



## March 2006 Issue

**TC-ECBS newsletter** is produced as a focal point for news concerning the (related) activities of the IEEE Computer Society Engineering of Computer-Based Systems technical committee. If you have any items for the next issue please contact [ecbs-news@computer.org](mailto:ecbs-news@computer.org).

## TC Chair's Column

As this issue of our newsletter is being released at our annual international conference I hope you won't mind if I welcome you all on behalf of the ECBS TC to Potsdam. I would also like to take the opportunity to thank the local organizing committee for all they have achieved, our technical program committee for ensuring a high quality program, our sponsors SAP and HPI – your can read more about them and their research efforts in the Systems arena overleaf – and last and very much not least our authors and participants without whom we wouldn't have this excellent forum to discuss our research and practice.

If you haven't managed to make it to the conference we hope to have the opportunity to welcome you back next year.

As our special interest in ECBS is systems that bring together software, computing hardware and communications – and people, please also keep in mind that if you are organizing any conference or workshop activities in the area in the year ahead there are options available for IEEE ECBS to sponsor or co-sponsor your event, please feel free to contact us to discuss.

**Byron Purves, chair ECBS-TC**

## Join TC ECBS

If you have not already done so, you are invited to join online the IEEE Computer Society Engineering of Computer-Based Systems Technical Committee.

Details can be found at the web site <http://www.computer.org/tab/> where you can sign-up to TC-ECBS and three others free <http://www.computer.org/TCsignup/index.htm>

If you have already signed up, manage your membership at: <http://www.computer.org/services/teca>

Did you miss the previous issue? Check out: [www.infi.ulst.ac.uk/~tc-ecbs/newsletter/last/](http://www.infi.ulst.ac.uk/~tc-ecbs/newsletter/last/)

## Back to the Future

by **Jonah Z. Lavi**

### Re-visiting the 1990 Neveh Ilan Report - what is the strategic future of TC-ECBS?

At the next TC meeting in Berlin, as part of ECBS'06, on the agenda is an item to re-discuss the goals of the TC and how should we promote the basic ideas the TC was created for. As such, one starting point for such a discussion is to look back at the Neveh Ilan workshop report - which defined the scope of ECBS in the initiation meeting of the group in Neveh Ilan in 1990.

The report's abstract reads: *Modern computer-based systems are complex multi-systems consisting of many connected individual subsystems; each one of them is typically also a multicomputer system. The subsystems in a multi-system can be either geographically distributed or locally connected systems. Typical examples of computer-based systems are medical systems, process control systems, communications systems, weapon systems and large information systems. The development of these complex systems requires the establishment of a new engineering discipline in its own right, Computer-Based Systems Engineering - CBSE. The definition of the discipline, its current, and future practice and the ways to establish and promote it were discussed in an international IEEE workshop held in Neveh-Ilan, Israel in May 1990. The major conclusion of the workshop was that CBSE should be established as a new field in its own right. To achieve this goal, the workshop participants recommended that the IEEE Computer Society shall set up a task force for the promotion of the field, the establishment of CBSE institutes and the development of the educational framework of CBSE. The paper describes the major findings of the workshop that led to these conclusions and recommendations.*

The ECBS development process section reported that *it was recognized that the CBS development process must involve rapid iteration early in the life-cycle in order to arrive at a system architecture embodying the required constraints, functionality and testability which can form the basis for estimation and planning with an acceptable level of risk. Thus it was envisioned the development process as being a multi-pass process driven by the need to reduce risk.*

*The diagram in figure 1 encapsulates this view of the future development process. The process starts with the initial concept which is assumed to be quite vague. This is followed by an iterative derivation process which is initially concerned with gathering/creating information and then capturing the information in a form which is adequate for communication within the team responsible for the derivation. The same process is applied to the creation of the requirement and the design. In this way a large number of ideas are rejected, and the embryo design is modified until an adequate result is achieved*

*agreed upon by the developers and the customers.*

*It is imperative that this iterative process should be performed as rapidly as possible. This process should include rapid prototyping techniques useful in the validation of the concepts and the design. Once the wider consensus is reached it is possible to begin the process of formally describing the design. This is a slower, time consuming activity.*

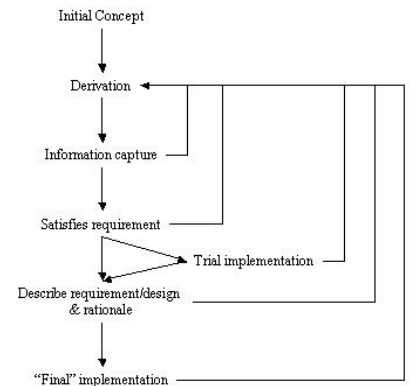


Figure 1

Figure 1 also shows an additional branch labeled trial implementation. This option exists because for some systems, the only way to reduce risk to an acceptable level is to partially implement it!

The Full paper is available at: <http://www.infi.ulst.ac.uk/~tc-ecbs/newsletter/2006-1/tc-ecbs-nevehilan.pdf>

The original paper was published in the "Proceedings of the 1991 SEI Conference on Software Engineering Education", Springer Verlag Lecture Notes 1n Computer Science No. 536, pp. 149-163, October 1991. It was reprinted in the Proceedings of the IEEE Computer Society ECBS 98 - International Symposium and Workshop, Jerusalem, Israel, Computer Society Press, March 1998, pp. 333-340.

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If you cannot make the TC meeting and have comments on the TC's strategic future or this paper please contact us at [ecbs-news@computer.org](mailto:ecbs-news@computer.org)

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## SAP and HPI Special Section



Sap and HPI are supporting this year's ECBS

International Conference and Workshops being held at HPI in Potsdam. This section briefly details some of their research activities.



## Hasso Plattner Institute for Software Systems Engineering

The Hasso Plattner Institute is unique in Germany for two key reasons: It is the first and only university institute financed entirely by private funds and nowhere else can students receive a degree in "IT Systems Engineering" as an alternative to conventional computer science programs.

The Hasso Plattner Institute for Software Systems Engineering was created in 1998 in the form of a public private partnership. The institute is supported by the non-profit "Hasso Plattner Foundation for Software Systems Engineering". The State of Brandenburg contributed to the HPI by providing property at the Griebnitzsee in Potsdam-Babelsberg. The construction of the institute's buildings, including the University Institute for Computer Science, cost 36 million euro, for which Mr. Plattner provided over 18 million euro. The remaining half was financed with funds from the European Union. By the time the institute was founded, the patron of the sciences had already committed to providing the Hasso Plattner Foundation for Software Systems Technology with more than 50 million euro from his personal fortune. These funds will go to ensure the functioning of the institute for a time period of 20 years. In the meantime, Mr. Plattner's financial contribution has quadrupled and the total amount of his donations to the HPI amounts to over 200 million euro. Mr. Plattner's private financial expenditure is thereby the highest ever made for a German university.

Since teaching began in 1999, the Hasso Plattner Institute for Software Systems Engineering at the University of Potsdam has awarded IT Engineering degrees to over 170 Bachelor's and round about 50 Master's students. The HPI currently has approximately 360 students studying the development and control complex IT systems and software products. These talented young professionals are being groomed to take on leading management positions, such as the job of Chief Technology Officer (CTO), in the IT industry. The HPI seeks in particular to create and sustain a "culture of engineering" in IT Systems Engineering.

There are currently 50 professors and associate lecturers working at the HPI. Professors are usually hired in conjunction with a position at the University of Potsdam.

Students are registered at the University of Potsdam and receive their Bachelor's and/or Master's degrees from that University as well. The cooperation of the non-profit "Hasso Plattner Institute for Software Systems Engineering" with the University of Potsdam is regulated by a contract.

## HPI Linking Business and Science

Hasso Plattner's commitment to the promotion of science in Germany is as unusual as it is exemplary. In 2005, the Berlin-Brandenburg Academy of the Sciences awarded the native Berliner its prestigious Leibniz Medal. In October 2005 the popular German science magazine P.M. awarded Hasso Plattner a prize for being the "Innovation promoter of the year".

Mr. Plattner, who is 62 years old, has been an honorary doctor at the University of Potsdam since 2002 and an honorary professor there since 2004. In the summer of 1998, when he announced plans for the Hasso Plattner Institute for Software Systems Engineering, the SAP Speaker of the Board noted that, for him, Brandenburg's state capital: "... is the ideal location for future-oriented research and education, and its stunning location in the beautiful Havel River region makes the area even more attractive."

Not only does Plattner finance the HPI in its entirety (with a total expenditure of over 200 million euro over a period of 20 years), but he also teaches and performs research in his capacity as head of the "Enterprise Platform and Integration Concepts" area of specialisation. In 2005, his 29 million euro donation made possible the opening of the "Hasso Plattner Institute of Design" at Stanford, an ivy league university in the United States. He also expanded his commitment in Potsdam to include a talent incubator and a venture capital fund ("HassoPlattnerVentures") with more than 35 million euro for IT business entrepreneurs.

Plattner has been linking business and science for many years now. In 1990, he received an honorary doctorate from the University of Saarbrücken and in 1994 became honorary professor for business information technology there. In 1998, he was awarded the status of an honorary senator by the Saarland University. Mr. Plattner is also active as a patron of the sciences in the State of Baden-Württemberg. In October 2003, a 10 million euro donation from his foundation made possible the extension of the university library in the Mannheim Palace.

Hasso Plattner has received many honors for his commitment to business and science. In 1998, Manager Magazine awarded the "technology guru" (Plattner on Plattner) its coveted Leadership Award for Global Integration and inaugurated him into the "Hall of Fame". The magazine honors personalities for their efforts in promoting economic and social development in Germany.

## SAP

Founded in 1972, SAP is the recognized leader in providing collaborative business solutions for all types of industries and for every major market. Serving more than 32,000 customers worldwide, SAP is the world's largest business software company and the world's third-largest independent software provider overall. They have a rich history of innovation and growth that has made us a true industry leader. Today, SAP employs more than 35,000 people in more than 50 countries and has a turnover of over \$7billion. Their professionals are dedicated to providing the highest level of customer service and support.

## SAP Invests £1.5M in Grid Research Centre in Belfast, Northern Ireland

Invest Northern Ireland announced that SAP AG has chosen Belfast, Northern Ireland, as the location for its first U.K. research center. Supported by Invest Northern Ireland, SAP is investing £1.5 million (\$2.6 million, €2.2 million) to set up a centre that will carry out leading-edge research in the emerging field of Grid computing.

"Belfast offers a wealth of relevant expertise particularly through the University of Ulster and Queen's University, a leader in Grid computing research worldwide," said Jeremy Fitch, managing director of Business International for Invest NI.

"The project is highly innovative and the knowledge developed in Belfast will put Northern Ireland in a very strong position to attract similar foreign ICT investments."

Invest NI is supporting the investment via its Start program, which aims to increase the amount of industrial research undertaken by companies either on their own or in partnership with the universities.

"One of Invest NI's goals is to build on the world class research in our universities by attracting inward investment from world class technology companies such as SAP," added Fitch. "In addition, we aim to support the development of higher value-added products. This investment will create significant academic-industrial linkages and help to commercialise academic knowledge."

"Our aim is to strengthen SAP's leadership in the area of IT innovation," said Wolfgang Gerteis, director of the SAP Research Campus-based Engineering Centre (CEC) in Belfast. "In the Belfast CEC, we will be focusing on Grid computing and are looking forward to working with the local universities to make significant advances in this area."

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