



OVERVIEW

THE OBJECTIVE OF THE 'DISCOVERY IN DESIGN: PEOPLE-CENTRED COMPUTATIONAL ISSUES' CLUSTER HAS BEEN TO IDENTIFY PRIMARY RESEARCH ASPECTS CONCERNING THE DEVELOPMENT OF PEOPLE-CENTRED COMPUTATIONAL DESIGN ENVIRONMENTS THAT ENGENDER CONCEPT AND KNOWLEDGE DISCOVERY ACROSS DIVERSE DISCIPLINES AND DOMAINS. SUCH SYSTEMS WOULD REPRESENT A NEW APPROACH TO THE ESTABLISHMENT OF GENERIC COMPUTATIONAL SUPPORT FOR CONCEPTUAL DESIGN PROCESSES.

CURRENT COMPUTER-AIDED DESIGN AND DECISION SUPPORT TOOLS SUPPORT THE LATER, WELL DEFINED STAGES OF DESIGN WHERE A PRODUCT OR OBJECTIVE IS PHYSICAL, TANGIBLE, AND COMPREHENSIBLE. HOWEVER, MORE ABSTRACT CONCEPT FORMULATION AND DEVELOPMENT IS POORLY SUPPORTED, ESPECIALLY WHERE UNCERTAINTY IS AN INHERENT CHARACTERISTIC. FURTHERMORE, COMPUTER-AIDED DESIGN AND DECISION-SUPPORT TENDS TO BE DOMAIN SPECIFIC. THERE IS LITTLE OR NO EXPLOITATION OF CROSS-DOMAIN EXPERIENCE. RESEARCH AND DEVELOPMENT AGENDAS THAT HAVE THE POTENTIAL TO REDRESS BOTH THESE IMBALANCES ARE REQUIRED.

THE CLUSTER HAS INVESTIGATED THE UTILITY OF ESTABLISHED AND EMERGING COMPUTATIONAL INTELLIGENCE, ENABLING COMPUTATIONAL TECHNOLOGIES AND PEOPLE-CENTRED ISSUES ACROSS A DIVERSE SET OF PROBLEM DOMAINS RELATING TO WIDELY DIFFERING DISCIPLINES TO NOT ONLY IDENTIFY SYNERGIES, BUT ALSO TO SEPARATE AND DISTILL PECULIARITIES. COLLABORATIONS ACROSS ENGINEERING, DRUG DESIGN, SOFTWARE ENGINEERING, BIOSENSORS AND MATERIAL DESIGN AND GRAPHICAL AND MEDIA PRODUCT DESIGN HAVE PROVIDED A BASIS FOR STUDY. CLUSTER MEMBERSHIP HAS ENSURED SPECIFIC EXPERTISE IN EACH OF THESE AREAS WITH SOME MEMBERS ACTIVE ACROSS SEVERAL. VIEWS AND APPROACHES FROM PRACTITIONERS AND RESEARCHERS THAT ARE NOT NORMALLY CONSIDERED IN THE SAME TIME-FRAME AND CONTEXT HAVE THUS BEEN INVESTIGATED.

Activities

The Cluster has hosted four, two-day Workshops comprising presentations from industry and academe with associated round-table discussion and sub-group working to address both global and specific issues. Typically, attendance at each Workshop has comprised delegates from civil, mechanical and aerospace engineering, biotechnology and the pharmaceutical industry, software and communication engineering, computer science, media product design, psychology, human factors and human/computer interaction. Three scribes attended each Workshop with the specific task of recording all interim discussion and comments. Synopses of the activities and discussions at each of the Workshops is available on the website.

Insights

The Workshops have provided a wealth of information relating to design practice across a range of disciplines.

This has been captured and will shortly be available in a series of Workshop reports. The complex characteristics of each design domain; their people-centred aspects and computational strategies have been identified along with generic aspects and specific peculiarities. Most delegates were largely unaware of the extensive body of existing design research although being active in their particular areas. The Workshops therefore represented an opportunity to position and understand their design activities within a more global context in terms of associated research.

The strength of the Cluster has therefore been in the collaboration of seemingly disparate cognitive disciplines that require a common core expertise to support decision-making processes. The result has been the initial identification of primary aspects relating to mutually symbiotic design environments that create new potential interfaces for capturing and enabling discovery and innovation.