European Forum Alpbach 2011

Alpbacher Technologiegespräche 25.08. – 27.08. 2011

OBERÖSTERREICH
IN ALPBACH

IT-CHALLENGING THE PRESENT, DEFINING THE FUTURE!

FRIDAY, AUGUST 26TH, 2011
9^{00} – 14^{30}
ALPBACH, JUNIOR HIGH SCHOOL

CONTENT

PREAMBLE

WORKSHOP AND CHAIR

SPEAKERS

UPPER AUSTRIA – A MODEL IT-REGION

WELCOME TO THE UPPER AUSTRIAN WORKSHOP IN ALPBACH

Ladies and gentlemen,

Information and communications technology (IT) now plays a key role in economic, scientific, social and private life, and with the Johannes Kepler University, the Upper Austria University of Applied Sciences, the Hagenberg Software Competence Center, the Softwarepark Hagenberg and RISC Software GmbH, Upper Austria possesses both excellent research centers and first class educational facilities in this area. Moreover, with highly innovative companies such as Fabasoft, Quanmax, BMD SYSTEMHAUS and KEBA, Upper Austria has a number of ambassadors, which represent it as a model IT region on both a national and an international level.

Upper Austria's current "Innovative Upper Austria 2010plus" economic and research program also incorporates the further targeted development of research facilities along with core and specialized IT competences through the concentration of multidisciplinary expertise and the support of R&D projects and cooperation platforms.

For these reasons, the Upper Austrian Workshop at the Alpbach Technology Forum will focus on this discipline of the future. "IT - Challenging the Present, Defining the Future!" is therefore not only the title of this outstanding event, but also constitutes a description of the philosophy behind Upper Austria's economic and research policies.

We look forward to an exciting and informative day spent in the IT world and are proud of the fact that with Johann Eder, Gerhard Eschelbeck, Christofer Hoff, Frank Koch, David Lacey, Tatjana Oppitz and Hermann Sikora, we have been able to persuade internationally recognized experts to attend our workshop. Therefore, take this opportunity to join representatives from the fields of science, business and politics and across the globe for an exciting dialogue in delightfully picturesque surroundings.

Doris Hummer
Research Secretary, Upper Austria

Viktor Sigl
Economics Secretary, Upper Austria

WORKSHOP: TECHNOLOGY & INNOVATION GROUP UPPER AUSTRIA

"IT - CHALLENGING THE PRESENT, DEFINING THE FUTURE!"

Friday, August 26th, 2011

Information and Communications Technology is revolutionizing the way in which society, industry, and governments communicate. Emerging trends such as cloud computing and mobility are beginning to change our everyday lives. This rapid revolution brings with it new challenges for our society and raises legal, moral, and ethical questions. In order to actively define the future, we need to address these issues, ensure data protection, and minimize environmental impact. Defining the future also means fostering research and development, and the mentoring of creative minds, which will generate new job opportunities and result in many significant innovations during our lifetime.

09:00-09:15 **Opening Session**
Doris Hummer, Research Secretary, Upper Austria
Viktor Sigl, Economics Secretary, Upper Austria

09:15-09:45 **Keynote Address: Grand Challenges in Information Technology**
Johann Eder, Professor, University of Klagenfurt & Vice-President of the Austrian Science Fund (FWF), Austria
Significant Trends and Challenges in the Field of IT

09:45-10:15 **The Value of Innovation in IT**
Tatjana Oppitz, IBM Country General Manager, Austria
New Business Models, Rapid Innovation

10:15-10:45 **Coffee Break**

10:45-11:15 **IT Governance**
Standards, Legal Aspects and Top Management between Euphoria and Disillusionment
Hermann Sikora, General Manager, GRZ IT Group, Austria
Responsibilities of Government, Industry, Managers and Consumers

11:15-11:45 **Information Technology above the Clouds**
Christofer Hoff, Cloud Security Alliance & Senior Director, Security Architect, Juniper Networks, USA
Cloud computing and mobility, computing on demand

11:45-12:45 **Lunch Break**

12:45-13:15 **Staying Safe - IT Security and Threats**
David Lacey, Information Security & Risk Researcher,
Author of "Managing the Human Factor in Information Security", UK
Cyber warfare, critical infrastructure protection, protecting users and privacy of information

13:15-13:45 **The Sustainability of IT Infrastructure**
Frank Koch, Infrastructure Architect, Microsoft, Germany
Green Datacenters and the Impact to Electricity and Carbon Management

13:45-14:30 **Panel Discussion: "Shaping the Future with Information Technology"**
Speakers from earlier sessions

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Chair: **Gerhard Eschelbeck**, University Linz, Austria & Webroot, USA
Tel.: +1 408 3154875, E-mail: gerhard@eschelbeck.com

Coordination: **Anke Merkl,** Head of Program Coordination and Controlling, OÖ. Technologie- und Marketinggesellschaft m.b.H (TMG), Austria
Tel.: +43 732 79810 5091, E-mail: anke.merkl@tmg.at
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GERHARD ESCHELBECK

Chair of the Workshop
“IT - Challenging the Present, Defining the Future!“

This workshop would not have been possible without the input and suggestions from many contributors, and I wanted to especially acknowledge and thank Prof. Gustav Pomberger, Prof. Jörg Mühlbacher and Prof. Bruno Buchberger from Johannes Kepler University Linz for their guidance during preparation for this event. Also my sincere thanks to all our speakers for offering their expertise and for sharing their vision and knowledge at the European Forum Alpbach 2011.

CHAIR OF THE WORKSHOP

GERHARD ESCHELBECK

CTO & SVP Engineering, Webroot Software, USA & Johannes Kepler University Linz, Austria

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CURRICULUM VITAE:

1992-1996	Research and Teaching Assistant at Johannes Kepler University Linz (JKU)
1993	Degree
1995	Founder IDS GmbH, Austria
1996	Doctorate
1996-1997	Director of Engineering, McAfee Software Development Center GmbH, Austria
1997-2001	Vice-President Engineering Antivirus Products, McAfee/Network Associates, Santa Clara, California
2000	Habilitation “venia docendi” for Applied Informatics, JKU Linz, Austria
2001-2005	CTO & Vice-President of Engineering, Qualys, Redwood Shores, California
Since 2006	CTO & Sr. Vice-President of Engineering, Webroot Software, Mountain View, California
Since 2000	Univ.-Doz. for Networks and Security, Johannes Kepler University Linz, Austria

- Award “25 Most Influential CTOs” by Infoworld in 2003, 2004, 2006
- Author of “The Laws of Vulnerabilities”
- Founding member and inventor of the Common Vulnerability Scoring Standard (CVSS)
- US congressional testimony on Worm and Virus Defense, Washington DC, September 2003.
- Lecturer at JKU and other international universities
- Advisory Board member at high-tech start-up companies in Silicon Valley
- Inventor of numerous patents in information security
- Author of over 40 published articles and publications
- Program committee member for academic conferences in information security
- Frequent speaker at international conferences including RSA, Blackhat, CSI, Infosecurity
- Member of IEEE, ACM, Austrian Computer Society (OCG)

IT - CHALLENGING THE PRESENT, DEFINING THE FUTURE!

Gerhard Eschelbeck

Information is power and IT is transforming the way society, industry, and governments are communicating and collaborating. During the past decade, information technology has revolutionized access to information, data and research, and the Internet has made communication instant and global. Electronic books on digital screens are displacing paper and access to email is available not only at work, but also at the supermarket. With this immense opportunity come responsibilities towards society and moreover, data use raises moral and ethical questions. This workshop highlights how new trends and directions such as cloud computing will affect our daily lives and how inventive minds will generate new job opportunities. The presentations will focus on the challenges and growing concerns regarding data security, as well as the environment-related impact and responsibilities that these technological innovations create.

Information Technology has connected every aspect of our lives in a manner that was unimaginable only a few years ago. Moreover, today its pace of change is faster than ever and the rapid emergence of cloud-based computing as a next generation computing paradigm, the rise of “smart” mobile devices and intelligent sensing will further accelerate the increase in data volume and throughput. In fact, wireless connectivity and IT infrastructure that includes data processing and communication constitute the roads and bridges to the future.

The enormous volume of information available creates vulnerability and raises security and privacy questions. Cyber warfare can cripple networks, compromise infrastructure, and bring all those parts of an economy that rely on ubiquitous access to information to a complete halt. What are the responsibilities of government, industry, and consumers with regard to the establishing of trust and what are the legal implications of a data breach? What standards should be implemented, and how should governments provide regulatory guidance and privacy laws without limiting innovation? It is critical that personal information including medical records, financial data, and intellectual property are properly protected and only subject to authorized access.

The growing reliance on IT has increased significantly the demand for data centers. Consequently, data center operations are generating an ever-greater level of environmental impact. Water, air, and electricity are the “fuels” of our data centers and we have to find and apply new methods of conservation and resource preservation. Green strategies for reducing energy consumption and carbon emissions need to be incorporated throughout all phases of the life cycle.

Over the years, innovation in IT has created unexpected opportunities and provided the impetus for large numbers of new jobs in fields such as computer animation, e-commerce, and computer security. With so many aspects of our lives connected through IT, the focus for our future must be on education and the mentoring of young minds. The fostering of research and development and an ecosystem that encourages investment and entrepreneurship will generate many new and significant innovations during our lifetime.

SPEAKERS

Johann Eder, Tatjana Opptiz, Hermann Sikora,
Christofer Hoff, David Lacey, Frank Koch
(order according to presentations in Alpbach)

SPEAKERS

JOHANN EDER

Professor, University of Klagenfurt, Vice-President Austrian Science Fund (FWF), Austria

CONTACT

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CURRICULUM VITAE

1991–2005	Full Professor, University of Klagenfurt
1993–1994	Visiting Professor (part-time), University of Vienna
1994–1997	Head of the Department of Informatics, University of Klagenfurt
1995–1996	Visiting Professor (part-time), University of Vienna
1998	Visiting scientist and consultant: AT&T Labs Research, NJ, USA
1999–2005	Head of the Department of Informatics Systems, University of Klagenfurt
Since 2005	Vice-President of the Austrian Science Fund (FWF)
2005–2007	Professor, University of Vienna, Austria
Since 2007/10	Professor, University of Klagenfurt, Austria
Since 2010	Head of the Department of Informatics Systems, University of Klagenfurt

MEMBERSHIPS

Association for Computing Machinery (ACM)
Computer Society of the IEEE (IEEE-CS)
IFIP working group 8.1 (Information Systems)
Gesellschaft für Informatik (GI)
Österr. Computer Gesellschaft (OCG)

PUBLICATIONS

More than 140 peer-reviewed international publications, 22 books, spec. volumes edited.

- Johann Eder: Grand Challenges for Computer Science Research, EMCSR 2010. Umeshwar Dayal, Johann Eder, Jana Koehler, Hajo A. Reijers (Eds.): Business Process Management, LNCS Vol. 5701, 2009.
- Johann Eder, Claus Dabringer, Michaela Schicho, Konrad Stark: Information Systems for Federated Biobanks, TLDKS Vol 1, 2009.
- Johann Eder, Christian Koncilia, Tadeusz Morzy: The COMET Metamodel for Temporal Data Warehouses, LNCS Vol.2348, 2002.
- Johann Eder, Herbert Groiss, Walter Liebhart: The Workflow Management System Panta Rhei. In: Workflow Management Systems and Interoperability, Springer-Verlag, 1998.
- Johann Eder, Walter Liebhart: The Workflow Activity Model WAMO, CoopIS, 1995.
- Johann Eder: Extending SQL with General Transitive Closure and Extreme Value Selection. IEEE TKDE, Vol. 2/4, 1990.

GRAND CHALLENGES IN INFORMATION TECHNOLOGY

Johann Eder

“Grand Challenges” focus research endeavors, in order to motivate both researchers and funding organizations and to communicate research goals both broadly and boldly.

This announcement by President Kennedy is the most famous example of a “Grand Challenge”. In a very ambitious project that clustered scientific, technical, organizational and economic endeavors, the great goal was achieved on July 24, 1969, when Apollo 11 splashed down in the Pacific with the crew that had landed on the surface of the moon on July 19, 1969.

READING THE CRYSTAL BALL

With “Grand Challenges” we risk a glance into the future, in scenarios, which analyze the possible consequences of research into IT for scientific, social and economic solutions. The success story of personal computers, Internet and mobile phones is impressive, but nowadays taken for granted. “Grand Challenges” pinpoint fascinating questions that are still open and they show what could be possible.

EXAMPLES OF GRAND CHALLENGES IN IT

- **MODELLING LIVING PROCESSES** – The goal is to develop information models of the processes in living cells, which will enable the exact simulation of the behavior of a living cell (in vivo) in a computer (in silico)
- **UBIQUITOUS COMPUTING** – How can we understand the highly interconnected architecture of billions of computers, each 100 times as powerful as those of today, and control it safely?
- **THE ARCHITECTURE OF BRAIN AND MIND** – Computer simulation should enable experiments relating to how the available theories of the functioning of our central nervous systems can explain human information processing and thus inspire novel computer architectures.
- **DEPENDABLE SYSTEMS EVOLUTION** – The goal is to develop theories of programming and apply them to produce and main-tain programs and develop tools, which guarantee program correctness and reliability of throughout their entire lifetime.
- **NON-CLASSIC COMPUTATION** – How we can better understand computational models in nature and develop theories in non-classical computational models, which also integrate the insights in biology and the envisioned quantum-computers.
- **ROBOT COMPANIONS** – How robots with flexible properties such as soft bodies and adaptive behavior can be developed.
- **THE 100% SAVE CAR** – IT-Systems should create 100% safe vehicles, which would eliminate traffic accident fatalities almost entirely.
- **PERSONALIZED MEDICINE** – The goal is to develop personalized preventive medicine based on individual physiological data processed using globally-integrated medical knowledge.

SPEAKERS

TATJANA OPPITZ

Country General Manager,
IBM Austria

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PROFESSIONAL EXPERIENCE

04/1986-10/1988	Placzek Ges.m.b.H., Administrative clerk
01/1989-01/1995	KODAK Ges.m.b.H., Vienna, Sales Support representative & administration clerk
01/1995-01/1998	IBM Austria, Client Representative Small and Medium Business
01/1998 – 02/1999	IBM Austria, Client Representative , Public Sector
02/1999 – 07/2000	IBM Austria, Customer Services Executive, IBM Global Services
07/2000 - 08/2003	IBM Austria, Manager of Software Group
08/2003 – 09/2004	IBM Eurocoordination EHQ, Paris IBM Software Group EMEA, Executive Assistant to VP, SWG EMEA. Member of the operations team SWG EMEA.
10/2004 – 12/2004	IBM EMEA Director of WebSphere Business Integration Sales, EMEA.
01/2005 – 07/2005	IBM Central Region Director of WebSphere Sales, Central Region (Germany, Austria, Switzerland).
07/2005 – 12/2008	IBM – IMT CEMAAS Director of Public Sector CEMAAS – Central Europe, Middle East and Africa, Austria and Switzerland.
01/2009 – 06/2010	IBM – GMT CEEMEA General Business Enterprise Sales Executive for Central and Eastern Europe, Russia& CIS, Middle East and Africa.
07/2010 - 12/2010	IBM – GMT CEE General Business Enterprise Sales Executive for Central and Eastern Europe, Russia& CIS.
Since 01/2011	IBM – IBM Austria Country General Manager, IBM Austria

EDUCATION

1969–1975	English School Vienna (now Vienna International School)
1975–1981	High School: Lycee Francais de Vienne, grading: top 5%
1981–1985	Vienna School of Economics, Master of Business Administration, grading: top 10 %

THE VALUE OF INNOVATION IN IT

Tatjana Oppitz

At IBM, innovation is not seen as an end in itself or limited to technology. IBM's motto of "innovation that matters" means that innovative ideas and initiatives need to show tangible business value for clients or contribute to a "smarter planet", i.e. by delivering value to the advancement of mankind.

Firstly, from the microeconomic perspective, value creation on a company level means that investment in innovation must lead to an increase in enterprise value. Therefore, innovation in IT has to address three categories of IT value drivers: business benefit, cost, and risk from IT. Each category has a set of strategic value drivers, e.g. specificity and complexity as the major cost drivers of IT (Fig. 1). Innovation to address these strategic value drivers can take place on three different but interconnected levels (Fig. 1): business model innovation, organizational innovation and technological innovation. A key instrument for establishing an innovation partnership on a company level is **IBM's Value Creation Center (VCC)** approach. The Value Creation Center is a jointly staffed institution that collects innovative ideas from both the client and IBM (IBM research, consulting, delivery, etc.), evaluates them (business case) and constantly monitors their implementation.

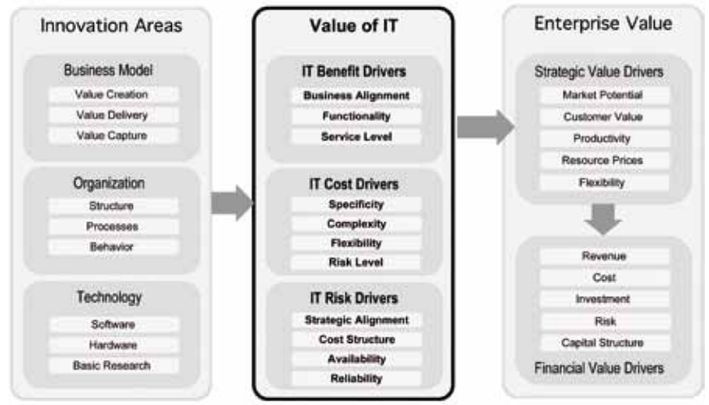

Figure 1: Innovation Areas, IT Value Drivers, and Enterprise Value

Secondly, from the macroeconomic perspective, value creation means that investment in innovation must lead to a "better world" by improving economic, ecological and social conditions for all. Building a "smarter planet" means that intelligence is being infused into the systems and processes that make the world work, e.g. cars, appliances, roadways, power grids, clothes and even natural systems such as agriculture and waterways. Trillions of digital devices, connected through the Internet, are producing a vast ocean of data. And all this information can be turned into knowledge because we now have the computational power and advanced analytics to make sense of it. With this knowledge we can reduce costs, cut waste, and improve the efficiency, productivity and quality of everything from companies to cities. Smarter systems are already being implemented and are creating value in every major industry and across every region in both the developed and developing worlds. For example, in a study of 439 cities, in those that employ transportation congestion solutions, including ramp metering, signal coordination and incident management, on average travel delays were reduced by more than 700,000 hours annually and nearly USD15 million was saved by each conurbation.

SPEAKERS

HERMANN SIKORA

General Manager and Director of the GRZ IT Group of Companies, Linz, Austria
Honorary Professor for Information Engineering, Johannes Kepler University of Linz, Austria

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CURRICULUM VITAE

1963	Born in Wels, Austria
1984–1988	Scientific Assistant at the Johannes Kepler University of Linz (JKU)
1988–1992	Research and Teaching Assistant at JKU
1987	Degree in science (with distinction)
1990	Degree in social and economic sciences (with distinction)
1992	Doctorate (with distinction)
11/1992	Assistant to the General Management of GRZ IT Group, Linz
04/1994	Appointment to General Manager of GRZ IT Group
12/1994	Title “Director” awarded
1994–2011	GRZ IT Group grows from 180 to 700 employees and becomes one of the most important IT companies in Austria with the main focus on software and services for banks

SCIENTIFIC AWARD

2006	Honorary Professorship awarded for Information Engineering at the Institute for Business Informatics, Johannes Kepler University of Linz

BUSINESS AWARD

2002+2003	“Global Finance” magazine, New York/London (with international jury): ➔ “Best Consumer Internet Bank in Austria” ➔ “Best Consumer Integrated Site in Europe” ➔ “Best Corporate/Institutional Site in Europe” awarded to the “ELBA” electronic banking software product family, developed by RACON Software GmbH (part of GRZ IT Group)
2003	“Wirtschaftsblatt” newspaper, Vienna: first place for “www.kepler.at” among 35 contestants together with two other investment portals
2007	CONSTANTINUS – the Austrian IT-Award: first prize in category “Open Source” for the GRZ-product “Net Scan Assistant”

MEMBERSHIPS

- EEE Institute of Electrical and Electronics Engineers (member)
- OCG Austrian Computer Society (co-opted member of the managing committee, representing non-institutional members)
- IPO Institut für Personal- und Organisationsentwicklung (member of the steering committee/presidium)

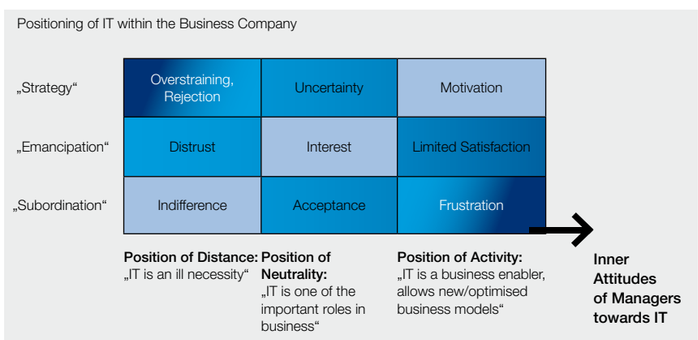
IT GOVERNANCE STANDARDS, LEGAL ASPECTS AND TOP MANAGEMENT BETWEEN EUPHORIA AND DISILLUSIONMENT

Hermann Sikora

It is beyond question that Information Technology (IT) is one of the driving forces of today’s world with a deep impact on literally all aspects of life. Consequently, in recent years the responsibilities of all stakeholders, government, business and industry, managers, NGOs and consumers, have become the focus of discussion worldwide.

Technical as well as legal and non-governmental standards can and should play an important role in building organizational and market frameworks for innovations. Related innovation means the transformation of an invention into a business model with the potential of (in the best case sustainable) earnings. Two examples of successful worldwide standards are TCP/IP, which as a (non-governmental) standard has enabled the Internet (r)evolution, and COBIT as a standard for IT audits. There is no guarantee that standards help innovation and history is full of failed and even innovation-killing standards. Indeed, the line between enablement, necessary regulation and the dangerous hindrance of free enterprise is a very fine one. Naturally, legal aspects have always been in place, but in recent years their scope and impact, especially in the realms of “information technology as a major operational risk of enterprises” and “privacy in the age of social networks”, have grown immensely. Basically, four ways of looking at IT should be considered. Firstly, the organizational-technical view, involving IT applications and business processes; secondly, the management view, provided mainly by Information Management and IT-Governance; thirdly, the legal view and fourthly, the organizational-cultural view. The latter leads us to a provocative but serious question, “Why is it that today in the age of the Internet and social network culture, many top managers still have no clue as to how to integrate IT into their strategy process?“

Top managers very often have a tense relationship with Information Technology issues. This talk addresses the relationship between the inner attitude of top executives and IT, describes the position of IT in a business organization and defines a manager typology containing patterns of attitude and action regarding IT. In a “conflict portfolio”, conflict and risk potential is described using examples that can exist in everyday leadership when the inner attitude of an executive to IT is incompatible with the position of IT within the business company.



Conflict Portfolio

SPEAKERS

CHRISTOFER HOFF

Cloud Security Alliance & Senior Director, Security Architect, Juniper Networks, USA

CONTACT

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CURRICULUM VITAE

1997-2003	Founder/CTO of a national security consultancy
2003-2005	CISO and director of enterprise security at a $25 billion financial services company
2005-2007	Chief Security Strategist at Crossbeam Systems
2007-2009	Chief Security Architect at Unisys Corporation
2009-2011	Director of Cloud & Virtualization Solutions at Cisco Systems
Since July 2011	Senior Director, Security Architect, Juniper Networks

MEMBERSHIPS

Founding member and technical advisor to the Cloud Security Alliance

PUBLICATIONS

- Founder of the CloudAudit project and the HacKid conference
- Blogger at www.rationalsurvivability.com/blog
- Keynote presentations at numerous high-profile security conferences including Black Hat, DefCon, Microsoft‘s Bluehat, RSA, Source, SecTor, FIRST, SANS and Troopers.

BIOGRAPHY

Christofer Hoff is the Director of Cloud & Virtualization Solutions at Cisco Systems, where he focuses on virtualization and cloud computing security, spending most of his time interacting with global enterprises and service providers, governments, and the defense and intelligence communities. Previously, he was Unisys Corporation’s Chief Security Architect, served as Crossbeam Systems’ chief security strategist, was the CISO and director of enterprise security at a USD 25 billion financial services company and was founder/CTO of a national security consultancy amongst other startup endeavors. Hoff is interviewed regularly by the media and press, is a featured guest on numerous podcasts and has keynoted and presented at several high-profile security conferences including Black Hat, DefCon, Microsoft‘s Bluehat, RSA, Source, SecTor, FIRST, SANS and Troopers.

Hoff is a founding member and technical advisor to the Cloud Security Alliance, founder of the CloudAudit project and the HacKid conference and blogs at http://www.rationalsurvivability.com/blog

Hoff is a CISSP, CISA, CISM and NSA IAM. He was twice nominated as the Information Security Executive of the Year and won the Security 7 award in Financial Services in 2005. Hoff is a 2010 Microsoft MVP (Security) and a 2010 VMware vExpert.

THE FUTURE OF CLOUD COMPUTING

Christofer Hoff

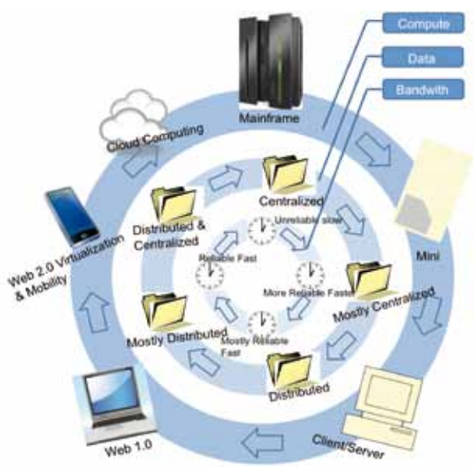
Cloud computing represents a [r]evolution in the way in which we interact with information. While there are numerous definitions, cloud computing is often described in terms of how it differs from traditional information technology approaches. Specifically, cloud computing is an operational model that provides for:

- The abstraction of infrastructure from the resources that deliver them
- The democratization of those resources as an elastic pool to be consumed
- Services-oriented, rather than infrastructure or application-centric
- Enabling self-service, scale on-demand elasticity and dynamism
- A utility-like consumption and allocation model

The emergence of cloud as cult-status popular culture has its muse anchored firmly in the little machines nestled in the hands of those who may be totally unaware that they have helped to create the IT revolution, i.e. the consumers. The consumer shift to an always on, many-to-many communications model with unbridled collaboration and unfettered access to resources, sharply contrasts with traditional IT, which is constrained, siloed, well demarcated, communication-restricted, and infrastructure-heavy.

We are evolving into a society that is dedicated to convenience, where we are not tied to a machine, but rather the machine is tied to us and always on. Your applications and data are constantly available and consumed according to business and pricing models that are based upon what you use, while the magic serving it up remains opaque.

There is a tremendous amount of iteration and debate regarding the future of the “backend” of cloud computing, the IT-centric, provision side of the equation. As services and approaches commoditize, the “back-end” is ultimately less interesting than how the applications and content proffered will be consumed.



Cloud computing provides for the mass re-centralization of applications and data in mega-datacenters, while simultaneously incredibly powerful mobile computing platforms provide for the mass re-distribution of (in many cases the same) applications and data. We are fixated on the security of the former but are ignoring that of the latter at our peril.

People worry about how cloud computing places their applications and data in the hands of others. The reality is that mobile computing and the clouds that currently exist or will form because of it, are already quite literally putting such applications and data in other people’s hands.

If we wish to “secure” the things that matter most and be successful in our approach, we must REFOCUS on building secure application architecture, enabling information centricity and building survivable systems.

This talk will focus on how cloud computing, in all its delivery and deployment models, ultimately intersects with the consumerization of information technology and what that means from a management, security and compliance perspective.

SPEAKERS

DAVID LACEY

Information Security & Risk Researcher and Author, United Kingdom

CONTACT

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CURRICULUM VITAE

1974–1982	Programmer/Systems Analyst, Home Office
1982–1989	Head of Computer Security, Foreign & Commonwealth Office
1989–1999	Principal Technology Consultant, Shell International Petroleum Company
1999–2005	Director of Security & Risk, Royal Mail Group

ASSOCIATIONS

British Computer Society
Information Systems Security Association
Jericho Forum
Institute of Directors
Information Technology Company

AWARDS

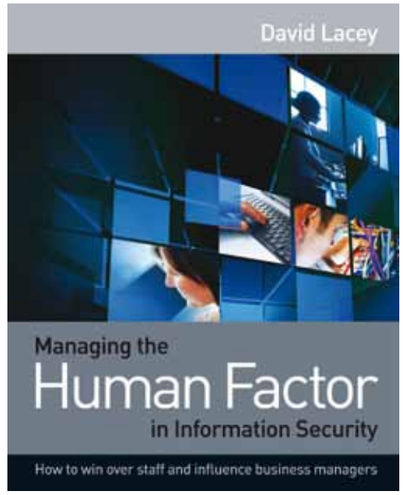
- 2005: SC Magazine Europe Award for “Best Security Team”
- 2006: Honorary Fellow, Jericho Forum
- 2009: Member of Infosecurity Europe “Hall of Fame”

PUBLICATIONS

- 2009: “Managing the Human Factor in Information Security” (John Wiley)
- 2010: “Managing Security in Outsourced and Off-shored Environments” (BSi)
- 2011: “Business Continuity Management for Small and Medium Enterprises” (BSi)

STAYING SAFE - IT SECURITY AND THREATS

David Lacey



“Managing the Human Factor in Information Security” by David Lacey

Protecting critical infrastructure and citizen interests from cyber crime, espionage and warfare.

At the heart of the digital revolution is the power of the network to leverage resources and reach out across borders. This capability can be exploited for positive or negative purposes. Networks enable citizens to share knowledge and harness almost unlimited resources. At the same time, they provide a powerful channel for crime, terrorism and warfare. By exploiting a tiny flaw in a single line of software, spies and criminals can steal huge amounts of intellectual property, or assume control of supervisory systems controlling critical infrastructure.

Today’s cyber attacks are sophisticated and well-funded. Thefts of government and industrial secrets have reached unprecedented levels, and the capability of organized crime has become alarmingly sophisticated. Of even greater concern is the nature of future attacks. Early cyber attacks aimed to disrupt services. Current ones generally set out to steal secrets. Future ones might seek to manipulate or alter critical data or software, creating severe damage to business services and public safety. The line between cyber espionage and cyber warfare is razor thin, as the same techniques can be exploited to achieve both ends.

Responding to these emerging threats is far from easy, as the advantages of speed, surprise and initiative lie with the attacker. It demands a quantum leap in our ability to prevent, detect and respond to attacks. Traditionally, government agencies have managed the response to national security threats. Cyber defense requires a different approach. In today’s deregulated markets, governments must look to industry and consumers to safeguard national interests.

This talk will explore the nature of the emerging security threats and their implications for business and society. It will examine the vital balance between the conflicting interests of national security and data privacy. Finally, it will discuss the key characteristics of solutions, including technology, standards and legislation, and the roles and actions required of government, industry and citizens.

MANAGING THE HUMAN FACTOR IN INFORMATION SECURITY

With the growth in social networking and the potential for larger and larger breaches of sensitive data, it is vital for all enterprises to ensure that computer users adhere to corporate policy and project staff design secure systems. Written by a security expert with more than 25 years’ experience, this book examines how fundamental staff awareness is to establishing security and addresses such challenges as containing threats, managing politics, developing programs, and getting a business to buy into a security plan. Illustrated with real-world examples throughout, this is a must-have guide for security and IT professionals.

SPEAKERS

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CURRICULUM VITAE

1991–1998	Software, Planung & Gestaltung SPUG, Heidelberg, Germany Founder and General Manager Development of healthcare monitoring solutions for several universities Development of minesweeping & UXO detection systems for the German army
1998	Degree in physics, University of Heidelberg, Germany
1998–2000	Microsoft Consulting Services, Hamburg, Germany
2000–2002	Microsoft EMEA Headquarters, Paris, France Responsible for telecommunications & hosting companies
2002–2006	Technology architect for the Swiss government, Microsoft Switzerland Co-author of the e-government reference architecture saga.ch
2006–2008	Microsoft Development, Platform & Strategy Group, Zurich Author of several “Windows PowerShell” e-books
2008–present	Infrastructure Architect & Technical Environmental Lead, Microsoft Germany Co-author of the book “Green Office”, Fraunhofer IAO Co-author of the book “Microsoft Software Report” Author of several articles about Green IT for the TechNet magazine

Speaker at several conferences including IDC conference, Microsoft Management Summit, Microsoft TechEd, Datacenter Dynamics, Storage & Network World, cebit, Müchner Kreis, EU Sustainability Energy Week, Brussels.

Track owner for the Green IT track at the German-Japanese Symposium 2010, Osaka, Japan

Microsoft representative at national “Green IT Allianz” and e-Energy working group, as well as national technology working groups

SUSTAINABILITY OF IT INFRASTRUCTURE

Frank Koch

Figure 1

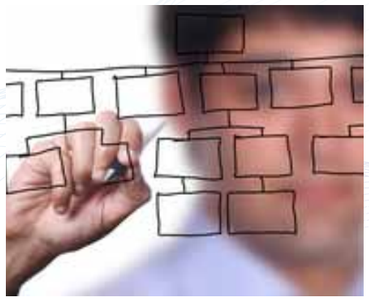
Operating highly efficient data centers is imperative as more consumers and companies move to a cloud computing environment. Clearly, industry is going to face greater challenges with regard to its use of power, carbon, and water as resources. With high energy costs and pressure to reduce carbon emissions, data center operators need to accurately measure and continually innovate in order to optimize power use and environmental sustainability. Microsoft is proactively addressing both the measurement and employment of these resources, and continues to seek innovative solutions to reduce our environmental impact.

When most people think about a data center, they envisage rows of servers mounted in racks, filling up a raised floor environment. What they often do not recognize is the vast amount of infrastructure that supports the operation of the servers, from the substation that provides primary power and the diesel back-up generators, to the battery UPS, air handlers, cooling towers and chiller plants. In traditional data center designs over 50 per cent of construction space is filled by the support infrastructure required to operate and cool the servers.

In order to help reduce the support infrastructure, we are actively pursuing a number of strategies at our data centers. Today, we are building new data centers that will radically change traditional thinking and assist improvements in efficiency. We are pursuing a move away from traditional, monolithic, raised floor mega data centers towards new, modular pre-manufactured components that will help to reduce energy and resource waste, increase scalability, and improve time-to-market (Fig. 1).

Our recent experience in data center design has taught us that a holistic approach that looks at both the component and the system level is necessary for maximum efficiency yield. Standardization and commoditization lead to dramatic improvements in scalability and efficiency, and form the foundation of our future datacenter strategy, which employs pre-assembled components in every area (Fig. 2). This concept includes smart cooling technologies such as outside air usage, avoiding of unnecessary server components like USB ports or DVD drives, and the utilization of highly energy efficient components from power supplies over low voltage processors to RAM modules. This has resulted in a new class of highly efficient and environmental-friendlier megawatt data centers.

Figure 2



UPPER AUSTRIA - A MODEL IT-REGION

UPPER AUSTRIA – A MODEL IT REGION

THE INNOVATION SPIRAL

IT is a major driving force for innovation and economic wealth in our society, and it is estimated that up to 40 per cent of the innovative power of our modern world emanates from IT.

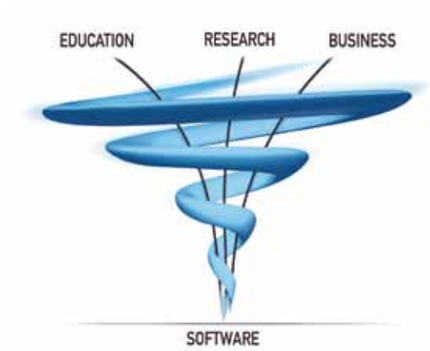
As an enabling **cross-sector technology**, IT forms a keystone for many other economic sectors. In areas such as the automotive, media, entertainment, manufacturing, banking and office equipment industries, to name but a few, this would appear to be obvious. However, many of the **appliances that we employ on a daily basis** also contain IT without the standard user generally even being aware of. In fact, with the support of mobile communication technologies, the " device Internet" is a not too distant reality. The young generation of "**digital natives**" is not only utilizing the social media for chatting and fun, but also to shape society. In turn, the elderly benefit from assisted living technologies and innovative, comfortable healthcare services supported by IT.

IT – THE INNOVATION DRIVER IN UPPER AUSTRIA

Consequently, IT is nothing less than a driver of both our societal development and innovation, and a **guarantor for our wealth and well-being**.

The impetus for the rotation of the spiral of innovation emanates from the well-balanced interaction between the three components comprised by **research, education and business**. Whenever these three components work together in a coordinated manner, numerous synergies can take effect.

In Upper Austria this has always been the credo for innovation politics in general and is particularly true with regard to IT. The Upper Austrian government has acknowledged the key role of IT in economic development and has thus defined concrete measures relating to IT in its **Innovative Upper Austria 2010 plus**[1] strategic economic and research program.



In its role as a model IT region, Upper Austria is well appointed with **research, educational and scientific** institutions of high reputation, as well as numerous innovative companies. Moreover, Upper Austria lends major priority to making research and teaching attractive. In addition, apart from stimulating and supporting the foundation of enterprises in the IT area, institutions and companies are highly networked in order to achieve the best possible support of their mutual development.

Linz, the capital of Upper Austria, is a **major industrial center**. It is home to **voestalpine**, a global steel and metallurgical products group with 40,000 employees worldwide, **Siemens VAI** with some 1,850 plant building specialists, and the **Borealis** Innovation Headquarters with 300 international experts from the fields of chemicals and plastics. Such leading industrial companies have a need for reliable and efficient IT solutions and in turn, this stimulates the local IT sector.

[1] *www.2010plus.at*

IT EDUCATION IN UPPER AUSTRIA

IT related academic education in Upper Austria was established by **Johannes Kepler University Linz (JKU)** in the **1970's**. By the 1990s, the University of Applied Sciences Upper Austria (UAS Upper Austria) had followed suit, setting up the School of Informatics, Communications and Media in Hagenberg. It was originally guided by the example and expertise of **JKU**. Indeed, these strong academic and research links have helped establish the school's outstanding reputation.

BRANCH OF STUDY: BACHELOR'S	POSSIBLE MASTER'S STUDIES: Bioinformatics	Informatics	Pervasive Computing	Networks & Security	Software Engineering	Information Electronics	Industrial Mathematics	Computer Mathematics	Business Informatics	Mechatronics	Biomedical Informatics	Digital Arts	Embedded Systems Design	Information Engineering and Management	Interactive Media	Communication and Knowledge Media	Mobile Computing	Secure Information Systems	Software Engineering	Web Sciences	JKU International Master's Program for Informatics
Informatics	•	•	•	•	•	•														Start in the 2011/2012 winter semester, JKU	Unique study program at the Softwarepark Hagenberg campus*
Information Electronics						•															
Technical Mathematics							•	•													
Mechatronics						•				•											
Biology, Chemistry, Mathematics, Statistics	•																				
Business Informatics	•								•												
Hardware-Software-Design													•								
Communication and Knowledge Media															•						
Media Technology and Design												•			•						
Medical and Bioinformatics											•										
Mobile Computing																•					
Secure Information Systems																		•			
Software Engineering														•					•		

) The JKU International master's degree course in informatics at the **Softwarepark Hagenberg campus is a unique study program. During this master's course, a group of around **25 top international students** (from countries such as Romania, Egypt, Japan, Venezuela, etc.) work in close cooperation with sponsor companies. The teams formed by students, academic advisors and industrial clients ensure high-level practical training on a very individual basis. The graduates from this program are sure of a welcome from Upper Austrian industry.*

UPPER AUSTRIA – A MODEL IT REGION

IT- RESEARCH IN UPPER AUSTRIA

Upper Austria has defined IT as a field of strength.

In the IT area there are the following two fields of excellence:
- Computation in informatics and mathematics
- Mechatronics and information processing.

IT research is carried out at the institutes of the **Johannes Kepler University Linz**, several of which are located in Hagenberg or have a branch office there.

IT RESEARCH FACILITIES IN UPPER AUSTRIA

JOHANNES KEPLER UNIVERSITY LINZ www.jku.at

Institutes
- Institute for Application-Oriented Knowledge Processing
- Institute for Bioinformatics
- Institute for Business Informatics - Communication Engineering
- Institute for Business Informatics - Data & Knowledge Engineering
- Institute for Business Informatics - Information Engineering
- Institute for Business Informatics - Software Engineering
- Institute for Computational Perception
- Institute for Computer Architecture
- Department of Applied System Research and Statistics
- Institute for Computer Graphics
- Institute of Data Processing for Business Administration
- Institute for Formal Models and Verification
- Institute for Information Processing and Microprocessor Technology
- Institute for Integrated Circuits
- Institute for Pervasive Computing
- Institute for Systems Engineering and Automation
- Institute for Systems Software
- Institute for Telecooperation
- Institute for Computational Biology
- Institute for Symbolic Computation (RISC – Research Institute for Symbolic Computation)

COMPETENCE CENTER (K1)
- Software Competence Center Hagenberg (SCCH) www.scch.at

CHRISTIAN DOPPLER LABORATORIES
- Automated Software Engineering http://ase.jku.at
- Integrated Radar Sensors www.nthfs.jku.at
- Client-Centric Cloud Computing

ACADEMY OF SCIENCES
At the Johannes Kepler University Linz campus, **RICAM**, a large institute of the Austrian Academy of Sciences, pursues computational and applied mathematics.
www.ricam.oeaw.ac.at

SPIN OFFS
- RISC Software GmbH www.risc-software.at
- MathConsult www.mathconsult.co.at

UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA www.fh-ooe.at

Industry-focused applied research is undertaken at the University‘s research center in Hagenberg. More than 50 researchers specialize in four key areas closely reflecting to the range of study programs at the School of Informatics, Communications and Media:

- Software Technologies and Applications
- Information and Communication Systems
- Media and Knowledge Technologies
- Ambient Assisted Living

The **UAS Upper Austria School of Informatics, Communications and Media** is currently involved in over 50 projects, based on the following 10 research groups:

- Bioinformatics
- Embedded Systems
- Heuristic Methods and Evolutionary Algorithms
- Integrated Care – e-Health
- Knowledge Media
- Media Interaction Lab
- Medical Informatics
- Mobile Radio Networks
- Secure Information Systems
- Smart Environments and Mobile Enterprise Systems

UPPER AUSTRIA – A MODEL IT REGION

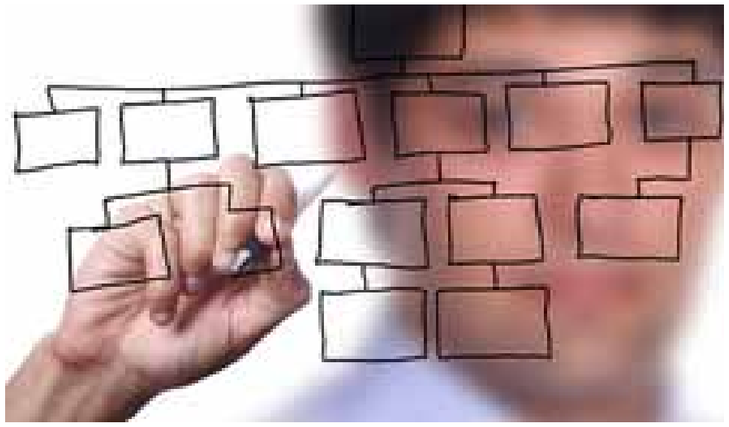
IT BUSINESS IN UPPER AUSTRIA

IT in Upper Austria has an Excellent Mix

The city of Linz has a strong record in the creative industries field with a vibrant and highly respected electronics arts scene (Ars Electronica Center). This creative aspect rounds off the general IT picture and represents a perfect complement to its more technical and business-oriented aspects.

On the periphery of the universities, talent can be found both in terms of both **technical expertise and entrepreneurial spirit**. Accordingly, business incubators have the task of fostering the foundation and growth of innovative, fledgling companies. Tech2b is one such publicly owned, high-tech incubator in Linz and some about 40 per cent of its **start-ups** relate to IT areas.

Upper Austria's **IT industries** cover all aspects of this wide-ranging sector from basic IT products, services and infrastructure (such as computer hardware, networks and security appliances), to specialized solutions for technical sectors such as steel, chemicals and logistics. In addition, all aspects, from classic IT solutions for office applications, accounting, administration and sales in a variety of target segments, to new platforms based on web and mobile technologies, social media and new media, are covered.



2,943 companies are active in the IT sector in Upper Austria, which represents over 12.7 per cent of the national branch (total of 23,224 enterprises). Of the workforce of roughly 94,000 employed in the IT area, almost 10 per cent work in Upper Austria.

Figures: Statistik Austria

SOFTWAREPARK HAGENBERG

Some good examples of Upper Austrian IT can be found in Hagenberg, which is located about 25 kilometers northeast of Linz. This is the home of the Softwarepark Hagenberg, an important technology complex with 1,000 employees in around 60 companies and 11 research facilities, as well as 1,500 students in some 20 study programs. The Softwarepark Hagenberg is a spin-off of Johannes Kepler University Linz (JKU) and represents an internationally renowned, model implementation of the "innovation spiral" with fully-fledged IT representation in the form of research, educational and business units.

On the basis of its extensive educational and research facilities and its vital community of innovative entrepreneurs, the Softwarepark Hagenberg constitutes an increasingly attractive location for multinational IT business. The Park's founder, Prof. Bruno Buchberger, has launched a number of special initiatives in recent years with the objective of fostering the foundation, settlement and expansion of international IT businesses.

The **International Colocation Center Hagenberg** (ICCH) aims at initiating innovative IT projects with international partners. To this end, it closely cooperates with funding experts in order to address appropriate potential sources of public funding (national and EU level).

Softwarepark Hagenberg

Hagenberg Cloud Computing Association (HCCA) is a group of companies and research facilities interested in discussing business and research issues related to cloud computing.

The **International Incubator Hagenberg** seeks to attract international IT start-ups to Hagenberg. As a unique feature it offers private equity from the regional Raiffeisen bank plus the excellent coaching services provided by tech2b. Its operations are funded by the Upper Austrian government.

The **University of Applied Sciences Upper Austria** offers a center of excellence in practice-focused study and research at its School of Informatics, Communications and Media in Hagenberg. The school's research center is home to top-level institutes including the Josef Ressel Center of Heuristic Optimization (Heureka!) and the Austrian Research Studio of Natural User Interfaces for Collaborative Environments (NiCE).

Bruno Buchberger, a renowned professor of computer mathematics, founded the Softwarepark Hagenberg in 1989, soon after moving his RISC university institute from Linz to the castle of Hagenberg. Since then, Prof. Buchberger has headed the development of this unique technology park. Bildquelle: OÖN, Weihbold

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Our partners in Alpbach

WKO WIRTSCHAFTSKAMMER OBERÖSTERREICH

iv INDUSTRIELLENVEREINIGUNG OBERÖSTERREICH