HPI Hasso Plattner Institut
IT Systems Engineering | Universität Potsdam

Leopoldina
Nationale Akademie der Wissenschaften

Symposium

Big Data in Medicine

Joint Symposium of the German National Academy of Sciences Leopoldina and the Hasso Plattner Institute for Software Systems Engineering

July 1-2, 2015 | Hasso Plattner Institute
Prof.-Dr.-Helmert-Str. 2-3 | 14482 Potsdam, Germany

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Big Data in Medicine – Program

Wednesday, July 1, 2015 (Day 1)

12:00 PM – 12:20 PM **Opening Ceremony**

Christoph Meinel *(Director Hasso Plattner Institute)*
Peter Propping *(Member of the Presidium of the Leopoldina)*

12:20 PM – 12:40 PM **Welcome Address**

Sabine Kunst *(Minister for Science, Research and Culture of the State of Brandenburg)*

12:40 PM – 1:20 PM **Keynote**

Moving towards Systems Medicine: The Role of Information Technology
Heyo Kroemer *(University Medical Center Göttingen)*

1:20 PM – 1:50 PM **Coffee Break**

Session 1
Big Data on the Way to Translation: Biomarker, Targeted Therapies, Studies

Session Chair: Detlev Ganten *(Charité, Berlin)*

1:50 PM – 2:20 PM

HIV Therapy – Spearheading Individualized Medicine
Thomas Lengauer *(Max Planck Institute for Informatics, Saarbrücken)*

2:20 PM – 2:50 PM

Genotypes, Phenotypes, Models and Trial Designs – A Biometric Perspective on Clinical Decision Making
Markus Löffler *(Institute for Medical Informatics, Statistics and Epidemiology, University Leipzig)*

2:50 PM – 3:20 PM

Trends in Translational Medicine: The Increasing Value of Academic-Industrial Collaboration
Khusru Asadullah *(German Skin Research Center, Charité, Berlin)*

3:20 PM – 3:40 PM **Coffee Break**

Session 2
Motorizing Big Data: -omics Technologies and IT?

Session Chair: Stefan N. Willich *(Charité, Berlin)*

3:40 PM – 4:10 PM

Enabling Personalized Medicine Through Real-Time Big Data Analytics and Interdisciplinary Cooperations
Christoph Meinel *(Hasso Plattner Institute for Software Systems Engineering, Potsdam)*

4:10 PM – 4:40 PM

From Systems Biology to Systems Medicine: Easier Said Than Done
Rudi Balling *(Luxembourg Centre for Systems Biomedicine, Esch-sur-Alzette, Luxembourg)*

4:40 PM – 5:10 PM

Motorizing Big Data for Population Health and Health Care – From Global Burden of Disease to Cost-Effectiveness of Routine Care
Reinhard Busse *(Institute for Technology and Management, Technical University of Berlin)*

5:10 PM – 5:30 PM **Coffee Break**

5:30 PM – 6:50 PM

Breakout Session 1

Session Chair: Thomas Lengauer
Rapporteur: Kathrin Happe

Breakout Session 2

Session Chair: Peter Propping
Rapporteur: Johannes Fritsch

6:50 PM – 7:30 PM **Break**

7:30 PM – 9:30 PM **Dinner**

avendi Hotel am Griebnitzsee
Rudolf-Breitscheid-Straße 190
14482 Potsdam-Babelsberg

Thursday, July 2, 2015 (Day 2)

8:45 AM – 09:30 AM **Keynote**

The Data Age of Pharmaceutical Innovation
Matthias Evers *(McKinsey & Company, Hamburg)*

9:30 AM – 9:50 AM **Coffee Break**

Session 3
Examples: Cancer, Microbiomics and Infections

Session Chair: Werner Mewes *(Helmholtz Center Munich)*

9:50 AM – 10:20 AM

(Big) Data in Cancer Research: Of Snapshots and Dynamic Processes
Reinhold Schäfer *(Charité Comprehensive Cancer Center, Berlin)*

10:20 AM – 10:50 AM

Surveillance and Outbreak Response Management System (SORMAS)
Gérard Krause *(Helmholtz Center for Infection Research, Braunschweig)*

10:50 AM – 11:20 AM

Challenges of Big Data for Data Protection in Biomedical Research
Johannes Drepper & Irene Schlünder *(Technology, Methods, and Infrastructure for Networked Medical Research, Berlin)*

11:20 AM – 11:40 AM **Coffee Break**

11:40 AM – 1:10 PM

Session 4
Handling of Patient Data: National Cohort, Bio Banks, Data Integration

Session Chair: Marcella Rietschel *(Central Institute of Mental Health, Mannheim)*

11:40 AM – 12:10 PM

Connecting Basic Life Science Research and Clinical Research through (Big) Data
Alf Wachsmann *(Max Delbrück Center for Molecular Medicine, Berlin)*

12:10 PM – 12:40 PM

Industrial Internet and Big Data in Healthcare
Achim Berlis *(GE Healthcare Information Technologies, Dornstadt)*

12:40 PM – 1:10 PM

The German National Cohort: A Big Data Project?
Karl-Heinz Jöckel *(University Hospital Essen)*

1:10 PM – 2:00 PM **Lunch**

2:00 PM – 3:30 PM

Breakout Session 3

Session Chair: Phillip U. Heitz
Rapporteur: Reinhold Schäfer

Breakout Session 4

Session Chair: Matthieu-P. Schapranow
Rapporteur: Cindy Perscheid

3:30 PM – 4:45 PM **Presentation of Results and Closing Remarks**

Christoph Meinel & Detlev Ganten

Panel:
Phillip U. Heitz, Matthieu-P. Schapranow

Key questions

Breakout-Session 1: Big Data on the Way to Translation: Biomarker, Targeted Therapies, Studies

(K. Asadullah, T. Lengauer, M. Löffler)

- The success of the so-called personalized or individualized medicine crucially depends on how quickly research results can be transferred into clinical practice. How can basic medical research and translation of its results into the clinic be enhanced? What are the main barriers that need to be overcome, i.e., regarding communication and collaboration, data collection, funding, education and regulation? How can academic and industrial collaboration be facilitated? What are the framework conditions that enable partners from academic research, industry and regulatory authorities to exchange information early on specific requirements for the efficient translation of innovative and integrative medical approaches?
- The availability of suitable biomarkers is essential for the taxonomic classification of diseases and the assignment of patients to preventive, diagnostic and therapy-relevant groups. Out of the spectrum of potentially disease-associated biomarkers only a very small fraction has been validated for clinical use, yet. Are expectations concerning the future power of molecular biomarkers for healthcare exaggerated? How can sensitivity and reliability of biomarkers for diagnosis and therapy be improved? What role do long-term cohort studies play in this context?

Breakout-Session 2: Motorizing Big Data: -omics Technologies and IT?

(R. Balling, R. Busse, C. Meinel)

- Latest sequencing techniques already make it possible to decode the individual human genome and test it for disease-relevant factors at adequate time and cost. Should high-throughput bio-analytical techniques, such as genome sequencing and analysis, be established locally at clinics and university hospitals or is it more reasonable to outsource these technologies early on to optimized service providers? Should clinicians and

oncologists have access to raw data or only to an aggregated, interpreted format? Which of the involved steps in processing -omics data should be optimized or accelerated to make the results more valuable for clinicians? Would you yourself make use of analytical services if there are no technical barriers to set them up/use them? Imagine a secured cloud-based software solution, which gives you full access to preconfigured tools to analyse genomic data with respect to your individual needs without the need to involve your local IT staff: would you make use of such an offer or what drawbacks do you see? Are there differences between genomics and further -omics technologies, such as transcriptomics, proteomics, and metabolomics, that need to be considered in this context?

- Medical progress leads to a significant increase of the amount of disease-relevant patient data and the number of treatment options that are available. How can the necessary expansion and networking of IT infrastructure and bioinformatics in healthcare be accomplished? Do we need a reform of medical curricula providing future medical doctors with enhanced IT expertise or do you see a need for interdisciplinary teams? Where do you see a need to bundle expertises in interdisciplinary teams consisting of life science experts, e.g. life science, IT, biological, medical, etc.? Should working in interdisciplinary teams be part of the medical curriculum?
- The new data- and technology-intensive treatment options require more and more teamwork including non-medical personnel and assessment software to support treatment decisions. How should the rights and duties of non-medical scientists be regulated? How can decision-supporting software and continuous updates of it be validated and authorized for application? Who is responsible if a software-based decision failure occurs? Would you accept to use decision-support software as a “black box” or are you requiring a medical argument supporting the suggestion made by the software? Should the inner functions be open to understand by doctors?
- The continuously increasing amounts of diagnostic and therapeutic options raise the need for adequate counselling of patients. How could a quality-based, expert approved information platform be established that helps medical doctors and patients to be adequately informed with the latest medical information? Do you regard the informed patient (e.g. searching for critical diseases or knowing the diagnosis already at the first doctor visit) as a partner in future treatments or as a risk? Would a more informed patient be helpful providing valuable input to the ongoing patient-doctor interaction helping doctors to take more appropriate decisions?

Breakout-Session 3: Examples: Cancer, Microbiomics and Infections

(J. Drepper, G. Krause, R. Schäfer, I. Schlünder)

- Tumor therapy is currently undergoing a fundamental transformation. Therapeutic decisions for many malignant tumors are already based on molecular biological findings. Hopes are that genetic profiles of individual tumours will give rise to a deeper understanding of the tumour process opening a precise categorisation of each tumour into a molecular subtype and individual targeted treatment strategies for each tumour patient. Does this principle apply also to other common chronic illnesses, which occur particularly at more advanced ages and that are caused by a large number of genes and environmental influences? Do you feel that a higher coverage of patient activities, e.g. sensors, self-reported outcomes, wearables, can contribute to treating chronic diseases in a more adequate way?
- Associations have been demonstrated between the composition of gastrointestinal flora and the development of obesity and chronic inflammatory bowel disease as well as tumours, diabetes and atherosclerosis. Microorganisms that colonise skin and lung tissue have already been linked with the development of asthma and psoriasis. To what extend are microbiomes adapted to a person's genome and lifestyle (e.g. nutrition) and to what extent does the microbiome contribute to the genesis of disease? How do microbiome and administration of drugs influence one another? Can we determine and influence individual microbiome patterns and thus risk of disease by means of diet and pro- and antibiotics?
- It has been shown that there is sometimes a great deal of overlap in the association of alleles between different psychiatric diseases, such as between schizophrenia and the bipolar form of manic-depressive disorder and between unipolar depressive disorder and attention deficit hyperactivity disorder. The fact that different psychiatric disorders may have the same genetic cause also makes overlapping pathophysiologies likely but there is still a great amount of environmental factors influencing the genesis and severity of psychiatric diseases. How can these influences be measured and uniformly defined in an indication-related way to be comparable and evaluable across clinical studies?

Breakout-Session 4: Handling of Patient Data: National Cohort, Biobanks, Data Integration

(A. Berlis, K.-H. Jöckel, A. Wachsmann)

- Among the greatest challenges resulting from the increasing amount of disease-relevant patient data are those regarding standardising and securing the involved complex data and deriving reliable results and practicable options for action from them. Digital patient records that are accessible to research and medical treatment are becoming indispensable in healthcare care. Do you see that EMR data from historic cases could be used for the treatment of a current case? How should heterogeneous data from anamnesis, -omics analyses and imaging be integrated into a meaningful individual patient profile? How should the huge amounts of personal data, for example from genome sequencing, be stored in the future? Who should have what kind of access to these data? Is protection of sensitive/personal data really an unsolved issue? Who is responsible for managing and securing the patient data? Would an interchange of such data between authorised personnel be helpful for an improved healthcare system?
- Harmonization of biobanks includes standardized protocols for sample preparation and storage, standardized clinical data and efficient networking of biobanks. Who could or should manage a national or even international harmonization of biobanks? How can private operators of biobanks be convinced to participate in this process, e.g. certification vs. required auditing?

Prof. Dr. Khusru Asadullah

Chairman of the German Skin Research Center, Charité, Berlin

From 2011 to 2014 Khusru Asadullah was Vice President and Head of Global Biomarkers at Bayer HealthCare Pharmaceuticals. Before this he headed Target Discovery and Inflammation and Immunology research at Bayer Schering Pharma and Dermatology research at Schering. He is a Professor of Medicine at the Charité Berlin. Asadullah graduated from the Medical School Charité, Berlin and the Harvard Business School, Boston. He is a board certified Dermatologist and Immunologist. Over the past years he made several contributions in particular in translational medicine, cytokines, kinases and nuclear receptors. He published more than 150 articles in peer reviewed journals including in top journals such as J Clin Invest, Nature, Nature Medicine, Nature Reviews Drug Discovery, and PNAS and is a member of several international editorial boards. His current major research activities are in the fields of biomarker, personalized and translational medicine. Since January 2015 he is on a sabbatical from Bayer, teaching at the Charité, consulting and seeing patients in private practice.

Prof. Dr. Rudi Balling

Director of the Luxembourg Centre for Systems Biomedicine (LCSB)
at the University of Luxembourg

Rudi Balling studied nutrition at the University of Bonn and the Washington State University (USA) and received his PhD in Human Nutrition from the University of Bonn in 1984. After completing research posts at Mount Sinai Hospital in Toronto (Canada) and the Max Planck Institutes for Biophysical Chemistry in Göttingen and Immunobiology in Freiburg, he became Director of the Institute of Mammalian Genetics at the GSF National Research Center for Environment and Health in Munich in 1993. In 2001, he took over the position as Scientific Director of the Helmholtz Centre for Infection Research in Braunschweig.

In 2009, he became founding director of the LCSB, which he shaped towards a systems approach that integrates computational modeling with experimental and clinical data. The integration of big and complex data sets is therefore a driving factor for the research at LCSB.

Achim Berlis

General Manager for Healthcare Information Technology (HCIT) Germany, Austria, Switzerland, Eastern Europe/ Gerneral Manager at GE Healthcare Information Technologies GmbH & Co. KG, Dornstadt

Achim Berlis is currently General Manager of HCIT Germany, Austria, Switzerland and Eastern Europe. From 1989 to 1994 he studied Biomedical Engineering at the FH Ulm and worked there from 1994 to 1997 as Research and Software Development Engineer. In 1998 he started his career at GE Healthcare as a HCIT project manager. In 2002 he became Manager and in 2008 General Manager of HCIT Systems Integration Europe & EAGM.

Prof. Dr. Reinhard Busse

Head of the Department of Health Care Management
Institute for Technology and Management
Technical University Berlin

Professor Reinhard Busse is the head of the Department of Health Care Management in the Faculty of Economics and Management at the Technical University Berlin. He is also a faculty member of The Charité, Berlin's university hospital, is Associate Head of Research Policy and head of the Berlin hub of the European Health Observatory on Health Systems and Policies, is a member of several scientific advisory boards, as well as a regular consultant for WHO, the EU Commission, the World Bank, OECD and other international organizations within Europe and beyond, in addition to national health and research institutions. His research focuses on the methods and contents of comparative health system analysis, health services research and health economics including cost-effectiveness analyses, and health technology assessment (HTA). His department has been designated as a WHO Collaborating Centre for Health Systems Research and Management. He is the director of the annual Observatory's summer school in Venice and was the coordinator of the EU-funded project „EuroDRG: Diagnosis-Related Groups in Europe: towards Efficiency and Quality" (2009 – 2011). He has been Editor-in-Chief of the international peer reviewed journal Health Policy since 2011. Professor Busse studied medicine in Marburg (Germany), Boston (USA), and London (UK), as well as public health in Hannover (Germany).

Dr. Johannes Drepper

Scientific Staff at the Technology, Methods,
and Infrastructure for Networked Medical Research, Berlin

Johannes Drepper received his diploma in psychology from the University of Hamburg and his doctoral degree in natural science from the University of Bochum. His research focused on neuropsychology and brain research. From 2000 to 2005 he worked as a consultant for projects on electronic patient records in a software company (Optimal Systems GmbH, Berlin). In 2005 he joined the TMF with focus on data protection and IT infrastructure in medical research projects. Today he is managing and coordinating with his team the TMF working groups on data protection, IT infrastructure and quality management, management of clinical trials, as well as medical technology and corresponding projects. He is co-author of the TMF guideline on data protection in medical research projects published in 2014 and recommended by german association of government data protection officers to researchers as a basis for planning and implementation of large data and sample collections. He is also co-author of the comment by TMF on drafted legislation for a European General Data Protection Regulation.

Matthias Evers PhD

Director in McKinsey's Hamburg Office and Co-Leader of the EMEA Pharmaceuticals and Medical Products (PMP) R&D and Medical Practice

Matthias Evers is a Director in McKinsey's Hamburg office and co-leader of the EMEA Pharmaceuticals and Medical Products (PMP) R&D and Medical Practice. Since joining the Firm in 2002, Evers engaged with pharmaceuticals clients in EU but also in the US and in Asia transforming R&D organizations to overcome innovation and productivity issues through deep-rooted transformatory approaches. His focus has been on critical junctures and capabilities in early clinical development and in the late-stage clinical, medical, and exploring the value of big data/advanced analytics in the trial and real-world setting. In addition, he has engaged in translating learnings between innovator and generics R&D (e.g., on biosimilars) as well as supporting a cross-industry dialog on drug innovation.

Evers holds a Ph.D. in Chemistry/Biochemistry from the University of Bochum with a particular focus on Neuroscience. Before his career with McKinsey, he worked as a Research Associate and Postdoctorate at a Center for Molecular Neurobiology in Hamburg. He authored several articles in the field of bioinformatics and molecular biology.

Prof. Dr. Karl Heinz Jöckel

Director of the Institute of Medical Informatics, Biometry and Epidemiology of the University Hospital Essen

Karl Heinz Jöckel is currently the Director of the Institute of Medical Informatics, Biometry and Epidemiology of the University Hospital Essen. He studied mathematics and economics at the University of Münster. From 1983 to 1994 he was the Head of the Department of Biometry and IT at the Bremen Institute for Prevention Research and Social Medicine (BCIPS). During this time he was also the Deputy Head of the BCIPS. In 1993 he became Professor for Biometry at the University of Bremen. From 2004 to 2008 he was Dean of the Faculty of Medicine at the University Duisburg-Essen. He is member of the German Commission on Radiological Protection and Chairman and Scientific Director of the German National Cohort.

Prof. Dr. Gérard Krause

Helmholtz Center for Infection Research, Braunschweig
Professor for Infectious Disease Epidemiology at the Medical University Hannover (MHH)

Gérard Krause studied medicine at the University of Mainz. During this time, he also received a research doctorate in tropical hygiene from the University of Heidelberg. From 1993 to 1998 he worked as a physician and research associate in the field of tropical hygiene, internal medicine and hospital hygiene at the University Clinic Freiburg. He then went on to work as an epidemic intelligence service officer at the Centres for Disease Control and Prevention in Atlanta, USA. He also completed various research and training residencies in England, Ecuador, Colombia, Burkina Faso and Niger. In 2000 he moved to the Robert Koch Institute in Berlin (RKI) as head of the surveillance unit. In the following years he acquired the medial board certification in hygiene and environmental medicine with an additional qualification in tropical and rescue medicine. He was director of the department for infectious disease epidemiology at the RKI from 2005 to 2013. In 2005 he received the venia legendi in Epidemiology and Hygiene at the Charité Uniersity Medicine in Berlin, where he also founded the Masters of Science Programme for Applied Epidemiology in 2008.

In 2011 Krause accepted the position as full professor (W3) for infectious disease epidemiology at the Medical University Hannover (MHH) and became head of the department of epidemiology at the Helmholtz Centre for Infection Research, Braunschweig. Gérard Krause is a member of various Scientific Advisory Boards. 2014 he was elected incoming president of the German Society for Epidemiology.

Prof. Dr. Heyo Kroemer

Dean, Chairman for Research and Teaching and Speaker of the Managing Board, University Medical Center Göttingen

Heyo Kroemer studied pharmacy at the Technical University Braunschweig. In 1992 he received his postdoctoral lecture qualification (Habilitation) in pharmacy and toxicology at the Eberhard Karls University Tübingen and received the Paul-Martini-Price in the same year. From 1998 – 2012 he was professor for pharmacology and toxicology at the Ernst-Moritz-Arndt-University Greifswald, from 2000 – 2012 Dean of the faculty of medicine at the University Hospital Greifswald, and since 2011 he is also Scientific Chairman there. Heyo Kroemer is currently Dean, Chairman for Research and Teaching and Speaker of the Managing Board at the University Medical Center Göttingen. He is further President of the German Medical Faculty Association. He was Co-Speaker of the working group on individualized medicine of the Leopoldina, which published a statement in December 2014.

Prof. Dr. Thomas Lengauer

Director at the Max Planck Institute for Informatics, Saarbrücken

In 1976 Thomas Lengauer obtained his doctor in mathematics at the Freie Universität Berlin and 1979 his Ph.D. in computer science at the Stanford University. From 1992 to 2001 he was Professor for computer sciences at the University of Bonn. In the 1970s Thomas Lengauer performed research in theoretical computer science, in the 1980s on design methods for integrated circuits. He has been engaged in research in computational biology since the beginning of the 1990s. Since 2001 he is Director at the Max-Planck Institute for Informatics in Saabrücken. His major focuses of research are protein bioinformatics, computational drug screening and design and bioinformatics for understanding and curing diseases.

Prof. Dr. Markus Löffler

Head of the Department of Medical Informatics, Statistics and Epidemiology at the University Leipzig (IMISE)

In 1984 Markus Löffler received his doctor for a mathematical model of hematopoesis at the University of Cologne. In 1990 he got a Postdoctoral lecture qualification ("Habilitation") in Medical Documentation, Statistics and Biomathematics. Since 1994 he is full professor and head of the Department of Medical Informatics, Statistics and Epidemiology at the University of Leipzig (IMISE). Since 1999 he is Scientific Director of the Clinical Trials Coordinating Centre of the University of Leipzig (Zentrum für Klinische Studien, ZKS).

His scientific interests are the Biometry of interventional clinical trial and cohort trials, Cancer epidemiology and carcinogenesis, Integrative Bioinformatics of high dimensional data analyses and Computer based modeling of tissue organization.

Prof. Dr. Christoph Meinel

Scientific Director and CEO of the Hasso Plattner Institute for Software Systems Engineering (HPI), Potsdam

Christoph Meinel studied mathematics and computer science at the Humboldt University of Berlin from 1974 to 1979. In 1981 he received his doctoral degree. From 1981 to 1991 he served as research assistant at Humboldt University and at the Institute for Mathematics at the Berlin Academy of Sciences. He completed his habilitation in 1988, earning the title Dr. Sc. nat. After a research stay at the University of Saarbrücken and a visiting professorship at the University of Paderborn, he became full professor for computer science at the University of Trier, where he held the chair "Theoretical Concepts and New Applications in the Computer Sciences." In 1996 he co-founded and served as director of the Trier branch of the Fraunhofer Institute for Industrial Mathematics (ITWM). In 1998 he founded the non-profit "Institut für Telematik e.V." in Trier and served as institute director from 1998 to 2002. In 2004 he was appointed president and scientific director of HPI at the University of Potsdam and chair of the Internet Technologies and Systems Department. His areas of research focus on Internet and Information Security, Web 3.0, Semantic Web, Social and Service Web and the domains of e-learning, teleteaching and telemedicine. He is scientifically active in innovation research on all aspects of the Stanford innovation method "Design Thinking." Meinel is a member of acatech and numerous scientific committees and supervisory boards.

Prof. Dr. Reinhold Schäfer

Professor of Molecular Tumor Pathology, Charité Comprehensive Cancer Center, Berlin

Reinhold Schäfer received his PhD at the University of Bonn in 1976. After being Postdoctoral Fellow in the Division of Molecular Genetics of the Max-Planck-Institute for Experimental Medicine in Göttingen he was Research Associate at the Institiute of Cell Biology (Tumor Research) in the West German Cancer Center at the University of Essen from 1978 to 1985. From 1988 to 1996 he was the head of the division of Cancer Research of the Department of Pathology at the University Hospital Zürich. Since 1996 he is Professor of Molecular Tumor Pathology and group leader at the Insitute for Pathology at the Charité Berlin. Since 2011 he is Deputy Director and Site coordinator in the German Cancer Consortium (DKTK). In 1988 he received the Swiss Cancer Award (Robert-Wener-Preis) and in 2001 a Price of the Stifterverband für die Deutsche Wissenschaft.

Irene Schlünder

Scientific Staff at the Technology, Methods, and Infrastructure for Networked Medical Research, Berlin

She advises and supports a variety of research projects and services within TMF with a focus on data protection. Due to her expertise in the EU law, Schlünder represents TMF in two major European research projects: EHR4CR (Electronic Health Records for Clinical Research) and BioMedBridges, both aiming to enhance translational and transnational medical research while maintaining a high data protection standard. She is co-author of the comment by TMF on drafted legislation for a European General Data Protection Regulation. Schlünder graduated in law at the University of Heidelberg and worked several years as a researcher at the University of Potsdam, focusing and publishing on human rights. She has also long experience as attorney at law with a focus on privacy law and on IP law.

Dr. Alf Wachsmann

CIO at the Max Delbrück Center for Molecular Medicine, Berlin

1995 Alf Wachsmann received the Doctor of Natural Science Degree in Computer Science from the University of Paderborn. After being Postdoc at the Deutsches Elektronen-Synchrotron (DESY) in Zeuthen he worked from 1999 to 2011 as a System and Storage Architect at SLAC National Accelerator Center (SLAC) in Menlo Park, Kalifornien. From 2011 to 2012 he was Acting CIO and Leader of Scientific Computing at Okinawa Institute of Science and Technology (OIST), Okinawa, Japan. Since 2012 he is CIO at Max Delbrück Center for Molecular Medicine, Berlin.

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