KEYNOTES

Biography: Deba DUTTA is the Dean of the Graduate College and Gutgsell Endowed Professor in Mechanical Science and Engineering at the University of Illinois at Urbana-Champaign. He has done research in geometric modeling, heterogeneous solid modeling and manufacturing process planning. His current research is in global product development and lifecycle management. He serves on the editorial boards of several journals. Dutta is a Fellow of AAAS and ASME and a Scholar-in-Residence at the National Academy of Engineering, where he led the Lifelong Learning Imperative project- a national study on the lifelong learning needs of working professionals in engineering and science fields.

Title: PLM: What Next?

Abstract: Product life cycle management (PLM) has emerged as an effective strategy for managing the entire life cycle of a product, from conception to design and manufacturing, to the end of life, including its disposal. In this presentation we will consider the evolution of PLM especially from the perspective of large OEMs in the manufacturing industry. First, we will look back 10 years when PLM was largely a set of IT-support tools for product development. Next, we will summarize the current state of PLM that enables information leveraging to support business decisions. Finally, we will describe how PLM is now poised to alter product development within and across the OEMs/for the entire manufacturing industry. We will present ongoing and future R&D along with the business and technological drivers and enablers.

Biography: After architecture studies, Jean BRANGÉ has organized his work since the early 90' in a balanced mixed of Architecture work, CAD programming and Internet experiments. Jean Brangé has more than 20 years of consulting experience in the fields of Design, Simulations and Product Data Management, since 2000, he has managed multiple integration project for enhance digital collaboration and simulation in the industry. Since 2004, Jean Brangé is a founder associate of Boost-Conseil.

Spécialisations :PLM, secured collaboration, complex project management, simulations, STEP, ISO8000.

Title: BoostAeroSpace AirDesign, standard of PLM collaboration in the Aerospace Industry.

Abstract: The PLM is a key factor of competitiveness in the Aerospace & Defense industry, inside and between the companies, in order to develop new international programs with the whole extended enterprise, and provide configuration tools all across the Supply Chain. This collaboration in the extended enterprise requires standards to ensure the interoperability between the information systems of the partners.
In the 2005 years, the "Private Virtual Platforms" (A350, B787, F7X) brought major innovations (share of the Digital Mockup by the partners, integration of the production and support constraints since the design phase).

In 2008, following R&D projects led by the AFNeT, Airbus, EADS, Dassault Aviation, Safran and Thales decided to launch the BoostAeroSpace digital Hub, based on standards, in order to use the same PLM and SCM collaborative AirDesign and AirSupply services with their common suppliers.
This Hub will also enable the Tier n suppliers to use those same services in a Software as a Service mode, thus ensuring the digital continuity from OEMs to Tier n suppliers, including SMEs. More than 2000 companies are already connected to BoostAeroSpace, which will become the standard of the European Aerospace & Defence industry, and boost its competitiveness.

Biography: Dov TE'ENI holds the Mexico Chair for Information Systems at Tel Aviv University. He studies how computers support people working and sharing knowledge. Dov has co-authored Human-computer interaction for developing effective organizational systems (published by Wiley) and co-edited the Encyclopedia of Knowledge Management. He has worked on joint research with Digital (in Maynard), Progressive (in Cleveland) and software houses in Israel. He is past President of AIS – the international Association of Information Systems. He also serves as academic director of the Orange Institute for Internet Research at Tel Aviv University. Dov was awarded AIS Fellowship in 2008. With Frantz Rowe is editing a book at Palgrave Macmillan on IT-enabled R&D and innovation.

Biography: Frantz ROWE is a professor in the Institute of Economics and Management at Nantes University. His research conducted at LEMNA and SKEMA Business School regards information systems and knowledge integration (particularly ERP and PLM systems), inter-organizational information systems and IS-enabled organizational transformation. Rowe is past president of AIM, Head of Master in Consulting and Research, an editorial board member of /Systèmes d'Information et Management, /of /Business Information Systems and Engineering /and Editor-in-Chief of the /European Journal of Information Systems/". He holds a BA from the University of Lyons, an MS from UC Berkeley, an ME from ENTPE, and a PhD from the University of Paris. With Dov T'eni he is editing a book at Palgrave Macmillan on IT-enabled R&D and innovation.

Title: Technological uncertainty, psychological safety and knowledge maturation: the case of New Product Development

Abstract: This talk is about how knowledge is shared and how knowledge matures so it can be applied in the process of new product development (NPD). We show how knowledge items mature as they are shared in expanding circles of psychological safety, until the items are utilized for a particular activity and then transformed to new knowledge items to serve new activities. Our conceptual framework integrates knowledge sharing, circles of trust and knowledge maturation. We explore knowledge maturation patterns through four in-depth case studies of NPD projects using Product Lifecycle Management (PLM) technology which differ in terms of technological uncertainty and psychological safety. Indeed, the need for knowledge maturation depends on technological uncertainty. Our results show that knowledge maturation patterns are contextual and complex. Knowledge is shared in circles of trust, where one circle feeds into another during the maturation process. Some of these circles are informal but others can be organizationally designed and reinforced. These results suggest that formal NPD process and progress across circles of trust interact and reinforce knowledge transformation. The results also have implications for redesigning PLM systems and articulating the IT architecture for NPD.

Biography: Philippe BERTHOULOUX is functional architect on the "Integrated Design Software" project at STX France.

He creates the functional architecture for the design disciplines: piping, hvac, electricity, instrumentation, outfitting steelworks, coordination, industrialization

He develops the information flows and the consistency between CAD tools to ensure a reliable and efficient integrated solution within the SmartMarine Enterprise systems and then to the ERP system (SAP).

He develops CAD methods and catalogs

Previous experiences:

STX France: Implementation of a Document and Change Management System: Teamcenter, 2000 users

STX France: CAD methods on design cad tools: PDS (Intergraph), Tribon Outfitting (Aveva), Microstation

Dassault Systemes: Support Level 2 on Catia solutions –Key accounts manager

Sébastien BLANCHARD is functional architect on the "Integrated CAD system" project at STX France:

He creates the functional architecture for the design disciplines: piping, hvac, electricity, instrumentation, outfitting steelworks, coordination, industrialization

He develops the information flows and the consistency between CAD tools to ensure a reliable and efficient integrated solution within the SmartMarine Enterprise systems and then to the ERP system (SAP).

He develops CAD methods and catalogs

He is the end users support team manager

Previous experiences:

STX France: Implementation of a Document and Change Management System: Teamcenter, 2000 users

STX France: administration, end users support and methods on design tools: Solidedge, Solidworks, Microstation, Teamcenter

SDRC / EDS: Support and methods (Teamcenter and Ideas) – Key accounts manager

Title: PLM implementation for a shipbuilding industry

Abstract: As a shipbuilder industry, we have to address the main issues posed by:

- Integration of different disciplines: hotel and catering entertainment, power generation, propulsion, waste treatment, communication, IT, navigation, etc. ...;
- a concurrent engineering with fabrication and outfitting processes ;
- a tight schedule;

STX France has decided to renew its information system based on an integrated CAD system and an ERP system. Our presentation will highlight the technical solutions and processes implemented through the following illustrations.

- the integration of disciplines through CAD systems,
- the integration between CAD and ERP workflows.

We will detail how the different representations of an object are managed, and how these different views are consolidated, from the design stage to the manufacturing stage. Regarding workflows between CAD and ERP, we will present their management in order to always provide the best view of the bill of material. We will also detail how we supply the main output processes dedicated to realization: procurement, manufacturing, erection, commissioning. We will conclude with a state of the operational deployment of this project and the next steps.

Biography: After receiving Dr. Eng from University of Tokyo in 1972 and working at University of Tokyo, Osaka University and again University of Tokyo, Prof. Shuichi FUKUDA joined Tokyo Metropolitan Institute of Technology (TMIT) as professor in systems engineering. He served department chair, adviser to the university president, dean of engineering, dean of library and information systems and director of center for university-industry-government collaboration. During these years, he worked as visiting professor at Stanford University, West Virginia University and Osaka University. Since his retirement from TMIT in 2007, he has been working as Consulting Professor at Stanford University, Visiting Professor at Open University of Japan and Cranfield University, UK and a member of Science Council of Japan.

He is now Adviser to System Design and Management Institute, Keio University and Visiting Professor at Stanford University.

He is past President of ISPE, Vice President of the Reliability Society, IEEE and past Chair of Computers and Information in Engineering Division, ASME. He is now Member-at-Large in charge of Division Operations and Training, Systems and Design Group Operating Board, ASME.

His research Interests are systems engineering, design engineering, emotional engineering, collaboration engineering, reliability engineering, management of engineering and technology.

He is member of Engineering Academy of Japan, Honorary Member of JSME and Fellow of ASME, IEICE and ISPE.

Title: Product Lifecycle Management in an Open Industry Framework

Abstract: Current industries developed based upon the history of inventions. So they are operating very much independently. Take transportation industry for example. We have change vehicles for land, air and water.

But if we come down to our basic needs that we would like to travel comfortably and without troubles. No one would like to change vehicles, unless they have to.

If we look at the design and manufacturing of these industries, there are much to be shared across industries. This holds true with other industrial sector.

Currently most of the discussion about Product Lifecycle Management focus on issues in one industry. But if we standardize components across industries, these components can be used in many different industries.

For example, AWS (American Welding Society) standardizes welding procedures based upon a box type component. Such a type is used in ships, trains, containers, etc. So much knowledge and experience can be shared across industries.

If such component standardization is introduced, it will lead to true globalization. Components can be purchased from factories near the market and assembled locally. Local people can assemble them into a final product to meet their needs and to their preferences. And it will reduce the necessity to transport heavy final products from country to country. If some components cannot be procured near the market, the energy, time and trouble to transport such components to the market will be far less than to carry a final product.

Current economy is centralized. But such component standardization in design and manufacturing across industries will open a door to autonomous distributed economy system. Then, far greater reduction of energy and much improved productivity will be achieved. Furthermore, it will meet local people's needs to a T and bring greater satisfaction to them.

Biography: Dr José RIOS is senior lecturer in the Dept. of Mechanical and Manufacturing Eng. at Polytechnic University of Madrid. He has been involved in research projects related to CAD/CAM and PLM technologies, information modeling, KBE, manufacturing planning, and design integration. He has collaborated with different companies in the aeronautical, automotive and die & mould making sectors, e.g.: AIRBUS, GKN Aerospace, T-Systems, SEAT, GAMEGAM and ASCAMM. Along his professional career, he held a Visiting Research position at Penn State University (USA) and a Research Fellow position at Cranfield University (UK).

Title: Proposal for the conceptual design of aeronautical final assembly lines based on the Industrial Digital Mock-Up concept

Abstract: The design of an aircraft Final Assembly Line (FAL) is carried out in the aircraft industrialization activity. Such activity is subdivided into: Create Conceptual Assembly Process, Define Assembly Process, and Develop Detailed Assembly Process. The Conceptual Assembly Process definition phase is characterized by depending heavily on the personnel experience and being time-consuming. Consequently, manufacturing engineers can only check a simplified set of cases to generate and submit early manufacturing processes and resource requirements. In order to enhance such process, a software development is proposed, to assist designers in the definition of scenarios and to generate FAL alternatives. Both the scenario and the generated FAL solution are part of the industrialization digital mock-up (IDMU). In order to demonstrate the industrial feasibility of the proposed solution, the development had to be carried out within the framework of a commercial PLM/CAX system used in the aircraft programs and comprising the IDMU concepts of: Product, Process and Resource (Catia/Delmia v5). This keynote will present the industrial problem that supports the research subject of this keynote, the methodological approach adopted, the architecture of the proposed software solution, an example of its application and the ongoing development