

annual report

2009

identify, create and deliver

support, promote and communicate



Centre for
Information Integrity and
Information Systems Assurance



UNIVERSITY OF
WATERLOO

**WE WELCOME INQUIRIES,
SUGGESTIONS AND
COMMENTS!**

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BOARD OF DIRECTORS

Dave Pollard, FCA

*Vice-President of Knowledge Development, CICA;
Chair, UWCISA*

J. Efrim Boritz, PhD, FCA, CA-CISA, CA-IT

*Ontario Chartered Accountants' Chair in Accounting,
University of Waterloo;
Director, UWCISA*

James Barnett, FCA

*Director, School of Accountancy & Finance,
University of Waterloo*

Don Cowan, PhD

*Distinguished Professor Emeritus;
Director, Computer Systems Group,
University of Waterloo*

Bob Cuthbertson, CA, CA-IT

*Chief Operating Officer,
CaseWare IDEA Inc.*

Thomas Lamm, MBA, CPA

*Director of Research, Standards,
and Academic Relations,
ISACA Headquarters, Chicago*

Richard Livesley, MBA, CGEIT

*Director of Information Governance
and Quality, BMO*

Robert Parker, MBA, FCA, CISA, CMC

*Retired Partner, Enterprise Risk,
Deloitte, Toronto*

Erik Peters, FCA

*Retired Auditor General of Ontario,
Ottawa*

Baskaran Rajamani, MEng, MBA,

PMP, CISA, CISSP
*Associate Partner, Enterprise Risk,
Deloitte, Toronto*

Theophanis Stratopoulos, PhD

*Assistant Professor of Information Systems,
University of Waterloo*

William Swirsky, MBA, FCA, ICD.D

Past Chair, UWCISA

Mission Statement

The University of Waterloo Centre for Information Integrity and Information Systems Assurance (UWCISA) seeks to identify, create and deliver research addressing information integrity, information systems governance, control and assurance issues; to support and promote the delivery of educational activities and materials related to such issues; to communicate and promote information integrity, information systems governance, control and assurance issues that are important to professionals working in these areas; and to support and promote interaction on those issues among practitioners, educators and students.

Background

UWCISA is an administrative sub-unit within the Centre for Accounting Research and Education (CARE) at the University of Waterloo. UWCISA was established in 1998 by three founding sponsors: the University of Waterloo School of Accounting & Finance, the Canadian Institute of Chartered Accountants, and the Information Systems Audit and Control Association. CaseWare IDEA Inc. joined the sponsor group on January 1, 2006. The sponsors' objective is to improve the quality of education; to increase dialogue between practitioners and academics; to improve use in practice; to expand research in information integrity and information systems assurance, governance and control; and to foster a continuing, close working relationship among the sponsors and other partners with an interest in information integrity and information systems assurance, governance and control. The Centre invites and welcomes new partners to share in its mission.



Centre for Information Integrity and Information Systems Assurance

To the Board of Directors:



I am pleased to present this report on the operations and activities of the University of Waterloo Centre for Information Integrity and Information Systems Assurance during 2009, our twelfth year of operation.

This year marks the second year in a renewed five-year funding commitment by the Centre's sponsors for the period 2008-2012, inclusive.

The highlight of the year was our very successful Sixth Biennial Research Symposium on Information Integrity and Information Systems Assurance. We videotaped the event and posted extracts on the UWCISA website. We received a record number of submissions from both practitioners and academics. The program is detailed in the report and is available on our website.

During the year, we continued our thought leadership role through service on the CICA's Information Technology Advisory Committee, the IT Alliance of the CICA, and the Trust Services/Data Level Assurance Task Force of the AICPA. We also continued our research activities related to information integrity, IT governance, online privacy, XBRL and data level assurance and presented our research at a number of conferences as detailed in the report.

During the year, we continued our work on projects in progress and saw a number of publications result from these efforts as detailed in this report. Our work in progress includes projects addressing IT governance, IT controls, online privacy, XBRL, information integrity, and data level assurance. We completed the 14th edition of *Computer Control & Audit Guide* and we are working on the next update of *Computer Control & Audit Guide* (15th edition).

We continue to welcome new partners to share in our mission. I thank the Centre's Board Members and founding sponsors for their continued support. I look forward to working closely with all of you in future.

Respectfully,

A handwritten signature in black ink, appearing to read 'J.E. Boritz'. The signature is fluid and cursive.

J.E. Boritz, PhD, FCA, CA•CISA, CA•IT
Director

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Operations and Activities for 2009

HOSTING THE CENTRE'S WEBSITE AND IS ASSURANCE WEBLOG

UWCISA's website, www.arts.uwaterloo.ca/ACCT/uwcisa, serves as the Centre's ISA Portal.

It includes calls for papers and research proposals, a chat room, a resources section, a number of links and downloadables, and order forms. UWCISA's Annual Reports are posted to the website and summarize the Centre's year-by-year activities. As is the custom, these reports are disseminated both electronically and in hardcopy formats.



Gerald Trites

Gerald Trites has been maintaining our blog. Our website has been expanded with Theophanis Stratopoulos' initiative to also host part of the LinkedIn network. This social network gives us an opportunity to share information (like the flyer for the Symposium) with people who would not normally be closely tied to our Centre. We will also be exploring the use of podcasts and wikis in the coming year.

uwcisa-assurance.blogspot.com

FUNDING AND SUPPORTING CURRENT AND FUTURE ACTIVITIES

UWCISA's funding comes from operating grants provided by our generous sponsors, research grants from various agencies and publication revenues. UWCISA is exploring new fundraising options to help the Centre establish a full-time staff to conduct its research, education and outreach activities on a long term, sustainable basis.

We welcome new partners to help us achieve the Centre's mission.

"THOUGHT LEADERSHIP"

The Centre provided thought leadership in several areas during 2009.

INFORMATION TECHNOLOGY ADVISORY COMMITTEE



The Director is a member of CICA's ITAC (Information Technology Advisory Committee). He is also chair of the Education Committee and is serving on the Board of the CICA's IT Alliance. Information is available at: www.cica.ca/research-and-guidance/it-advisory-committee/index.aspx

RELAW '09

The Director was a member of the Program Committee for RELAW '09 – Second International Workshop on Requirements Engineering and Law – held in conjunction with the 17th IEEE International Requirements Engineering Conference, September 1, 2009, Atlanta, Georgia. He has also agreed to serve in this capacity for RELAW '10, September 28, 2010, Sydney, Australia. Information is available at: www.csc2.ncsu.edu/workshops/relaw/organization.html



INFORMATION INTEGRITY

- Co-sponsor of the Excellence in Information Integrity Awards by Information Integrity Coalition/Infogix in Chicago, Naperville, IL, November 17, 2009
- Sensitivity to Attributes of Information Integrity. Objective: To understand how Information Integrity affects the use of performance evaluation scorecards. Research team is Efrim Boritz and Leslie Berger. Funded by SAP/CAAA grant. The paper was presented at the AAA mid-year meetings in January 2009 in Charleston. A second paper was presented at both the CAAA and AAA annual meetings in Montreal, June 2009 and in New York, August 2009, respectively. A third paper is in progress.
- Information Integrity Control Guidelines. Project team is Efrim Boritz and Malik Datardina. Funding is being provided by CICA.
- The Director is a member of the AICPA's data integrity task force. This Group is developing criteria for assessing and reporting on the integrity of data.



Leslie Berger



Malik Datardina



Jee-Hae Lim

IT GOVERNANCE

Research team is Jee-Hae Lim and Efrim Boritz.

- IT Control Weaknesses, IT Governance and Firm Performance. This paper was presented at the AAA IS section mid-year conference, Redondo Beach, CA, January 2008 and won the best paper award. It was also presented at the CAAA conference in Winnipeg, May 2008 and the UWCISA conference in October 2009. It is currently being revised for publication.
- Impact of Top Management's IT Knowledge and IT Governance Mechanisms on Financial Performance. This paper was presented at the ICIS Conference in December 2007. It is currently being revised for publication.

INTERNAL CONTROL

Research team is Efrim Boritz, Jee-Hae Lim and Louise Hayes.

- What do IT Control Weaknesses Tell Us About Financial Reporting Systems? This paper was presented at the UWCISA Symposium, Toronto, October 2, 2009 and has been accepted for presentation in 2010 at the AAA-IS mid-year meeting in Clearwater, FL, January 2010, the European Accounting Association Conference in Istanbul May 2010, the CAAA Annual Conference in Vancouver May 2010 and the American Accounting Association Conference in San Francisco July 2010.



Louise Hayes

ONLINE PRIVACY

Research team is Won No, Efrim Boritz and R. P. Sundarraj. The following working papers are in progress:

- Internet Privacy: Framework, Review and Opportunities for Future Research. Published in the proceedings of the Hawaii International Conference on Systems Sciences (HICSS) in Hawaii, January 7-10, 2008. An updated and expanded version is under review at a journal.
- The Effect of Involvement and Privacy Policy Disclosure on Individuals' Privacy Behaviour. Presented at the AAA IS section mid-year conference, Redondo Beach, CA, January 2008.
- An Exploratory Study of Country Level and Industry Level Differences in Privacy Policies. Presented at the AAA IS section mid-year conference, Redondo Beach, CA, January 2008. Nominated for best paper award.
- Do Companies' Privacy Policies Match Customers' Needs? Presented at the CAAA conference in Winnipeg, May 2008 and the AAA conference in Anaheim, August 2008.
- A Gap in Perceived Importance of Privacy Policies between Individuals and Companies. Presented at the World Congress on Privacy, Security and Trust Conference in St. John, NB, August 2009. Winner of best paper award.



Won No

Copies are available on the UWCISA's website.

XBRL/XARL

The Director participated in a Panel on International Research related to XBRL at the AAA annual conference in New York, August 5, 2009.



Research team is Efrim Boritz and Won No.

- Assurance on XBRL Instance Documents: The Case of United Technologies, published in the *Journal of Information Systems*, Vol. 21, No. 2, Fall 2009, 49-78.
- Computer-Assisted Tools for Auditing XBRL-Related Documents. Paper presented at the AAA mid-year meeting in Charleston, SC, January 2009, the XBRL International Conference in Paris, June 22-25, 2009, and the UWCISA Symposium, October 3, 2009.

SYSTRUST

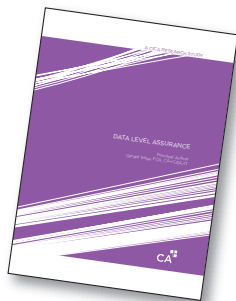
The Director is serving on the AICPA/CICA task force to update SysTrust/Information Integrity Standards.

Research team is Efrim Boritz and Louise Hayes.

- Whatever Happened to WebTrust and SysTrust? The purpose of this project is to produce a paper summarizing the current status of these assurance services. A review of literature and a structured interview guide have been prepared to use in gathering data for the paper. To be completed in 2010.

DATA LEVEL ASSURANCE

Gerald Trites authored a study on Data Level Assurance on behalf of the CICA. This study was completed during the year and will be published in 2010.



CONTINUOUS MONITORING AND ASSURANCE

Research team is Malik Datardina and Efrim Boritz. A paper on Continuous Monitoring and Assurance was produced with funding from CaseWare IDEA Inc.

COMPUTER-ASSISTED AUDITING TECHNIQUES

A team led by alumnus Scott Shannon, a partner in Grant Thornton's Hamilton, Ontario office, conducted a workshop on CaseWare's IDEA software for University of Waterloo students.



Scott Shannon

Malik Datardina and Efrim Boritz updated a paper on CAATs In the Classroom which is available on the Centre's website.



DOCUMENTING BEST PRACTICES

PRESENTATION METHODS TO SUPPORT BUSINESS RISK ASSESSMENTS

The purpose of this project is to:

- Summarize approaches to representing entity business models using diagrams for enhanced business risk analysis.
- Interview partners of major firms about how such diagrams could be used for risk assessment.
- Create hypotheses for testing findings in an experimental setting and submit for additional funding consideration to support such testing.

Research team for Phase 1 is Paulo Alencar (Computer Systems Group, University of Waterloo), Carla Carnaghan (University of Lethbridge) and Efrim Boritz, with support from Gary Baker. PhD students Tim Bauer and Louise Hayes are working on Phases 2 and 3, respectively.



Carla Carnaghan

Funding for this project is provided by the KPMG/ University of Illinois Business Measurement Program.



Conference at-a-glance

SPONSORING RESEARCH SYMPOSIA, CONFERENCES, WORKSHOPS

INFORMATION INTEGRITY AND INFORMATION SYSTEMS ASSURANCE SYMPOSIUM



The 6th Biennial Research Symposium was held October 1-3, 2009 at the Renaissance Skydome Hotel, Blue Jays Way, Toronto, Canada. The symposium was sponsored by the University of Waterloo, the Canadian Institute of Chartered Accountants, ISACA, Case-Ware IDEA Inc., and the International Journal of Accounting Information Systems.

PROGRAM

Thursday, Oct 1, 2009

Opening Reception, Renaissance Skydome Hotel

Friday, Oct 2, 2009

OPENING REMARKS

James Barnett, Director School of Accounting & Finance, University of Waterloo

David Pollard, VP Knowledge Development, CICA and Chair, UWCISA

Steve Sutton, Editor, *International Journal of Accounting Information Systems*

Factors Associated with IT Audits by Internal Audit Functions in Australia, Canada, New Zealand, U.K./Ireland, and the United States

Presenter: Scott R. Boss, Bentley University
Discussants: Jeffrey W. Merhout, Miami University; Doug Tsang, KPMG

Data Mining Journal Entries for Fraud Detection: A Pilot Study

Presenter: Roger Debreceny, University of Hawaii at Mānoa

Discussants: Severin Grabski, Michigan State University; Eckhardt Kriel, E Kriel & Associates Inc.

Analyzing Late SEC Filings for Differential Impacts of IS and Accounting Issues

Presenter: Li Wang, University of Akron

Discussants: Jeffrey L. Callen, University of Toronto; Chris Anderson, Grant Thornton

Principles and Problems of Audit Automation as a Precursor for Continuous Auditing:

Presenter: Alexander Kogan, Rutgers University

Discussants: Zabihollah (Zabi) Rezaee, University of Memphis; Ray Hendrickson, Bank of Nova Scotia

Information Fusion in Continuous Assurance

Presenter: Uday S. Murthy, University of South Florida

Discussants: Graham Gal, University of Massachusetts; Kiran Samra, Ernst & Young

Continuous Monitoring and the Status Quo Effect

Presenter: Elaine Mauldin, University of Missouri

Discussants: Vicky Arnold, University of Central Florida; Jerry Gaertner, Soberman, LLP

RESEARCH REPORTS FROM WATERLOO

- What can we learn from IT Control Weaknesses Reported under SOX 404?
Presenter: Louise Hayes, University of Waterloo
- IT Innovation Strategy and Value Creation: Evidence from the Recession of Early 2000s
Presenter: Jee-Hae Lim, University of Waterloo
- Uncertainty and the Decision to Manipulate Reported Performance
Presenter: Theophanis Stratopoulos, University of Waterloo
Discussants: Ed O'Donnell, Southern Illinois, University at Carbondale; Gary Baker



SATURDAY, OCTOBER 3, 2009

Using Graphical Representations of Business Processes in Evaluating Internal Control

Presenter: A. Faye Borthick, Georgia State University
Discussants: Malik Dataradina, University of Waterloo

Examining The Potential Benefits of Internal Control Monitoring Technology

Presenter: J. Manuel Sanchez, University of Arkansas
Discussants: Sati Bandyopadhyay, University of Waterloo;
 Richard Livesley, BMO

CEO, CFO & CIO Engagement in Information Technology Management: The Disciplinary Effects of Sarbanes-Oxley Information Technology Material Weaknesses

Presenter: Adi Masli, University of Arkansas
Discussants: Acklesh Prasad, University of Queensland;
 Terry Hung, PricewaterhouseCoopers, LLP

A Capabilities-based Approach to Obtaining a Deeper Understanding of Information Technology Governance Effectiveness: Evidence from IT Steering Committees

Presenter: Acklesh Prasad, University of Queensland
Discussants: Kevin Kobelsky, Baylor University;
 Scott Paquette, University of Maryland

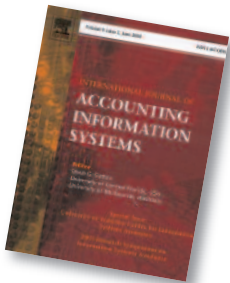
Assurance on XBRL Instance Document: A Conceptual Framework of Assertions

Presenter: Rajendra P. Srivastava, University of Kansas
Discussants: Skip White, University of Delaware;
 Gerald Trites, UWCISA

Computer-Assisted Auditing of XBRL Instance Documents

Presenter: Won No, Iowa State University
Discussants: David Plumlee, University of Utah;
 Darren James, Deloitte

The Centre will publish a special issue of the *International Journal of Accounting Information Systems* in June 2010, containing selected papers from UWCISA's 2009 Symposium.



DEVELOPING COURSES, CASES, AND OTHER TEACHING MATERIAL

BUSINESS RISK ASSESSMENT CASE

Efrim Boritz and Theophanis Stratopoulos created a case on business risk assessment for a software development company. The case has been submitted for review at a leading education journal.



Theophanis Stratopoulos

IT GOVERNANCE

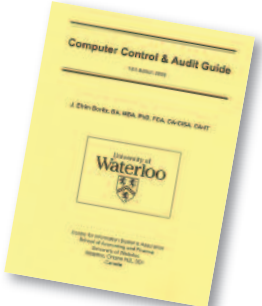
Jee-Hae Lim, Theophanis Stratopoulos and Efrim Boritz developed a research seminar on IT Governance. The course outline is available upon request.

OPERATING THE LEARNING CENTRE

UWCISA plans to develop short "self-serve" professional development courses for practitioners.

SHARING MATERIAL WITH OTHER EDUCATORS

The UWCISA website contains the latest text, case materials and other items for various Centre-supported courses. In 2009 the Centre sold 160 copies of the 14th edition of its long-running publication, *Computer Control and Audit Guide (CCAG)*. A CCAG order form is posted on the UWCISA website.



Future Plans

In the next twelve months, UWCISA will maintain its current activities in research, education and communication, and will undertake new initiatives as well. Plans for each key category are outlined below.



Robert Parker

HOSTING THE CENTRE'S WEBSITE AND IS ASSURANCE WEBLOG

- Robert Parker will provide periodic environmental scans that will be posted on the UWCISA website.
- Gerald Trites will continue to manage the IS Assurance blog on behalf of the UWCISA.
- LinkedIn Network is being used.
- We will explore the use of wikis in the coming year.
- UWCISA plans to continue to improve the site in 2010.
Your comments are welcome.

FUNDING AND SUPPORTING CURRENT AND FUTURE ACTIVITIES

UWCISA's fundraising committee will continue seeking ways to expand the funding base for the Centre. We invite partners to join us in our mission to improve the quality and reliability of information systems and the processes used to create, implement, operate, maintain and change them.

"THOUGHT LEADERSHIP"

UWCISA will continue working on the following projects during 2010:

- IT Governance. Two papers on this topic are being groomed for publication.
- Business Process Documentation. One paper on this topic will be completed.
- Internal Control. Three papers on this topic will be completed.
- Information Integrity. Three papers on this topic are being prepared for publication.
- Online Privacy. Four papers on this topic are being prepared for publication.
- XBRL. One paper on this topic will be presented at various conferences and prepared for publication.
- SysTrust. One paper on this topic will be completed.
- Data Level Assurance. One paper on this topic will be completed.

SPONSORING RESEARCH SYMPOSIA, CONFERENCES, WORKSHOPS

CONFERENCES AND WORKSHOPS

UWCISA will organize an updated workshop on computer-assisted auditing techniques for XBRL in 2010.

UWCISA will co-sponsor the Excellence in Information Integrity Awards by Information Integrity Coalition, July 31, 2010.

Visit www.arts.uwaterloo.ca/ACCT/uwcisa

DOCUMENTING BEST PRACTICES

UWCISA will complete the projects in progress as previously described. In particular, UWCISA will complete or begin the following research projects during 2010:

- Alternative ways of representing business models and business processes for use by auditors.
- A project on Information Integrity Control Guidelines.
- SysTrust. How it is currently being used and prospects for the future.



FUNDING SPECIFIC RESEARCH AND EDUCATION PROJECTS

RESEARCH PROPOSALS

For Research Proposal Guidelines, visit www.arts.uwaterloo.ca/ACCT/uwcisa.

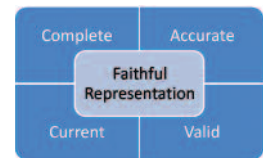
FELLOWSHIPS AND SCHOLARSHIPS

UWCISA will make funds available for Visiting Fellows and doctoral students. For details, contact the Director.

DEVELOPING COURSES, CASES AND OTHER TEACHING MATERIAL

INFORMATION INTEGRITY

The Centre plans to offer a PD Workshop on Information Integrity and Information Integrity Controls.



XBRL

The Centre has developed a PD Workshop on XBRL for preparers. During 2010 a PD Workshop for auditors will be offered.

CASES

The Centre plans to develop the following cases during 2010.

- Software Risk Assessment
- CAATs: System testing vs. Data testing
- Assessing the Segregation of Incompatible Functions
- Privacy, Security and Trust: The Case of TJX
- Business process documentation

COMPUTER CONTROL AND AUDIT GUIDE

This publication will be updated in the fourth quarter of 2010.

OPERATING THE LEARNING CENTRE

UWCISA will continue developing its suite of online courses, focusing on short “self-serve” professional development courses for practitioners.

SHARING MATERIAL WITH OTHER EDUCATORS

The Centre will continue to share its material with educators around the world. For information, please visit our website or contact the Director.

Centre Personnel



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*PhD, FCA, CA•CISA,
CA•IT
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Centre for Information Integrity and Information Systems Assurance

The University of Waterloo Centre for Information Integrity and Information Systems Assurance gratefully acknowledges the generous support of our founding partners and sponsors.

