

Interview with Henning Kagermann on “Smart Grids – Information and Communication Technology as a Key Factor in a Future Energy System”

Henning Kagermann studied mathematics and physics in Munich and Brunswick, where he habilitated in theoretical physics in 1980. He lectured in physics and business and information systems engineering at the Universities of Brunswick and Mannheim until 1992. After joining SAP in 1982, he became head of Cost Accounting and Project Controlling in the development sector, was appointed to the Executive Board in 1991 and served as CEO from 1998 onwards. In 2009, Henning Kagermann became President of acatech – the National Academy of Science and Engineering. He is leading the steering committee for the dialogue on innovation between the German government, business, and academia. Additionally, he became head of the National Electromobility Platform in 2010, is a member of numerous supervisory boards of major corporations in Germany and abroad, is Honorary Senator of the foundation Lindau Nobel Laureate Meetings at the Lake of Constance, and Chairman of the EIT ICT Labs.

DOI 10.1007/s12599-011-0196-y



Prof. Dr. Henning Kagermann
President, acatech – Deutsche Akademie der Technikwissenschaften
Unter den Linden 14
10117 Berlin
Germany
kagermann@acatech.de

Interview by

Prof. Dr. Dr. h.c. H.-Jürgen Appelrath (✉)
OFFIS – Institut für Informatik
Escherweg 2
26121 Oldenburg
Germany
appelrath@offis.de

This article is also available in German in print and via <http://www.wirtschaftsinformatik.de>: Appelrath H-J (2011) Interview mit Henning Kagermann zum Thema „Smart Grids – Informations- und Kommunikationstechnologie als Schlüsselfaktor für ein zukunftsfähiges Energiesystem“. WIRTSCHAFTSINFORMATIK. doi: [10.1007/s11576-011-0305-z](https://doi.org/10.1007/s11576-011-0305-z).

© Gabler Verlag 2011

BISE: Where are we right now in the development of smart grids?

KAGERMANN: We already possess most of the necessary technologies for smart grids which I consider an essential building block for the energy transition. The challenge on the road to the “energy internet” lies in model and system integration, in understanding and controlling the system as a whole: many components and players need to work together, numerous technologies have to interact, market roles must be redefined and technical functionalities within the energy system of the future need to be created. For this major task, the whole is significantly more than the sum of its

parts: it is not enough to optimize individual technologies, which could, in fact, lead to counterproductive and undesired overall system behavior. A holistic, structured approach is therefore essential.

BISE: What role can and must information and communication technology play in achieving the energy transition?

KAGERMANN: If the German government’s extremely ambitious energy-policy objectives are to be accomplished, information and communication technology (ICT) is an essential component of all necessary technologies and in supporting functioning markets. In particular, ICT is the central prerequisite for a successful integration of the fluctuating wind and solar energy generation. Technologies for generating, transporting, providing, storing, and using electricity will rapidly merge to form an energy Internet. Markets will feel a much greater need to respond to supply and demand in real time using ICT – this is true not only, but especially, for a sustainable future energy system.

BISE: How much do we currently know about the amortization of the necessary IC technology?

KAGERMANN: We definitely need dependable cost-benefit calculations – for both the entire system and the necessary component technologies. Smart grids cost; however, they also enable con-

siderable efficiency gains by saving energy costs. The smart meter is a good example for a technological part that is being hailed as a key component of the energy Internet. Right now, house owners who invest in such a device cannot yet be certain that this investment will pay for itself within a few years through reduced electricity consumption. Such economic dependability, and of course technical system reliability, must be proven in the future for this technology to be widely accepted.

BISE: Do you have the impression that the discussion of the technologies necessary for the energy transition is being conducted broadly enough and with the necessary openness in the society as a whole?

KAGERMANN: Some of the resulting main questions are already being asked: examples include the expansion of electrical grids, resistance to wind turbines and reservations concerning pumped-storage hydroelectricity. The general public should be involved in the smart grid discussion early on. The public, the media, but also the business actors must understand the relationships

between all parts. To achieve an energy transition that makes optimum use of smart grids with broad popular support, citizens must weigh up the advantages and disadvantages and hopefully arrive at a general value-driven consensus. We cannot reach citizens who are interested in technology by structuring our communication solely as a one-way knowledge transfer. Acceptance is not created from one side only, but in an active dialogue.

BISE: How can you achieve the goal of an interdisciplinary strategy for smart grids as defined by the acatech project group, and what does this strategy need to take into account?

KAGERMANN: Germany is the energy transition pioneer. To ensure that we become an international best-practice model and that the expensive development of smart grids pays off, we need an overall strategy for politics, business, and academia that is actively supported by all major players. This overall strategy must identify common objectives, standards, regulatory, financial and legislative requirements, and all essential R&D tasks. To support this, acatech – the National

Academy of Science and Engineering – is working on a proposal for a Germany-wide smart grid platform modeled on the National Electromobility Platform, for which we will present recommendations in February. This is the only way all involved parties can agree on a forward-looking industrial and research policy in consultation with the political environment.

BISE: Even if Germany wants to be the pioneer – it would be better if we didn't try to go it alone, wouldn't it?

KAGERMANN: Germany is indeed taking a big risk. The success or failure of the energy transition will be decided not only domestically as energy markets have long been internationalized and technical and market-based ties bind us to developments beyond our borders. So, wherever possible, activities and initiatives should be discussed at European level right from the start and coordinated with the activities of other nations or placed under a European framework initiative.

BISE: Professor Kagermann, thank you very much for this insightful interview.