future. For participating in the survey, each student was entered into a drawing for two iPod nanos. Congratulations to Kaylee Parker and Nathan Branigan, the winners of the drawings.

## RFID FORUM

Approximately 175 people attended the RFID Forum 2010 held on October 12-13 at the Donald W. Reynolds Center for Enterprise Development. The two day conference was hosted by the ITRI – RFID Research Center and sponsored by Voluntary Interindustry Commerce Solutions, The Council of Supply Chain Management Professionals, and GS1. Also contributing to the event's success were ADT, Avery Dennison, Impinj, and Motorola. The forum focused on revolutionizing the inventory management processes, enhancing customer's experience, and improving a company's bottom line.

The conference continues to show value to its participants. Day one included an optional tour of the RFID Research Center Laboratory and a welcome reception sponsored by ADT, which was held at the Inn at Carnall Hall on the campus of the University of Arkansas. Day two featured outstanding speakers and included breakfast and lunch sponsored by Motorola. Sahir Anand, vice president and principal analyst, Retail & Banking, for Aberdeen Group gave the keynote: Retailers and Digital Inventory Accuracy.

Other Session Topics Included:

#### Supplier RFID Efforts

- Terry Brown VF Services
- David Cromhout University of Arkansas RFID Research Director

Panel Discussion: Offshore Source Tagging and In-Store Testing

- Bill Hardgrave (Moderator) Auburn University
- Larry Arnstein Impinj
- Kris Barton UPM Raflatac
- Susan Flake Motorola
- Raj Jayaraman Checkpoint Systems
- Bill Toney Avery Dennison

How to Jumpstart a Discussion with Your Customers and Connect Them to the Overall RFID Technology Experience

• Dick Lockard - The Big Space

#### Retailer Lessons Learned Panel Discussion

- Bill Hardgrave (Moderator) Auburn University
- Susan Flake Motorola
- Jim Lee Tyco Retail Solutions
- Bill Toney Avery Dennison
- Nicole Wikstorm IBM Global Business Services

#### RFID Issues and "How Are We Going to Get There"

- Paul Arguin Conair, USA
- Myron Burke Walmart Stores, Inc.

#### The Future of RFID

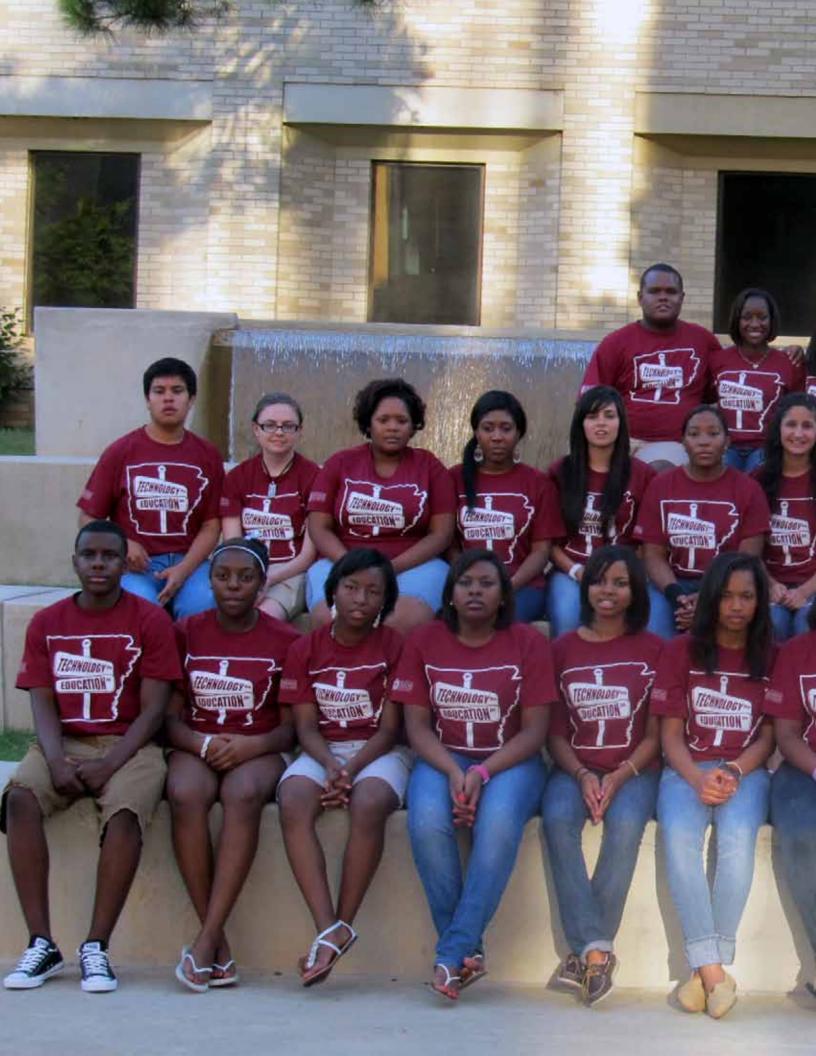
• Chris Riemann - IBM Global Business Services











## INTEREST

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### IT DAY

#### IT Night for Parents and Educators



The ITRI and the Information Systems Department hosted the 3rd IT Night for Parents and Educators on Thursday, December 2, 2010. The program is designed to inform parents and educators of junior high and high school students about the field of information technology, the University of Arkansas and the Information Systems degree program. Approximately 40 people participated in the event.

Dr. David Douglas welcomed the group and gave a brief overview of the Walton College ISYS department. Two speakers from our board member companies, Gary Cooper of Tyson Foods, Inc. and Denay Huddleston of ConocoPhillips, provided their perspective of the IT field and discussed how they see the future of the field. The event also included university speakers from financial aid, scholarship, and the Career Development Center.

This event is a part of ITRI's mission to promote student interest in the study of information technology and facilitate the exchange of information between the academic and business communities. It has been a great event for providing parents and educators with information about the field of IT and the University of Arkansas. This is a great venue to encourage students to choose information systems as a field of study and a career.

#### IT Day for Students

The 4th Annual Spring IT Day for students was held on Wednesday, March 16, 2011. It was the largest such event to date with more than 500 high school students in attendance. The institute brings students to campus to learn cool things about the field of Information Technology, the Walton College, and our board member companies with whom we've established good relationships.

Dr. Moez Limayem welcomed more than 500 high school students and teachers to campus with a vibrant presentation about the power that social media has on the world today. Several board member companies exhibited cool technologies used in their businesses.

Students were divided into smaller groups of approximately 35, and Walton College faculty, staff, and Ph.D. students led them to presentations given by representatives from our board member companies. Other faculty and staff served pizza and drinks to students.

The event closed with a short recap of activities and a drawing for door prizes provided by ITRI board members for this event. Students won printers, laptops, iPods, iPads, TVs, and gift cards as reminders to them that the field of information technology needs bright young students.

This event requires the coordination of numerous people and logistics to provide the best experience for the students. The staffs of both the ITRI and the ISYS departments would not be able to accomplish this without the support of other Walton College departments and Outreach Centers. Encouraging students to select information systems as a field of study and a career is what this event is designed to do.





















### IT EXECUTIVE FORUM SEPTEMBER 22, 2010

The IT Executive Forum was held immediately following the Fall ITRI Board meeting on September 22, 2010. IT executives from companies such as Dillard's, Inc.; Tyson Foods, Inc.; Southwestern Energy Company; Hewlett-Packard Company; Wal-Mart Stores, Inc.; and others fielded questions from high school and college students regarding the rewards of being an IT professional, job availability, skills needed, and any other questions to gain insight about a career in information technology.

Students in attendance were eligible for door prizes provided by our board member companies. Students could win prizes ranging from gift cards to iPads or TVs.

### BUSINESS CAREER Fairs

The Fall Business Career Fair brought in more than 625 students investigating the job market available with more than 60 companies in attendance. Forty-two of the 60 companies were recruiting for all business majors and 9 of those companies were specifically recruiting for information systems students. It is clear we must continue to develop and conduct recruiting programs to attract students into the field of information technology.

The Spring Business Career fair was held on Tuesday, February 15, 2011. The event attracted 74 companies and approximately 650 students. Of those companies, 20 indicated they were recruiting for ISYS majors. This event format blends a traditional career fair with a networking event. Numerous employers provided information about job and internship opportunities with their companies while visiting with interested and proactive students.

The Business Career Fair Express was held in the East Indoor Club of Reynolds Razorback Stadium. This exciting venue provides a panoramic view of the Razorback football field.





## EXECUTIVES IN The classroom

The Executives in the Classroom program brings leading industry professionals to speak in the classroom each semester to share their expertise and experiences. This time in front of the students is valuable to everyone involved - faculty members, students, and our board member companies. It is an opportunity for board member companies to promote their company to the students and for the students to learn about the companies and their cultures. This past year, we had several representatives from our business partners speak to classes on a range of IT topics. This is a great program that promotes student interest in the field of information technology and facilitates the exchange of information between the academic and business community.





# 7th Annual Women in IT Conference

The 7th Women in Information Technology Conference was held on Thursday and Friday, March 10-11, 2011. The conference was entitled, "Discovering Tomorrow Together - How the IT Woman of the Future is Created Today".

In the past, the event has been a one-day conference. To improve the value to our constituents, we responded to feedback and added another day to the event. Day one of the conference included a tour of our RFID Research Center Laboratory and an award reception honoring the recipients of the Regional Aspirations in Computing Award.

Day two of the conference consisted of large-group speaker sessions instead of breakout sessions. This was another change made in response to participant feedback. Past attendees indicated they would prefer large-group sessions so that all participants received the valuable information from every session instead of having to choose which sessions to attend.

> Shelia Posey, a business analyst from Tyson Foods, Inc. and Amy Robinson, co-owner of Springline Consulting, were kind enough to facilitate day two, which featured an amazing lineup of great speakers. The program opened with Dr. Moez Limayem who welcomed the participants and briefly described the significance of the conference.

Our keynote speaker, Jill Puleri, vice president, of Global Industry Leader for Retail, Global Business Services for IBM followed the welcome. In her role with IBM, Puleri is responsible for the strategy and development of offerings and solutions that address retailer's pain-points around the store, merchandising, supply chain and multi-channel. She has more than 20 years of experience with clients in the retail industry having held various leadership positions in sales, marketing and consulting. She spoke about the new age customer and how IBM will try to capitalize on the way this new-age customer shops. She also spoke about the importance of the role that women will play.

Ruthe Farmer from the National Center for Women in Information & Technology spoke about the Aspirations Awards that were presented the night before the conference. She said that it is critical to inspire young women to learn about and become engaged in Information Technology. She also discussed the role that participants of the conference could play in this area and encouraged them to get involved.

#### Other great speaker sessions:

Penelope Prett, senior executive of outsourcing at Accenture, spoke about managing complex engagements and how to avoid some common mistakes in the process. The tips she provided could be implemented with any size project.

Janet Ply, Ph.D., PMP and co-founder of Pendere, Inc., spoke about the value of project management with the help of Stacy Jaycox, director of the Project Management Office of Tyson Foods, Inc.

Cynthia Pettus-Puryear, senior strategist at Mitchell Communications Group, spoke on the topic of strategic communication. ITRI board member companies, through updating the Top 10 IT Priorities list, have shown that it is imperative to have IT at the table when organizations develop their strategic plans. Cynthia provided valuable insight into how to make that happen.

Belinda Watkins, vice president of Network Computing and Information Technology Operations at FedEx Corp., spoke about the advantages of cloud computing, which has been a hot topic in the last couple of years. For the first time this year, ITRI Board members added an appendix to the Top 10 IT Priorities document and created the first Top 10 Technologies list. Cloud computing is number three on this list. Belinda Watkins provided valuable information to participants in reference to things to be aware of when moving to the cloud.

Theres Steifer, director of the Center for Management and Executive Education at the Walton College at the University of Arkansas, talked about leadership and entitled her talk "Leading From Within/Putting it All Together." She discussed relationships, roles, goals, and processes that are important for any leader to pay attention to when working with a group of people to solve problems.

The conference ended with a panel discussion led by Melanie Arterbury, senior manager within the practice area of Organizational and Leadership Development from Mitchell Communications Group. She led a discussion about how the IT women of the future are created today. Participating on the panel:

- Moderator Melanie Arterbury, Mitchell Communications Group
- Brandy Mitchell, vice president of product development Arvest Bank Operations
- Kristen Williams, leader of health and wellness and point of sale innovation Wal-Mart Stores, Inc.
- Sharon Moura, vice president,global information technology and customer services -Tyco Retail Solutions
- Barbara Sugg, vice president, information technology Southwest Power Pool

Approximately 150 people attended the conference, which continues to provide participants with valuable information about emerging technologies, communications and leadership, and the importance of supporting women in the field.





### TECHNOLOGY AWARENESS Program

The Technology Awareness Program (TAP) was held July 10-15, 2011, the eighth year that the ITRI, the Walton College Office of Diversity and the college's Department of Information Systems have hosted TAP. The event exposes high school students from underrepresented groups, mainly women and minorities, to the field of information technology. It encourages them to purse a degree in the field from the University of Arkansas, and demonstrates that by doing so they have the opportunity for excellent job placement with our partnering companies.

We kicked off the program by having students attend a Technology Fair that featured exhibits from several ITRI board member companies. These companies demonstrated technologies that are currently being used in their industries. The students also toured the Walmart Innovation Center, where they saw new, cutting-edge technologies that companies hope to implement in the next five to 10 years. Having students attend these two events exposes them to real world applications of technology and helps generate ideas for the student projects. This year, the students were challenged to figure out a technology-based solution for enhancing the customer experience of a selected company.

On the final day of the program, students showcased what they had learned by presenting their ideas to representatives from the ITRI board, faculty and staff from the Walton College.

When asked what the week-long experience meant to them, many students said they now planned to major in Information Systems. One student submitted her application to attend the University of Arkansas and major in Information Systems, even though she already had plans to be on another campus this fall. Stories such as these show the true value of the Technology Awareness Program.





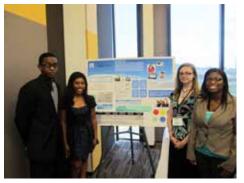














#### Kelsey Brown Project Analyst Walmart Stores, Inc.

After experiencing the enthusiasm displayed towards technology by her father and Dr. Moez Limayem, recent Walton College graduate Kelsey Brown decided to pursue a degree in information systems. What excites Brown the most about information systems "is the fact that it is always changing. Information technology is a field that is driven by innovation."

After interning with Walmart during her final summer of school, Brown took a full-time position as a project analyst for the company in July of 2011. She enjoys the daily challenges this job presents and feels her coworkers provide all the support she needs. "I believe Walmart's strong collaborative culture is what keeps the company thriving and the daily work enjoyable. And of course, getting to wear jeans on Friday is a nice perk," Brown said.

Brown credits the Walton College for providing her with an educational background that relates to business as well as technology. "These skills are fundamental in just about any industry, especially information systems," she said.

When asked what courses benefitted her most, Brown said, "The professors are what really make a difference." The four professors she mentioned were, "Jeff Mullins for teaching me that you learn most from your failures; Susan Bristow for truly caring about her students and showing strong dedication to teaching SAP; Dr. Scott O'Leary-Kelly for teaching great ways to put leadership into action; and Dr. Cronan for helping me take all that I had learned and apply it in a real world manner."

Brown also praised the programs provided by the Walton College Career Center, such as Leadership Walton. She thanked the career center for "all of the resources, knowledge and experience it provided."

Brown hopes to use all the information provided by the Walton College to bring value to Walmart. "I hope that one day I can be involved in a strategic position that allows room for innovation and process reengineering," she said.

## INTERACTION

The ITRI seeks to bridge the gap between academia and IT professonals as well as the gap between individual IT organiziations. When we share our knowledge, everyone benefits.

## RFID BOARD OF ADVISORS Meeting

The RFID Research Center holds advisory board meetings to keep the members updated on the center's activities. The October board meeting was held on the 12th in the Reynolds Center Auditorium in conjunction with the RFID Forum 2010. Lab/ equipment updates were given by Maurizio Turri, while project updates were given by Justin Patton, David Cromhout, and Maurizio Turri. Dr. Bill Hardgrave was in town to attend the RFID Forum and provided input regarding the formation of the Item-Level Committee being created to help establish a course of action for the adoption of RFID technology throughout the retail supply chain.



In the February 22nd meeting, the center updates were given by Senthil Kumar and Maurizio Turri.

They talked about the new equipment being used at the laboratory, as well as the Arkansas Radio Compliance (ARC) Center that has been added to the RFID website. David Cromhout and Justin Patton discussed the current projects underway in the Center and the branding of the center as it moves into the next phase of its existence. Kevin Rose, the associate director of the Center for Management and Executive Education, discussed plans for creating an RFID Certificate program with the help of David Cromhout and Justin Patton.

The meeting held on June 22nd included a breakfast with students who work in the RFID Research Center. This portion of the meeting provided an opportunity for board members to meet the students and learn about their aspirations. The meeting also included a discussion lead by Herb Markwardt of Tyson Foods, Inc. on a use case study of pick/pack and how RFID can help with the process as it relates to inventory, pickers, and verification of products. Cromhout gave a quick update on the Supplier ROI study, while Patton reviewed the RFID Research Center's six years of existence and spoke about its future.



Since the ribbon cutting ceremony for the opening of the Laboratory at Hanna's Candle Factory on June 10, 2005, the Center has accomplished many things by concentrating on the business case and business value of RFID instead of the development of the technology. With the core focus in the area of research, feasibility testing, education, and students the center has generated 18 white papers that have been downloaded more than 17,000 times, and developed modern testing methods which led the lab to become the only academically accredited testing center. Each year more than 1000 visitors come to the lab for tours. Center employees have made more than 200 presentations worldwide. One of the most important facts about the center is the fact that it is full staff with a mixture of engineering and business school students both from the graduate and undergraduate level. Justin Patton, David Cromhout, and Senthil CP were all student at the lab at one time.

## ITRI BOARD OF Advisors Meetings

The ITRI holds two advisory board meetings each year to provide updates to the board members on programs and initiatives of the institute and to solicit advice and direction for the future. The fall advisory board meeting was held on Tuesday, September 22, 2010. Dr. Moez Limayem welcomed the attendees and gave a brief overview of the agenda. He then spoke about his belief in the importance of board member involvement as the institute moves into the next 10 years of providing support to its board member companies. The agenda of the fall meeting included updates from the ISYS and ITRI departments as well as an enterprise systems update. In Dr. Limayem's closing remarks, he led a discussion on stressing the research provided by the ITRI and strengthening the relationship that the ITRI has with its board member companies.

The spring advisory board meeting was held on Tuesday, April 12, 2011. As with every meeting, updates were given on ITRI activities and the ISYS department. This meeting included the annual process of modifying and updating the Top 10 Issues list. The discussion led to the changing of the name of the document from Top 10 Issues to Top 10 Priorities. The board members felt the change put a more positive outlook on the items that are at the forefront of their minds for the upcoming year.

The spring meeting also included a discussion about the creation of the new Business Analytics Certificate offered through executive education. This program will provide participants with enhanced skills in the fields of business intelligence and analysis by addressing common issues such as collecting data and deciphering results in order to make and/or support decisions related to products, processes and procedures, operations, and trends. In accordance with stressing research topics that are of interest to board member companies, the board members were split up into groups and asked to come up with research topics that they feel are important to their industries. The event closed with a private meeting between board members and a select group of students. The session was held without the presence of any university officials so that the students could speak freely about their experience in the Walton College.











### Aspirations in Computing Award Reception

Thursday, March 10, 2011

With guidance from the National Center for Women & Information Technology (NCWIT), the institute conducted its first Aspirations in Computing Award to recognize outstanding high school students for their computing-related achievements.

This program is part of the effort to promote the study of information technology (IT) and to increase the number of high quality, diverse students. By generating visibility for these young women, the award encourages continued interest in computing, increases awareness of the gender gap in computing and IT, and emphasizes the importance of women's participation in computing.

Determining the award winners involved not only the high school students, but also their parents/guardians, their high school teachers and volunteer reviewers from our member companies.

The award winners were selected in December 2010, and plaques were awarded at a reception March 10th as part of the 2011 Women in Information Technology Conference. Each winner received a plaque for her home and one for her high school. They were invited to participate free of charge in the Technology Awareness Program and the Engineering Summer Camp which are summer programs held at the university. The award winners received gifts provided by board member companies and the NCWIT.

The program included a welcome from Dr. Javier Reyes, associate dean for undergraduate studies. Ruthe Farmer, director of strategic initiatives, National Center for Women & Information Technology, introduced the awards and presented the Affiliate Educator of the Year award. The keynote speaker was Sharon Moura, vice president of global information technology and customer service, Tyco Retail Solutions.

Awards were presented by: Kristen Williams, Walmart Stores, Inc.; Brandy Mitchell, Arvest Bank Operations; Barbara Sugg, Southwest Power Pool; Ambra Starr, ConocoPhillips; Shelia Posey, Tyson Foods, Inc.; Tracy Black, J. B. Hunt Transportation Services, Inc.

Autumn Parker of the Sam M. Walton College of Business, Dr. Barbara Lofton of the Walton College Office of Diversity Programs and Eric Specking from the College of Engineering spoke to the students about attending the university. Dr. Moez Limayem, associate dean for research and graduate programs, made the closing remarks.

The event encouraged young women's interest in information technology and brought visibility to the industry and the University of Arkansas.



The 2010-2011 Affiliate Educator Award was given to Kathleen Johnson of Springdale High School for her efforts in exposing students to the field of IT. In 2009, Johnson was part of the team that pioneered the Information Technology Academy at Springdale High School. The IT Academy has seven majors: Information Support and Services, Programming/Software Engineering, Web Site Programming & Design, IT Accounting, IT Management, E-Commerce, and Graphic Arts. The academy offers individualized student mentoring, field trips, guest speakers, opportunities for community service, monthly meetings, and contacts with local technical institutes (NTI), community colleges (NWACC) and the University of Arkansas.

Johnson has helped to expand the IT Academy to more than 200 students and has increased the enrollment of females in technology courses.







### Social Media in Business Seminar

August 19, 2010



The ITRI hosted a seminar on Social Media in Business. Social media has become a more conventional way in which people share their lives online. Not only are they talking about their personal lives, but they're also talking about brands and products and influencing customers' buying decisions.

This seminar addressed the questions What is social media and why is it important? What types of social media are there? How do I develop a social media strategy for my organization?



Collin Condray facilitated the seminar. He is a social media professional with a passion for digital

space. He is currently a digital strategist at Saatchi and Saatchi X and has been involved in web development for 13 years. He has also worked in the retail analysis field as a business analyst for 3M on the Wal-Mart Stores, Inc., account and as a category manager for Tyson Foods, Inc., on the SuperValu account. Collin is a graduate of the University of Arkansas with a BS in physics and mathematics and an MBA.

We look forward to conducting future seminars like this one that will benefit our board member companies.

### **Business Intelligence Roundtable**

November 8, 2010

Business Intelligence (BI) has been a hot topic with our board member companies over the past several years. It was ranked number 7 in the 10th Annual Top 10 IT Priorities list that was created this past spring and ranked number 4 in 2007. On November 8, the ITRI hosted a roundtable on BI for representatives from our member companies. Roundtables allow our member companies to send representatives to share information about a particular topic. Through the sharing of information, attendees can learn from each other. One of the benefits of being a board member is finding out how things are handled in the other companies in an open, non-sales pitch, non-competitive, non-threatening atmosphere.

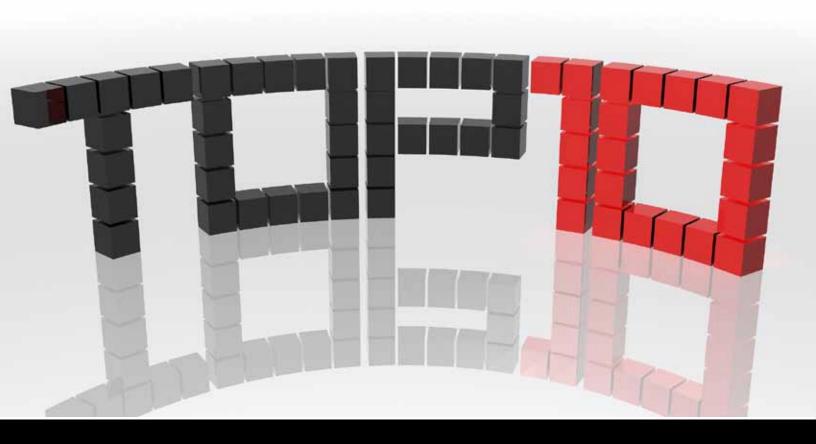
Twenty-five people attended the roundtable. Melody Playford, enterprise data solutions director for Dillard's, Inc., facilitated the discussion that covered BI as it relates to data governance and its impact, the next generation of BI, politics of BI, and making an investment in hiring, training, and outsourcing. The Walton College currently offers a BI certificate to its undergraduate students and is currently working on a BI certificate for non-students. More information will follow about the certificate as it becomes available.







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The ITRI Board of Advisors modifies and updates the annual Top 10 list each April. Rather than focusing on technologies that change rapidly, this list reflects those things currently on the minds of the leading IT executives of 16 major public and private organizations. First produced in 2001, the list represents more enduring priorities that are not as volatile as pure technologies, such as programming languages or operating systems. In the past, these have been considered and titled as the "Top 10 IT Issues." Due to the negative connotation with the word "issues," the board agreed to change the title to the "Top 10 IT Priorities." The list acts as a barometer for activities in these organizations and serves as a signpost for the academic community for research and curriculum priorities. The ITRI creates the list after listening to IT executives discuss and rank priorities that are currently at the forefront of their organizations. This information is meshed together to form the Top 10 IT Priorities.

Next are snippets of each item. You can read more about these topics on our website: itri.uark.edu

#### No. 1. Corporate Strategic Alignment

2010 Rank: No.12009 Rank: No. 52008 Rank: No. 12007 Rank: No. 12006 Rank: No. 22005 Rank: Not ranked

Corporate Strategic Alignment once again is back at the top of the list. Since its emergence in 2006, it has never been ranked below No. 5 and has been ranked No. 1 four of the six years it has been on the list. This truly shows that it is imperative to have IT at the table when an organization develops its', strategic plans. Corporate Strategic Planning's continued presence at the top seems to be fueled by the resurgence of the economy and the corresponding need to examine strategies for capitalizing on this upswing. Organizations are now planning for future growth with particular emphasis on the increasing reliance on IT.

#### No. 2. Rationalization & Modernization of Applications

2010 Rank: No. 4 2009 Rank: No. 3 2008 Rank: Not ranked

Last year this item was ranked No. 4 on the list, and it had previously been listed as "Streamlining Applications." The name change emphasizes the focus of a two of things regarding streamlining applications. One is to make sure there is strong justification for the things being done, and the other is to be sure to take advantage of any new innovative way to accomplish the task. Just as in the last couple of years, though the economy is improving, the need to streamline applications to help reduce costs and increase productivity remains an important part of improving productivity.

#### No. 3. Speed of Business/Project Management

2010 Rank: No. 3 2009 Rank: No. 2 2008 Rank: No. 2 2007 Rank: No. 3 2006 Rank: No. 6 (Speed of Business); No. 4 (Project Management)

Like this year's number one item (Corporate Strategic Alignment), the Speed of Business and Project Management have been hot topics since their emergence on the Top 10 list. Organizations indicate that the speed of business continues to accelerate, and IT as a strategic partner must support the speed of the marketplace. In today's rapidly changing economy, IT must be able to respond quickly and appropriately. Specifically, IT should help reduce the time to market. When an organization recognizes an opportunity for competitive advantage, IT must anticipate and respond in a timely manner to provide organizational agility. The speed of Business/Project Management allows business units to change rapidly and to take advantage of new business opportunities within the core business section. Marketing initiatives and revenue growth are supported if organizational agility is attained.

Project management enables speed of business. The increasing demand for speed of delivery, quality of delivery, effectiveness and efficiency of the use of human resources, and appropriateness of governance highlights the need for better project management.

#### No. 4. Rationalization & Modernization of Infrastructure

2010 Rank: No. 9 2009 Rank: No. 4 2008 Rank: Not ranked

Previously this item was listed as "Lowering the Cost of Infrastructure" and was ranked No. 9 on the list. The importance of this item is reflected by the jump that it made to No. 4 on this year's list. The name change echoes the significant emphasis on the priority of justification and modernizing while lowering the cost of infrastructure. It is important to make sure there is strong justification for actions taken and to be sure to take advantage of any new innovative ways to accomplish the tasks.

We now look toward the future and seek to address ways to continue to lower the cost of infrastructure in the long term. Some issues raised with regard to this topic; include reducing the cost of commodity services and examining the move to shared services.

#### No. 5. Governmental Regulations and Compliance

2010 Rank: No. 22009 Rank: No. 102008 Rank: No. 102007 Rank: No. 102006 Rank: No. 102005 Rank: No. 22004 Rank: No. 62003 Rank: No. 82002 Rank: Not ranked

Governmental Regulation and Compliance moved down a few spots to No. 5 but remains a topic of importance. The health care bill remains a major concern. The effect that the new legislation will have on small and big businesses alike is still forthcoming. Additionally, a predicted increase in both IT standards and compliance requirements with regard to record keeping increases the importance of this issue.

#### No. 6. Business Intelligence

2010 Rank: No. 7 2009 Rank: No. 9 2008 Rank: No. 6 2007 Rank: No. 4 2006 Rank: No. 5 2005 Rank: Not ranked

The topic of Business Intelligence continues to grow across the country. It describes the collection, storage, and analysis of data to help organizations make better decisions. Organizations encounter considerable difficulty when translating large quantities of data into quality information. Information is then turned into knowledge, which encompasses decision support, query and reporting, online analytical processing, statistical analysis, data warehousing, and data mining.

#### No. 7. Security and Privacy

2010 Rank: No. 6	2009 Rank: No. 7	2008 Rank: No. 5	2007 Rank: No. 2
2006 Rank: No. 1	2005 Rank: No. 1	2004 Rank: No. 2	2003 Rank: No. 2
2002 Rank: No. 4	2001 Rank: No. 6		

Security and Privacy continues to be a top priority facing IT executives. Although it isn't at the top of the list, it will always be a critical component of concern as companies must stay ahead of hackers, both internal and external. Information security breaches in major organizations and governmental agencies threaten the exposure of sensitive data and bring attention to an already publicized area. Almost all companies, regardless of the industry, are aware of the importance of and need for proper security for the protection of an individual's privacy. Cloud computing was also mentioned in the discussion as it relates to standards in the area of security and privacy.

#### No. 8. Innovation

2010 Rank: No. 82009 Rank: No. 62008 Rank: No. 72007 Rank: No. 72006 Rank: No. 8 (as New Technology Investment Decisions)2005 Rank: Not ranked

Innovation is an important topic to IT organizations and definitely belongs on the list, even though it has suffered the past few years because of the impact of the economy. Companies have had to cut back on the number of projects and select projects with firm justification. So, how does one value "innovation?" IT groups are often viewed as facilitators of innovation. Yet, with many demands on resources, IT organizations continue to prioritize projects based on their potential to provide maximum return on investment (ROI). Unfortunately, measuring ROI on products and services that primarily provide intangible benefits, even for strategically relevant items, presents a hefty challenge. IT departments also evaluate new technology investments within their portfolio of projects to analyze the risk/reward tradeoff and the strategic nature of the project as they make the investment decision.

#### No. 9. IT for Sustainability

Sustainability is a topic that has been around for many years and has been associated with the efforts of humans to take care of our home, planet Earth. In recent years, the topic has started to merge into other areas. Technology happens to be one of those areas, and for the first time it jumps on to the Top 10 list. "Sustainability" refers to the ways that IT organizations can support the efforts that the different business units have developed towards becoming more sustainable. The topic means more than just building more efficient data centers. It means using technology towards the sustainability movement.

#### No. 10. Increasing Quantity and Diversity of IT Majors

2010 Rank: No. 10 2009 Rank: No. 8 2008 Rank: No. 3 (as increasing IT majors) and No.8 (as increasing diversity) 2007 Rank: No. 5 2006 Rank: No. 4 (as part of Information Technology Workforce Issues)

Increasing the quantity and diversity of IT majors remains at No. 10 this year. It is still a priority for the academic world as well. Board member companies are not satisfied with the number of high quality students available for hire by their companies. The demand for highly-qualified diverse students has increased due to the reduction in staff that many companies made because of the economy. Because the number of graduates lags the industry demand cycle by four to five years - the time it takes someone to get an undergraduate degree - the shortage is likely to be an issue for the foreseeable future.

### WALTON COLLEGE INFORMATION SYSTEMS DEPARTMENT



#### John Aloysius, Associate Professor

Ph.D., Temple University, Operations Management Behavioral Operations Management, Behavioral Economics, Behavioral Decision Making

#### Susan Bristow, Instructor MBA, University of Arkansas

#### Paul Cronan, Professor

M.D. Matthews Endowed Chair in Information Systems DBA, Louisiana Tech University, IS/Management Computer/Professional Ethics, Performance Analysis and Effectiveness

### Christine Davis, Executive in Residence

Ph.D., University of Arkansas, Information Systems

#### Fred Davis, Professor

David D. Glass Chair in Information Systems Ph.D., Massachusetts Institute of Technology, Management User Acceptance of Information Technology

#### David Douglas, Professor

Ph.D., University of Arkansas, Computer Modeling Distance Education, Object-Oriented Technologies, E-Commerce

#### Thomas Jones, Professor

Ph.D., Virginia Polytechnic Institute and State University, Statistics/Industrial Engineering Applications of Statistical and Operations Research Techniques

#### Moez Limayem, Professor

Ph.D., University of Minnesota, Business Administration IT Adoption and Usage, Customer Relationship Management, Knowledge Management Walton College Professorship in Information Systems

#### Likoebe Maruping, Assistant Professor

Ph.D., University of Maryland, Information Systems Agility/flexibility in Software Project Teams, Implementation of New Technologies in Organizations

#### Beverly McDaniel, Instructor

M.Ed., University of Arkansas Educational Technology

#### Jeffery Mullins, Executive in Residence Masters, University of

Arkansas, Information Systems

#### Scott O'Leary-Kelly, Associate Professor Ph.D., Texas A&M

University, Production and Operations Management Manufacturing Flexibility Issues, Supply Chain Management Lionel Robert, Assistant Professor Ph.D., Indiana University, Information Systems Virtual Teams, Virtual Communities

#### Pankaj Setia, Assistant Professor

Ph.D., Michigan State University, Information Technology and Management Creating and leveraging IT capabilities for superior organizational performance.

#### Bill Thompson, Adjunct Instructor Ph.D., Georgia State

University, Management

#### Viswanath Venkatesh, Professor

George and Boyce Billingsley Endowed Chair in Information Systems Ph.D., University of Minnesota, Business Management Electronic Commerce, Gender and Age Differences in Technology Adoption and Usage

#### Achievements in Teaching, Research, and Public Service

David Douglas, Information Systems professor and former department chair, served as interim chair for the 2010-2011 academic year. While serving as interim chair, he recruited two new assistant professors, Christina Serrano and Tracy Sykes, and helped select a new department chair, Rajib Sabherwal. As director of Enterprise Systems, Douglas played a key role in a significant donation by IBM of a fully configured IBM z10 Business Class system with 19 terabytes of storage. He also played a key role in the donation of a new Teradata system both hardware and software.

Douglas also was key in two big events this year. For SAS Day, he was instrumental in getting Dr. Jim Goodnight, chief executive officer and founder of SAS, to present. For IBM Day, Douglas arranged for Jim Stallings, general manager of global markets in IBM's Systems and Technology Group, to present. Stallings is responsible for setting and driving the global sales for IBM's \$21 billion hardware business unit.

Douglas also served as panelist on BI Congress – a pre-ICIS Conference program held on Dec. 11, 2010. ICIS, the International Conference on Information Systems, is the field's most prestigious conference. It was held in St. Louis on Dec. 12-15.

Douglas and Paul Cronan led the Greece Study Abroad Program in Summer 2011 with 18 student participants.

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### GARY COOPER Cio Tyson Foods, inc

The success of the ITRI depends greatly on the support of its board member companies. Not only do they provide support necessary and funding, but they also provide needed direction for the Institute. Gary Cooper of Tyson Foods, Inc. has been a valued member of the ITRI board since its inception in 1999. Gary began his career at Tyson 26 years ago as a systems administrator and is now senior vice president and chief information officer. Prior to joining Tyson, Gary worked at University Computing Company in Dallas in a technical support role.

When asked what is most valuable about his and Tyson's relationship with the ITRI, Gary said, "I really look at it as the intersection of three things: CIOs and their concerns, agendas, etc.; research at the U of A and how it fits into the CIO agenda (or vice versa); and the educational component, i.e. the resulting students - the folks we hire, and how we can influence that process."

He also added, "it's good to hear the perspective of other industries, what they're concerned about." "It's also good to have those relationships in advance - on occasion we reach out to each other with various concerns, issues, etc." Gary said he feels that these relationships are honest and open, and that they allow many industries with different pain points and challenges to find common themes in the technology space that bring them together.

Gary expanded his relationship with the university by teaching a class this past spring. He said he enjoyed how much the students were engaged in class and that he would like to see students work toward understanding how to maximize technology for the successful business outcomes.

As one of the founding ITRI board members, Gary has been influential in the evolution of the Institute, and for that the ITRI salutes him in this year's member profile.

### **BOARD MEMBERS**

David Guzman Senior Vice President - Information Technology Acxiom Corporation

Joseph Smith Senior Vice President and CIO Arkansas BlueCross BlueShield

Lindy Bowie Deputy Director Arkansas Department of Information Systems

Brandy Mitchell VP, Director of Product Development Arvest Bank Operations, Inc.

Marty Schoenthaler General Manager, Information Services ConocoPhillips

Leo Sharum Director of Information Systems Data-Tronics Corp.

Woody Chin Vice President and CIO Dillard's, Inc.

Govan Hornor EIS IT Operations FedEx

Jeremy Wilson Account Executive GDH Consulting, Inc. Charlie McMurtry Senior Vice President - IT Hewlett-Packard Company

Sharon Moura VP, Global Customer Service and Information Technology at Tyco Retail Solutions at Tyco International

Kay Palmer CIO & Executive Vice President J. B. Hunt Transport Services, Inc.

Dee Hency CIO Southwestern Energy Company

Barbara Sugg Director, Information Technology Southwest Power Pool

Joe Rarey Director of Teradata's WalMart Global Support Team Teradata

Gary Cooper Senior Vice President and CIO Tyson Foods, Inc.

Luke McCollum Vice President, Home Office Effectiveness Wal-Mart Stores, Inc. Anne O'Leary-Kelly Professor Management Sam M. Walton College of Business University of Arkansas

Dr. Moez Limayem Sam M. Walton College of Business University of Arkansas

Fred Limp Director of Center for Advanced Spatial Technologies University of Arkansas

Craig Thompson Professor Computer Science/Computer Engineering University of Arkansas













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### STAFF PROFILES



#### Moez Limayem, Associate Dean for Research & Graduate Studies

Moez Limayem is associate dean for research & graduate studies and holder of the Edwin and Karlee Bradberry Chair and the Walton College Professorship in Information Systems. He was previously chair of the Information Systems Department at the Sam M. Walton College of Business. Before joining the Walton College, he taught at HEC Lausanne, taught and served as program coordinator for the BBA Electronic Commerce program in the information systems department at the City University of Hong Kong, and served as chair of the Management Information Systems at Laval University in Canada.



#### Eric Bradford, ITRI Managing Director

Eric Bradford earned a Bachelor of Science in Business Administration and a Masters of Information Systems from the Walton College. He was a defensive back on the Razorback football team from 1984 to1988. He joined the Walton College from Tyson Foods, Inc. where he was a business analyst working in the information systems department of the fleet group. He taught introduction to computers and worked for the University of Arkansas athletics department while getting his master's degree. He also worked in Dallas, Texas. for Central and South West Service, Inc., the parent company of Southwestern Electric Power Company.



#### Justin Patton, RFID Research Center Managing Director

Justin Patton earned his undergraduate degree in physics from Hendrix College and his master's degree in Computer Engineering from the University of Arkansas. As managing director, he oversees the world's only academic EPCglobal-accreditted lab in exploring various industry research and implementation areas with several RFID partner organizations, including technology vendors, retailers and suppliers. Patton also serves as co-chair of the EPCglobal Performance Test Center Council.



#### David Cromhout, RFID Research Center Research Director

Prior to his position at the RFID Research Center, David Cromhout served for five years as the project coordinator for the Nanotechnological Materials Research Laboratories in the Department of Mechanical Engineering. He earned a Bachelor of Science in Business Administration in transportation and logistics from the Walton College in 2007.



#### Senthilkumar CP RFID Research Center Technical Director

Received his B.E. from Bharathiar University, Coimbatore, India in 2004 and an M.S. and Ph.D. in Computer Science from University of Arkansas – Fayetteville in 2007 and 2010 respectively. Senthil's projects have a common goal of making RFID adaptation more secure, efficient, reliable and useful. Senthil's current focus is on Arkansas Radio Compliance, the industry's first program that is streamlining the adaptation of RFID tags in a multi-partner RFID supply chain.



#### Carlan Pine, Program Specialist

Carlan Pine graduated from the University of Arkansas with a Bachelor of Arts degree in Communication. As program specialist, she serves as a business liaison with the board of advisors for the ITRI, coordinates the Institute's events and projects, and operates as the business manager for the ITRI and the RFID Research Center. Currently she is pursing her master's degree in workforce development.



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