The Institute for Business and Information Technology (IBIT) continues to excel in academic-industry engagement. This annual report summarizes how IBIT integrates industry perspectives with academic expertise in partnership with its corporate members.

2016-17 highlights include starting the small-company membership model with inaugural members Arcweb Technologies and DecisivEdge. It is also a pleasure to welcome Scholastic, Inc. as a new full IBIT member. Additionally, the combined MIS and IBIT Fox IT advisory board gained Todd Sprinkle, CIO of QVC, Chris Cera, CEO of Arcweb Technologies, and Sukumar Narayanan, President of DecisivEdge, as new members. Under the leadership of Chairman Bruce Fadem, the Fox IT advisory board has continued to support MIS students with close to $100,000 in scholarships awarded in 2016-17. It is also exciting to welcome Michael Bradshaw, EVP & CIO of NBCUniversal, and Dale Danilewitz, EVP & CIO of AmerisourceBergen, to the Executive-in-Residence program.

The Fourth Annual Temple University Alexion Analytics Challenge broke participation records and featured a keynote speech by George Llado, SVP and CIO of Alexion, while the national AmerisourceBergen Analytics Challenge attracted entries from more than 20 universities across the country. Our symposium “Digital Leadership: The Future for CIOs” featured Fox alum Rich Brennen, North American CIO Practice Leader and Partner at Spencer Stuart, as the moderator; other distinguished speakers and senior executive participants broke new ground outlining the role of the next generation of CIOs.

As cyber-security threats multiply, analysis, identification and remediation are becoming more critical than just playing defense. The Second Annual National Cyber Analyst Challenge and Conference powered by Leidos and organized by IBIT continued its focus on developing cyber analysts.

Finally, thanks are due to Fox IT advisory board member Andrea Anania for endowing a $100,000 scholarship to MIS.

We look forward to even better results this coming year.

Munir Mandviwalla
Executive Director
Institute for Business and Information Technology
The advisory board—composed of IT industry leaders—guides Temple University’s Fox School of Business in its mission to strengthen both its curriculum and its international reputation.

The Fox IT advisory board is chaired by Bruce Fadem, retired VP and CIO for Wyeth, and managed by IBIT. The board’s mission is to advise the Fox School—including the Fox School’s MIS department and IBIT—in realizing its vision of becoming an internationally ranked premier provider of integrative business and technology education and research. Board members meet tri-annually to focus on the following goals and responsibilities:

Education + Research + Promotion of the School
Development + Professional Development + Careers

Paul Amorello
Vice President Global IT Services & CIO
Campbell Soup Company

Andrea Anania
Retired VP & CIO
CIGNA

Atish Banerjea
CIO
Facebook

Michael Bradshaw
EVP & CIO
NBCUniversal

Jonathan A. Brassington
Founding Partner, CEO
LiquidHub Inc.

Chris Cera
CEO
Arcweb Technologies

Dale Danilewitz
EVP & CIO
AmerisourceBergen

Dinesh Desai
Chairman & CEO
Emteq, Inc.

Larry Dignan
Editor-in-Chief
ZDnet

Jeff Hamilton
SVP Business Technology
Pfizer

George Llado
SVP & CIO
Alexion

Sukumar Narayanan
President
DecisivEdge, LLC.

Niraj Patel
CIO
Lending Platforms, IBM

Kent Seinfeld
Retired SVP & CIO
Commerce Bank

Joseph Spagnoletti
VP & CIO
U.S. LBM

Todd Sprinkle
CIO
QVC, Inc.

Indicates New Member in 2016-2017
2016-2017 AT A GLANCE BY THE NUMBERS
3 NEW MEMBERS JOINED IBIT

10 CONTINUING MEMBERS

THE FOX IT ADVISORY BOARD HELD 3 MEETINGS THROUGHOUT THE YEAR ON KEY TOPICS

A RECORD-BREAKING 375 PEOPLE ATTENDED THE 2016 IT AWARDS

NEARLY $100,000 OF SCHOLARSHIPS AWARDED TO STUDENTS

MORE THAN 80 INDUSTRY PROFESSIONALS ATTENDED THE SYMPOSIUM ON DIGITAL LEADERSHIP

THE 4TH ANNUAL IT CAREER FAIR FEATURED MORE THAN 30 FIRMS

MORE THAN 400 STUDENTS PARTICIPATED IN THE 4TH ANNUAL TEMPLE UNIVERSITY ALEXION ANALYTICS CHALLENGE

2ND NATIONAL CYBER ANALYST CHALLENGE DEVELOPED EXPERTISE IN RISK ANALYSIS & THREAT IDENTIFICATION

22 UNIVERSITIES PARTICIPATED IN THE NATIONAL AMERISOURCEBERGEN ANALYTICS CHALLENGE

THE MENTORSHIP PROGRAM MATCHED 36 INDUSTRY EXECUTIVES TO MIS STUDENT PROJECTS
IBIT membership offers participating corporations the opportunity to leverage our knowledge, human capital, relationships and established network. Membership benefits include:

+ **Featured roles** at major events such as the upcoming symposium, “The Practical Path Forward – Cognitive Computing, AI, and Analytics”
+ **Sponsorship opportunities** for the Temple Analytics Challenge, National Analytics Challenge, Cyber Analyst Challenge and other special projects, such as the national Information Systems Job Index
+ **Customized** corporate education and professional training programs
+ **Featured spaces** at the Fox IT Career Fair and customized assistance with recruiting, including special events
+ **Working with world-class faculty** on research projects or commissioning student projects that leverage the insights of the digital generation
+ **Leveraging The IBIT Report** – a white-paper publication on relevant topics – and commissioning specific IBIT Reports on topics of mutual interest
+ **Professional development** opportunities, including speaking in classes, attending conferences and participating in curriculum design
+ **Mentoring MIS students** as part of the IBIT Mentoring program
+ **Visibility on campus** and in the profession – members are showcased in all print and web material
+ **Select executives are invited** to serve as Executives-in-Residence; select qualified individuals are invited to serve on the Fox IT advisory board
+ **Presenting named scholarships** to the nationally ranked students of the Fox School’s MIS department
+ **Featured roles** at the Fox IT Awards, an annual celebration and evening of recognition

**IBIT offers full membership for large and medium-sized firms, as well as a special program for small firms. Learn more at ibit.temple.edu/ibitmembers**
WELCOMING NEW MEMBERS

We are pleased to have gained the following companies as IBIT members and partners in integrating cutting-edge industry perspectives with the academic expertise at the Fox School of Business.

SCHOLASTIC, INC.
A multinational publishing, education and media company, Scholastic reported revenue of $672.8 million in 2016 and employs roughly 10,000 people.

ARCWEB TECHNOLOGIES
Philadelphia-based Arcweb Technologies is a digital product-development company focused on the finance and healthcare industries.

DECISIVEDGE, LLC
DecisivEdge, LLC, based in Newark, Delaware, is a business-consulting and technology services firm.
CONTINUING MEMBERS

IBIT members are educating the next generation of industry leaders and creating the forums for generating best practices in information technology.

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<td>QVC</td>
<td>Walmart Save money. Live better.</td>
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IBIT at Temple University’s Fox School of Business has launched a new initiative to engage small, innovative companies.

Arcweb Technologies and DecisivEdge, LLC have been invited as the introductory members of IBIT’s Small Company Membership Program, which aims to engage smaller firms with current members of IBIT.

“The Small Company Membership Program will create a more diverse, better-rounded membership comprising businesses of all sizes across multiple industries,” said Dr. Munir Mandviwalla, Executive Director.

Additionally, IBIT announced Chris Cera, CEO of Arcweb Technologies, and Sukumar Narayanan, President of DecisivEdge, as new members of the Fox IT advisory board. The board, which is comprised of top IT industry leaders, guides the Fox School in its mission of strengthening its curriculum and reputation as a nationally ranked provider of integrative business and technology education and research.

Philadelphia-based Arcweb Technologies is a digital product-development company focused on the finance and healthcare industries. DecisivEdge, LLC, based in Newark, Delaware, is a business-consulting and technology services firm.
EXECUTIVES IN RESIDENCE

The IBIT Executive in Residence program facilitates mutually beneficial engagement and collaboration between select industry leaders and Fox School of Business students and faculty.

The Fox IT advisory board held three meetings during the year, covering a wide range of subjects including:

+ The new IBIT Small Company Membership model
+ MIS computing needs
+ IT scholarship program
+ MIS Capstone
+ Digital Innovation Foundry
+ National Cyber Analyst Challenge and Conference
+ The new Analytics symposium
IBIT IMPACT

Students and faculty at Temple University’s Fox School of Business as well as experienced IT professionals benefit from the latest industry insights, standard-setting forums and valuable connections that IBIT facilitates.

The long-ranging impact of IBIT extends beyond simple professional networking between students, faculty and industry leaders. IBIT is also supporting promising students with awards and scholarships. It’s hosting national academic competitions and annual career fairs. It’s organizing symposiums that facilitate and disseminate helpful industry insights to students and professionals alike. In short? IBIT is sustaining and advancing excellence in information technology.

Through the integration of from-the-field knowledge from industry professionals and with the academic research prowess of the Fox School of Business, IBIT bolsters the development of IT best practices while fostering a new, well-trained generation of tech professionals. IBIT draws from the faculty and students of MIS, the expertise of the entire Fox and Temple University community, and some of the most innovative corporations in the world.

You can see the ways IBIT is continually impacting students, faculty and IT executives at ibit.temple.edu.
ANNUAL IT AWARDS

Congratulations to the winners of the Leader, Innovator and Distinguished Alumni awards, chosen by a committee of Fox leaders and previous honorees for their remarkable accomplishments in information technology.

FOX IT LEADER AWARD
Recognizing leadership in the use and development of IT in business

Michael Bradshaw
Executive Vice President & Chief Information Officer
NBCUniversal

FOX IT INNOVATOR AWARD
Recognizing innovation in applying IT to create business opportunity

Ned Moore
Co-founder, Chairman & Chief Executive Officer
Clutch

FOX IT AWARD FOR DISTINGUISHED ALUMNI
Recognizing a distinguished career in IT and a contribution to the community, industry or Temple University

Satbir Bedi
Chief Technology Officer
Scholastic Corporation

BREAKING RECORDS

In 2016, we had the largest attendance ever at the annual IT Awards reception with a record-breaking 375 attendees.
SCHOLARSHIPS

Every year, IBIT—along with several corporate partners—offers support and encouragement to promising students with a series of scholarships. Winners are celebrated at the Annual Fox IT Awards Reception.

FOX IT ADVISORY BOARD SCHOLARSHIP

The Fox IT Advisory Board Scholarship recognizes exceptional Management Information Systems (MIS) students with $5,000 tuition scholarships. Students must excel academically with a cumulative GPA of 3.7 or higher and must impress the committee with their potential for achievement and accomplishment, shown through an essay and letter of recommendation from a Temple faculty member or administrator.

IBIT CORPORATE SCHOLARSHIPS

The IBIT Corporate Scholarships recognize exceptional future Fox MIS students with $5,000 tuition scholarships. Again, students must excel academically and impress the committee with their potential for achievement and accomplishment. Below are the corporations that currently offer IBIT scholarships.

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In spring of 2016, Chief Information Officers from across the nation gathered at Temple University for the “Digital Leadership: The future for CIOs” symposium, an event organized by IBIT. Speakers included:

+ **Victor Fetter**, Managing Director and CIO of LPL Financial, the nation’s largest independent broker-dealer
+ **Christopher Keams**, Vice President of Information Systems & Global Solutions at Lockheed Martin, the global defense and electronics manufacturer
+ **Walter A. Yosafat**, Senior Vice President and Global CIO for Wyndham Worldwide, one of the world’s largest hospitality companies
+ **Jazz Tobaccowalla**, Vice President and CIO for Regeneron Pharmaceuticals, Inc., a $5 billion biopharmaceutical company
+ **Greg Meyers**, Corporate Vice President and CIO for Motorola Solutions, a $6.5 billion communications and public safety firm

Moderator **Rich Brennen**, the North American CIO Practice Leader and Partner at executive search firm Spencer Stuart, led the symposium through topics such as the practical importance of big data, digital innovation, and recruiting a new generation of tech-savvy employees.

Participants, who enjoyed spirited conversations with speakers throughout the day, rated the symposium highly. They commented favorably on the “high-level” insights and the variety of speakers and topics; some added that they wished the discussions were longer, with more concrete recommendations. Many noted that they appreciated the opportunity to engage with knowledgeable speakers and peers.
SEPTEMBER 2016
4TH ANNUAL IT CAREER FAIR

Each year, the Information Technology Career Fair connects high-performing students interested in internships and jobs with top employers looking to recruit graduates of the Fox School of Business MIS, IT Audit and Cyber-Security, Information Technology Management, Digital Marketing and ITIE programs. Highlights from the 2016 fair included:

+ $11,500 in scholarships raised by 31 firms
+ 214 students in attendance

FALL 2016
4TH ANNUAL TEMPLE UNIVERSITY ALEXION ANALYTICS CHALLENGE

The Fourth Annual Temple University Alexion Analytics Challenge, which was open to all Temple students and featured problems and data sets from Alexion, AmerisourceBergen and Merck, culminated in November of 2016 with student presentations and an awards ceremony.

Students won prizes of $500 to $2,500 out of a total pool of $12,000. George Llado, Senior Vice President and Chief Information Officer of Alexion Pharmaceuticals, presented the keynote speech and assisted in presenting the awards.

Since its inception four years ago, the competition has attracted more than 880 entries across the university. In 2016, there were 187 entries from 400 students from schools including Fox, College of Liberal Arts, Engineering and Tyler.

The challenge is organized by David Schuff, MIS Chair, and Laurel Miller, Director of IBIT, and offered in cooperation with the Office of the Senior Vice Provost for Undergraduate Studies and the General Education Program.

To learn about the Analytics Challenge visit analyticschallenge.temple.edu.
In August of 2016, a panel of industry experts chose 10 university finalists for the 2016 National Cyber Analyst Challenge (NCAC), an interdisciplinary competition supporting top students pursuing cyber-related degrees in the nation’s leading programs. Powered by Leidos and administered by IBIT, the competition sent the 10 teams to Phase 2 Advanced Cyber-Training and the subsequent Phase 3 Finals in Reston, Virginia.

The competition, which was developed to enhance students’ skills and inspire them to pursue careers in cyber security, focuses on analysis, threat identification and mitigation planning. The three-month, multi-phased project provides a fictitious cyber incident; teams submit a C-level presentation analyzing the incident and providing recommendations. Judges score contenders on technical proficiency, judgment and communication.

The finalists were Carnegie Mellon University, Howard University, Iowa State University, Penn State University, Syracuse University, Temple University, University of Maryland University College, University of South Florida, University of Texas at San Antonio, and Villanova University. Carnegie Mellon was the overall winner and recipient of a $25,000 prize aimed at supporting the development of students, faculty and curriculum. The other finalists received between $6,000 and $12,000 in awards.

Additionally, a new NCAC conference debuted in 2016. Geared toward schools interested in expanding their cyber programs, the conference featured both faculty and industry experts. Together, they helped identify a set of strategies designed to enhance cyber education and research through data-centric collaboration between industry and academia.

To learn more about the challenge and conference, visit cyberanalystchallenge.org.
Last April, a student team fielded by the MIS student organization won first place in the IBIT organized National AmerisourceBengen Analytics Challenge at the Eighth Annual Association for Information Systems (AIS) Student Chapter Leadership Conference and Competition at Brigham Young University. Notable details include:

+ The contest featured data challenges from Merck, Alexion, and AmerisourceBergen.
+ There were 43 entries from 22 different universities.
+ Finalists included Roger Williams University, Temple University, University of Georgia, University of Cincinnati and University of Michigan - Dearborn.

IBIT welcomed some of the world's foremost cyber-security experts for an engaging panel on cyber security's role in policies and happenings in the U.S. and the world. A trio of distinguished panelists offered insights on everything from managing federal and state cyber regulations to the newly expanded role of IT in protecting vital infrastructures.

Highlights of the event included:

+ A panel of experts comprised of a former National Intelligence Officer, Microsoft's Director of Government Security Policy and Strategy Team, and Temple Law School's James E. Beasley Professor of Law.
+ An audience of roughly 70, including participants from Temple's Information Technology Auditing and Cyber Security program (ITACS) and local industry professionals.
+ A partnership with the Beasley School of Law in organizing the event.
THE IBIT MENTORING PROGRAM: MATCHING STUDENTS WITH TOP INDUSTRY EXECUTIVES

In 2016-2017, dozens of experienced IT executives served as sounding boards and advisors for MIS capstone projects.

The goal of the IBIT Mentoring Program is to match experienced executives with student projects. The senior executives are usually members of the Fox IT advisory board or employees of IBIT member firms. The role of the mentor is to work with a team of students and provide ideas, feedback, and act as a sounding board for challenges and problems. The mentors also serve as judges for the final project competition, where students semester-long projects are evaluated during final presentations.

The benefit for mentors is the opportunity to engage with outstanding students; the benefit for students is the chance to leverage the experience of senior executives. The IBIT mentoring program is chaired by Bruce Fadem, Chair of the Fox IT advisory board.

In 2016-17, IBIT matched 36 industry executives to MIS student projects.

In spring 2017, the winning team was “Floating Bridges,” an application that combines 3-D mapping drones, bridge-assessment algorithms and augmented reality to give experts a cost-effective way to assess a bridge’s structural needs. Team members Alexandra Iacovetti, Nicholas Rivera, Bridget Silk and Benjamin Sulaiman were mentored by Fox IT advisory board member Joe Spagnoletti.

The fall 2017 winner was My.Di, a tool for monitoring digital identity. The team, composed of Kimberly Eastlake, Mia Jardine, Noah Mercado, Ryan Pace and Nodir Zakhidov, was mentored by Sondra Barbour, the inaugural recipient of the Fox IT Award for Distinguished Alumni.
THE IBIT REPORT

The IBIT Report provides actionable knowledge to industry based on rigorous academic research. Reports—written by academic and industry experts and reviewed by an industry editorial board—focus on a topic important to IBIT members.

IMPLEMENTING BOARD OVERSIGHT OF CYBERSECURITY

Rich Flanagan and Janet Yeomans

Many well-known and well-respected companies, when hit by hackers, have had their customers’ data security compromised along with their reputations. Others have not. Why?

While oversight of cybersecurity risk management should be a regular agenda item for boards of directors, many boards do not have the knowledge or experience to address it. This IBIT Report is a call to action for boards, urging them to think more carefully about their investment of time and attention in securing their information assets. For boards just starting out as well as those already attempting to deal with this issue, the authors detail the steps to define roles and responsibilities, influence corporate culture, develop processes, and establish partnerships.

THREATS AND OPPORTUNITIES IN GEOGRAPHIC INFORMATION SYSTEMS

David Lanter

The National Academy of Public Administration identified GIS data as essential to more than 50 percent of the nation’s domestic economic activities.

Geospatial data produced by geographic information systems (GIS) play a central role in domestic economic and governmental activities. Publicly shared geographic information detailing the locations and make-up of critical infrastructure have recently become a concern. This report outlines the unique opportunities, history and threats of GIS, and how to effectively handle information security risks associated with public GIS data.

EDITORIAL BOARD

Bruce Fadem  
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David Schuff  
Co-editor-in-chief

Kent Seinfeld  
Associate Editor

Laurel Miller  
Managing Editor

Munir Mandviwalla  
Publisher

Read the IBIT Reports at ibit.temple.edu/ibit-report
AIS—TEMPLE UNIVERSITY INFORMATION SYSTEMS JOB INDEX

A joint project between the Association for Information Systems and IBIT.

The forthcoming 2017 report will include data from 2,140 recent graduates from 58 universities across the U.S. The report will provide national placement rates, salaries, the most popular jobs, demographics, and the knowledge levels of recent information systems graduates in Bachelor and Masters programs. The results will also highlight the most important factors in why graduates get job offers and what factors influence why they accept or reject offers. Finally, the report will analyze the patterns of how graduates move to different regions in the country.

Read the IS Job Index Report at isjobindex.com
2017-2018
LOOKING AHEAD
6TH ANNUAL
TEMPLE UNIVERSITY
ANALYTICS CHALLENGE

APPOINT NEW EXECUTIVE-IN-RESIDENCE

SYMPOSIUM: THE PRACTICAL PATH FORWARD -
COGNITIVE COMPUTING, AI, AND ANALYTICS

GROW IBIT WITH SMALL-COMPANY
AND LARGE-COMPANY MEMBERSHIP

HOST 18TH ANNUAL
FOX IT AWARDS

ADD NEW MEMBERS TO FOX IT ADVISORY BOARD

AWARD FOX IT ADVISORY
BOARD AND
IBIT CORPORATE
SCHOLARSHIPS

4TH ANNUAL NATIONAL NBCUNIVERSAL
ANALYTICS CHALLENGE

3RD ANNUAL NATIONAL CYBER ANALYST
CHALLENGE & CONFERENCE

PUBLISH NEW IBIT REPORTS

COMING SOON
THE DIGITAL INNOVATION FOUNDRY
THE 2017 IS JOB INDEX

6TH ANNUAL FOX IT CAREER FAIR
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ABOUT IBIT

The Fox School’s Institute for Business and Information Technology (IBIT) provides cutting-edge knowledge and valuable connections to sustain excellence in information technology. IBIT integrates industry perspectives with academic research expertise to create forums for generating and exchanging best practices.

IBIT is affiliated with the Fox School’s nationally ranked Department of Management Information Systems. IBIT draws participating faculty and students from MIS as well as the expertise of the entire Fox and Temple University community.

IBIT membership offers participating corporations the opportunity to leverage our knowledge, human capital, relationships and established network.