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<table>
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<td>Russia</td>
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INTRODUCTION

This publication is an edited subset of a comprehensive database which is regularly updated and is accessible through international networks. In particular the “electronic Bulletin” contains detailed statements of aims and scope for every Working Group.

A wide range of information is available electronically from the IFIP secretariat including the IFIP News, minutes of our General Assembly and Council meetings, IFIP documents and other valuable information on IFIP and its activities.

There are also links to pages of information about our Members and Technical Committees.

Access may be obtained as follows:

WWW: http://www.ifip.org

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IFIP's MISSION STATEMENT

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of Information Technology for the benefit of all people.

Principal Elements

1. To stimulate, encourage and participate in research, development and application of Information Technology (IT) and to foster international co-operation in these activities.

2. To provide a meeting place where national IT Societies can discuss and plan courses of action on issues in our field which are of international significance and thereby to forge increasingly strong links between them and with IFIP.

3. To promote international co-operation directly and through national IT Societies in a free environment between individuals, national and international governmental bodies and kindred scientific and professional organizations.

4. To pay special attention to the needs of developing countries and to assist them in appropriate ways to secure the optimum benefit from the application of IT.

5. To promote professionalism, incorporating high standards of ethics and conduct, among all IT practitioners.

6. To provide a forum for assessing the social consequences of IT applications; to campaign for the safe and beneficial development and use of IT and the protection of people from abuse through its improper application.

7. To foster and facilitate co-operation between academics, the IT industry and governmental bodies and to seek to represent the interest of users.

8. To provide a vehicle for work on the international aspects of IT development and application including the necessary preparatory work for the generation of international standards.

9. To contribute to the formulation of the education and training needed by IT practitioners, users and the public at large.
IFIP IN PERSPECTIVE

Origins
IFIP traces its roots to the very first major international conference on computers and computing which was held in Paris in 1959 under the auspices of UNESCO. Representatives of the main computer societies active in computing got together at that meeting to explore ways of building on the achievements of the conference. As a result thirteen national computer societies agreed to found in 1960 an international federation and named it IFIP - the International Federation for Information Processing.

IFIP's principal aims were and are to foster international cooperation, to stimulate research, development and applications and to encourage education and the dissemination and exchange of information on all aspects of computing and communication.

IFIP's creation was well timed. In the 1960s there began a veritable explosion in the growth of the computer industry and in the application of its products. Within the life-span of IFIP information technology (as it is widely known today) has become a potent instrument affecting people in everything from their education and work to their leisure and in their homes. It is a powerful tool in science and engineering, in commerce and industry, in education and administration and in entertainment.

Membership
Today IFIP has 52 organizations as Full Members, 3 Corresponding Members and 9 Affiliate Members, representing countries from all regions of the world.

Organisation
A General Assembly of all its Members and TC Chairs takes place annually and has overall responsibility for all of IFIP's strategy, finance and activities. It elects a President, four Vice-Presidents, a Treasurer, a Secretary and eight Trustees who together form the IFIP Council.

Conferences and Major Conferences
IFIP's flagship event is its World Computer Congress, currently held biannually. The 18th IFIP World Congress was held in in Toulouse, France from 23 to 26 August 2004 (www.wcc2004.org). The 19th IFIP World Computer Congress will be held from 20 to 25 August 2006 in Santiago, Chile.

The nature of these Congresses has changed substantially over the years. They are no longer of the all-singing and -dancing variety addressing every conceivable facet of our field. Instead they consist of a number of independent conferences, each dealing with a major specialised subject. These run in parallel so that some more general keynote addresses can be attended by all participants who can also share in social and other activities.

In addition there are major international conferences organised by our Technical Committees. These include events dealing with Production Engineering, Security, Computers in Education and Human Computer Interaction.

Technical Activities
At the heart of IFIP lie its Technical Committees that, between them, count on the active participation of some two thousand people world-wide. There are twelve such Committees. Each Technical committee is, in effect, a management team responsible for a given field of activity and for the work of from three to nine Working Groups, a total of 80. These Groups work in a variety of ways to share experience and to develop their specialised knowledge. These include open conferences, smaller working conferences, seminars and tutorials, circulated papers and, increasingly, as befits our subject, electronic conferencing and e-mail.
Publications
Many IFIP events are linked to publications and there are annually some 30 to 40 IFIP books. Our principal publisher is

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IFIP News
A vital element of IFIP's communication with its Members and with all who participate in our work is the IFIP Newsletter. This is published quarterly in electronic form.

Relationships
IFIP enjoys friendly cooperation with a number of international organisations. First among these is UNESCO with which IFIP maintains a formal consultative relationship. UNESCO has commissioned from IFIP several projects and supports the participation of some people from developing countries in IFIP events. IFIP is a Scientific Associate of ICSU (International Council of Scientific Unions).

There are four international federations with which IFIP collaborates. These are IFAC (International Federation of Automatic Control), near neighbours of ours in Laxenburg, IMACS (International Association for Mathematics and Computers in Simulation), IFORS (International Federation of Operational Research Societies) and IMEKO (International Measurement Confederation).

IFIP Secretariat
The administrative hub of IFIP is our secretariat at Laxenburg, near Vienna. Eduard Dundler, the Head of the Secretariat, with the assistance of Brigitte Brauneis and Marion Smith is responsible for the wide range of administrative tasks vital to the operation of such a far-flung international body. Good communication and information are essential and our secretariat provides a comprehensive service using up-to-date technology.
The 19th IFIP World Computer Congress 2006 will take place in Santiago de Chile, locally organized by the Chilean Computer Science Society (SCCC – http://www.sccc.cl) with the official support of the Convention Bureau Tourism Promotion Corporation, Metropolitan Regional Council, National Tourism Board, National Council of Science and Technology-CONICYT, Ministry of Education, and others.

One of the goals of the International Federation for Information Processing (IFIP – http://www.ifip.org) is to strengthen relationships between researchers and industry representatives in the vast field of Information Technology (IT). Accordingly, the International Program Committee (IPC) plans to structure a strong and interesting program with special focus on IT industry needs and Transfer Technology.

WCC 2006 will be organized as a set of parallel co-located international conferences sponsored by different IFIP TC. So far the following are committed to WCC 2006:

- **AD-HOC**: 1st IFIP International Conference on Ad-Hoc Networking
- **AI**: IFIP International Conference on Artificial Intelligence in Theory and Practice
- **BICC**: 1st IFIP International Conference on Biologically Inspired Collaborative Computing
- **HCE2**: 2nd IFIP International Conference on the History of Computing and Education
- **MWCN**: 8th IFIP/IEEE International Conference on Mobile and Wireless Communications Networks
- **NETCON**: 5th IFIP Int. Conference on Network Control & Engineering for QoS, Security and Mobility
- **TC3**: International Conference on Education for the 21st Century – Impact of ICT and Digital Resources
- **TC8**: International Conference on "The past and future of Information Systems: 1976-2006 and beyond"
- **TCS**: 4th International Conference on Theoretical Computer Science
- **WCC 2006 Security Stream**

**Invited Talk and Keynote Speakers.**

We are proud to announce the following preliminary invited talks and keynote speakers:

Aristides Requicha (U. Southern California), Mihalis Yannakakis (Columbia University), Raouf Boutaba (University of Waterloo), Mario Gerla (UCLA, Content distribution and data retrieval in vehicular networks), Gordon B. Davis, Niels Bjorn-Andersen, Deryn Watson (King’s College London, Decades of Computers and Education - A Roller-coaster Relationship), Al Avizienis (UCLA and VMU, Bio-inspired dependable computing), Mike Hinchey (NASA, Biologically Inspired Computing), Steve White (IBM, Autonomic Computing), Rose Dieng (INRIA-Sophia Antipolis, FR), John Debenham (University of Technology, Sydney), Lea da Cruz Fagundes (Universidade Federal do Rio Grande do Sul), Otto Duarte (Universidade Federal de Rio de Janeiro), Eric Goles (Conicyt, Chile), John Atkinson (Universidad de Concepción, CL), Marcelo Arenas (Pontificia Universidad Catolica de Chile), Pedro Hepp (Chilean National Program for ICT in Education), and Marcos Kiwi (Universidad de Chile).

This WCC will be the first one to be hosted by a latinamerican country.

Chile is 4.300 km long and 177 km wide with approximately 15 millions inhabitants. The capital, Santiago de Chile, is connected to the world by many airlines offering regular flights. Santiago lies at the foot of the highest
segment of the Andes, with peaks that remain snowcapped even during the hottest summer months. Covering an area of 15,500 sq km, it is home to over 5.5 million people. There are over 7,000 four and five stars hotel rooms in Santiago. The climate in Santiago is of a temperate-semiarid sort, with well-marked seasons, perfectly dry summers, moderately rainy winters, polychrome springs and rust-colored autumns. Winter highs over around 15°C, lows around 3°C, but may occasionally climb to 20°C.

About 1.5 hours to the west are the Pacific coast resorts and the coastal cities of Viña del Mar, Valparaíso, declared UNESCO world heritage site, and Pablo Neruda’s house in Isla Negra. A number of vineyards -one of them inside the city limits- offer tours to visitors, who can not only taste some of their famed wines, but also enjoy the view of their old, well-tended parks. Some experiences in Santiago are: cultural tour of the city, riding the rapids – rafting trip to Maipo canyon, Andean highlights – nature walks, condor spotting. Some interesting places to visit in Chile are: Atacama Desert (the driest in the world), Northern coast, Easter Island, Thermal spring resort, southern lake district (fly fishing), northern Patagonian cruise, Glaciers and Torres del Paine National Park.

Additional information can be obtained at http://www.wcc-2006.org

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(One representative from each Full Member and all TC Chairs)

COUNCIL
(Executive Board plus Eight Trustees elected by GA)

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PRESIDENT

Four VICE PRESIDENTS

SECRETARY

TREASURER

IFIP Secretariat

TECHNICAL ASSEMBLY

12 Technical Committees
1 Specialist Group
97 Working Groups
STANDARD INFORMATION

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IFIP TECHNICAL COMMITTEES

There are Aims shared by all or most Committees which are not subject specific. They are as follows:

1. To establish and maintain liaison with national and international organisations with allied interests and to foster cooperative action, collaborative research and information exchange.

2. To identify subjects and priorities for research, to stimulate theoretical work on fundamental issues and to foster fundamental research which will underpin future development.

3. To provide a forum for professionals with a view to promoting the study, collection, exchange and dissemination of ideas, information and research findings and thereby to promote the state of the art.

4. To seek and use the most effective ways of disseminating information about our work including the organisation of conferences, workshops and symposia and the timely production of relevant publications.

5. To have special regard for the needs of developing countries and to seek practicable ways of working with them.

6. To encourage communication and to promote interaction between users, practitioners and researchers.

7. To foster interdisciplinary work and, in particular, to collaborate with other Technical Committees and Working Groups.
TECHNICAL COMMITTEES AND WORKING GROUPS

TC 1 (FOUNDATIONS OF COMPUTER SCIENCE) est. 1989 as SG14 / approved in 9/96 as TC 1

AIMS

1. to support the development of theoretical computer science as a fundamental science that has similar scientific goals in understanding the information processing world as physics has in understanding the energy processing world and similar goals in developing methodology for science and technology as mathematics does;
2. to support the development and exploration of fundamental concepts, models, theories, systems, and other basic tools and the understanding of laws, limits, and possibilities of information processing as well as to develop bridges with other sciences and their applications.

SCOPE

To encourage, organise, support, and unify the development of the following areas:

- frontiers, laws, and limits of information processing;
- fundamental formal systems;
- efficiency and complexity of information processing;
- formal systems to specify, design, verify, analyse, and manipulate;
- complex information processing systems;
- theoretical foundations of various other parts of computer science and its main application areas;
- scientific paradigms of informatics and their relations to other disciplines;
- information processing fundamental concepts, models and theories to support the development of other sciences. With the goal to develop foundations and to make use of them.

URL: http://www.kb.ecei.tohoku.ac.jp/IFIP-TC1/

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US John C. Mitchell (ACM)**
US Michael O. Rabin***
US Joseph F. Traub (ACM)**
US Leslie G. Valiant***

ex-officio members: WG Chairs
*) TC1 representative from an IFIP Member Society
**) Member recommended by TC1
****) Distinguished Fellow member
WG 1.1 - Continuous Algorithms and Complexity est. 1992

AIMS
To provide a forum for international collaboration and for the dissemination of research and applications of continuous algorithms and complexity.

SCOPE
Many problems in natural science, engineering, social science and business have continuous models. Hence the scope of WG 1.1 is algorithms and especially computational complexity of algorithms for solving continuous models. By computational complexity is meant the intrinsic difficulty of solving such problems. Examples of the problems that are being studied include: ordinary and partial differential equations, continuous optimization, multivariate integration and approximation, matrix multiplication, and systems of polynomial equations.

Of special interest is the solution of continuous problems on parallel and distributed computer systems.

URL: http://www.cs.columbia.edu/cacnet

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US M. Kon
US P. Nelson
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US S. Smale
US Joseph F. Traub

WG 1.2 - Descriptional Complexity est. 1992

AIMS
1. to promote research in all aspects of descriptional complexity through conferences, publications, and more informal means of scientific interaction;
2. to promote interaction and the exchange of information across traditional disciplinary boundaries;
3. to provide a point of contact for all researchers in all disciplines interested in descriptional complexity and its applications.

SCOPE
All aspects of descriptional complexity, both theory and application. These aspects include:

- generalized descriptional complexity measures and their properties, including resource-bounded complexity, structural complexity, hierarchical complexity, trade-offs in succinctness, and the complexity of sets, languages, grammars, automata, etc.;
- algorithmic and other descriptional theories of randomness;
- the use of descriptional randomness and associated descriptional complexity measures in computational complexity, economy of description, cryptography, information theory, probability, and statistics;
- descriptive complexity measures for inductive inference and prediction, and the use of these measures in machine learning, computational learning theory, computer vision, pattern recognition, statistical inference, and neural networks.

URL: http://psc.informatik.uni-frankfurt.de/ifip-wg1.2/

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### WG 1.3 - Foundations of Systems Specifications est. 1992

**AIMS**

1. To support and promote the systematic development of the mathematical theory and the foundations of systems specifications;
2. To investigate the theory of formal models for systems specifications, development, transformation and verification;
SCOPE
The theoretical aspects of the specification and development of computing systems that are based on algebraic and logic concepts and can be studied systematically within a theory of systems specifications.

URL: http://www.fiadeiro.org/jose/IFIP-WG1.3

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WG 1.4 - Computational Learning Theory est.1995

AIMS
To promote the field of computational learning theory and to establish close cooperation between existing groups working in geographically separated areas. To support steps helping to bridge theory and applications.

SCOPE
- Computational and complexity-theoretic aspects of learning
- Investigation of formal models of learning
- The teacher/learner and other learning paradigms
- Neural networks and learning
- Kolomogorov complexity approach to learning
- Application of the computational and complexity approach to learning to the design of learning systems

URL: http://www.cs.umd.edu/~smith/ifip.html

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WG 1.6 - Term Rewriting est. 1998, revised 1999

AIMS
1. To promote research efforts in rewriting and its applications.
2. To establish close cooperation between existing groups and to facilitate the emergence of new ones.
3. To increase awareness of rewriting techniques in the computer science community at large.
4. To foster development of applications of theoretical advances.

SCOPE
- Rewriting for computing and reasoning
- Theoretical studies of the rewriting relation of different orders.
- Complexity issues of rewriting.
- Compilation techniques and applications.
- Theory and applications of rewriting logic and calculus
- Application of rewriting to constraint solving, theorem proving and algebraic specifications
- The design, promotion and teaching of rewrite based techniques and applications.

URL: http://rewriting.loria.fr/IFIP-WG1.6/

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FR Siva Anantharaman JP Masako Takahashi-Horai US David Plaisted

*) honorary member
AIMS

1. To investigate the theoretical foundations of security as an independent discipline with firm grounds in logic, semantics and complexity.
2. To discover and promote new areas of application of theoretical techniques in computer security.
3. To provide a platform for presenting and discussing emerging ideas and trends.
4. To strengthen research efforts in current and emerging applications of formal methods and related approaches to the design and analysis of secure systems and applications.
5. To make formal methods amenable to the security practitioners, hence increasing awareness of formal verification techniques for security in the computer science community at large.
6. To support and promote the systematic use of formal techniques in the development of security related applications.
7. To encourage researchers, especially younger ones, to enter this field.
8. To promote or support the organization of meetings in this and related areas.
9. To provide a clearinghouse for dissemination of information and publications, also with industry.

SCOPE

The main research topics relevant for the Working Group include:

- formal definition and verification of the various aspects of security: confidentiality, integrity, authentication and availability;
- new theoretically-based techniques for the formal analysis and design of cryptographic protocols and their manifold applications (e.g., electronic commerce);
- information flow modelling and its application to the theory of confidentiality policies, composition of systems, and covert channel analysis;
- formal techniques for the analysis and verification of mobile code;
- formal analysis and design for prevention of denial of service.

URL: http://www.dsi.unive.it/~focardi/IFIPWG1_7/

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FR Dominique Bolignano IT Roberto Gorrieri US Paul Syverson
GB Gavin Lowe IT R. Focardi US Moti Yung
NL Sandro Etalle

WG 1.8 - Concurrency Theory est. 2005

AIMS

1. To develop theoretical foundations of concurrency, exploring frontiers of existing theoretical models like process algebra and various process calculi, so as to obtain a deeper theoretical understanding of concurrent and parallel systems.
2. To promote and coordinate the exchange of information on concurrency theory, exchanging ideas, discussing open problems, and identifying future directions of research in the area.

**SCOPE**

- The activities of this WG will encompass all aspects of concurrency theory and its applications. The themes of the WG include:
  - process algebras and calculi,
  - expressiveness of formalisms for concurrency,
  - modal and temporal logics for concurrency and their extensions,
  - resource sensitive approaches to concurrency and their developments,
  - tools for verification and validation of concurrent systems,
  - reactive models for real-time and hybrid systems,
  - calculi and typing systems for mobile processes and global computing,
  - stochastic and probabilistic models of concurrent processes,
  - behavioral relations for processes,
  - decidability and complexity issues in concurrency theory,
  - semantic frameworks for concurrency such as structural operational semantics,
  - integration of concepts from concurrency theory into specification, modeling and programming languages, and (global) concurrent systems, and
  - exploration of the frontiers of concurrency theory in connections to various branches of computer science, including theories of operating systems, internet languages, Petri nets and their applications, communication protocols, security issues on the internet, global ubiquitous computing, distributed algorithms, embedded systems, software architectures and engineering, automata theory; information theory, various formal methods, control theory and robotics, bio-computing, quantum computing, and other emerging areas.

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TC 2 (SOFTWARE: THEORY AND PRACTICE) est. 1962, revised 1982, 1990

AIMS
To obtain a deeper understanding of programming concepts in order to improve the quality of software by studying all aspects of the software development process, both theoretical and practical.

SCOPE
The scope of the committee encompasses all aspects of the software development process including the specification, design, implementation and validation of software systems. Areas of present activity are:

- formal models of software concepts
- programming languages and techniques
- models for information storage and processing
- program support environments
- user interfaces to software systems
- software quality

URL: http://www.ifiptc2.org

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WG2.1 - Algorithmic Languages and Calculi est. 1962, revised 1963, 1990, 1992

AIMS
To explore and evaluate new ideas in the field of programming, possibly leading to the design of new languages.

SCOPE
- the study of calculation of programs from specifications;
- the design of notations for such calculations;
- the formulation of algorithm theories, using such notations;
- the investigation of software support for program derivation;
- continuing responsibility for ALGOL 60 and ALGOL 68.

URL: http://www.comlab.ox.ac.uk/oucl/work/jeremy.gibbons/wg21/
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WG2.2 - Formal Description of Programming-Concepts est. 1965, revised 1991

AIMS
The aim of the Working Group is to explicate programming concepts through the development, examination and comparison of various formal models of these concepts.

SCOPE
The Working Group will investigate formalisms and models which represent different approaches to formal specification of programming concepts. The models of concern must, at least in part:

- apply to the actual computing milieu;
- have sufficient generality to describe total systems or useful subsystems;
- treat either:
  - problem specification or
  - solution specification;
- provide practical guides towards derivation of:
  - capabilities,
  - correctness,
  - equivalence,
  - implementability,
  - performance;
- assist in standards development and specification;
- have a pedagogical utility.

URL: http://www.irisa.fr/s4/wg22/

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WG2.3 - Programming Methodology est. 1969, revised 1991

AIMS
To increase programmers’ ability to compose programs.

SCOPE

- identification of sources of difficulties encountered in present day programming;
- the interdependence between the formulation of problems and the formulation of programs, and the mapping of relations existing in the world of problems into relations among programs and their components;
- intellectual disciplines and problem-solving techniques which can aid programmers in the composition of programs;
- the problem of achieving program reliability;
- the consequences of requirements for program adaptability;
- the problem of probability of program correctness and its influence on the structure of programs and on the process of their composition;
- guidelines for partitioning large programming tasks and defining the interfaces between the parts;
- software for mechanized assistance to program composition.

URL: http://research.microsoft.com/~leino/IFIP-WG2.3/

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WG2.4 - System Implementation Languages est. 1973, revised 1991, 1992

AIMS
To promote the exchange of information between researchers and users of languages for the description of software systems at all stages of development and support. The particular focus of the group is upon the pragmatic engineering aspects of the problem: measurements, evaluation, critical comparisons, and development of economically viable techniques.

SCOPE
- experience in the actual use of systems implementation languages;
- the relation of language design to the problems of system maintenance and enhancement;
- impacts of programming methodology on system implementation languages;
- compilation techniques for system implementation languages;
- software and hardware environments to facilitate the design, construction and maintenance of large software systems;
- software portability and reusability, and their relationship to machine dependence.

URL: http://www.cs.uvic.ca/~wg24/ContentWG24.shtml

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WG2.5 - Numerical Software est. 1974, revised 1991

AIMS
To improve the quality of numerical computation by promoting the development and availability of sound numerical software.

SCOPE
- the definition from a numerical standpoint of a set of hardware and software features for a computing system;
- the development and improvement of programming languages for numerical computation;
- the establishment of guidelines for comparison of subroutines from different numerical program libraries;
- the development of guidelines for documentation, testing, distribution and maintenance of numerical program libraries;
- the exchange of information concerning numerical software and determination of the needs of computer users.
AIMS
For the benefit of society, to promote visibility and to increase the impact of research and development in the database area, especially in the fields defined in the scope of the working group.

1. To promote quality and relevance of academic and industrial research and development in the database area.
2. To promote ethical behavior and appropriate recommendations or guidelines for research related activities, e.g. submission and selection of publications, organization of conferences, allocation of grants and awards, and evaluation of professional merits and curricula.
3. To promote cooperation between researchers and with other established bodies and organizations pursuing the above aims.
4. To contribute to assessing the scientific merits and practical relevance of proposed approaches for data and knowledge management.

SCOPE
The notion of database has evolved to include systems that accept, describe, store and enable manipulation and presentation of data, information and knowledge in a wide spectrum of forms, ranging from tuples to rules, text, images, sounds and others, with their corresponding operators, usage and management.

The group’s interests cover formalisms, models, architectures, techniques and methodologies for the purpose of designing and realizing such database systems.

These currently include in particular:
- new models, languages and theories for database design and representation
- new architectures and techniques, e.g. data warehouses, data mining, multimedia and spatio-temporal databases
- impact of new communication technologies, such as Internet, broadband networks or wireless communications
- understanding, reuse and interoperation of existing data stores
- visual user interfaces and information visualization
- new methodologies for building database applications

URL: http://wise.vub.ac.be/ifipwg26/
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WG2.7 - User Interface Engineering est. 1975, revised 1987, 1991

AIMS
To investigate the nature, concepts and construction of user interfaces for software systems.

SCOPE
- increase understanding of the development of user interfaces based on knowledge of system and user behaviour.
- provide a framework for reasoning about interactive systems;
- provide an engineering model for the development of user interfaces.

URL: http://www.se-hci.org/
WG2.8 - Functional Programming est. 1987, revised 1991

AIMS
To study the design, implementation, and use of functional (applicative) languages.

SCOPE
- semantic theories for functional languages;
- specification and correctness for functional programs;
- data and demand driven execution models;
- programming with higher-order functions;
- functional approaches to input-output and persistent memory;
- programming systems based on functional languages;
- novel architectures for functional programming systems;
- implementation based on combinator graph reduction;
- multiple processor implementations;
- programming styles and techniques appropriate for functional languages;
- applications and experience.

URL: http://www.md.chalmers.se/Misc/WG2.8

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WG2.9 - Software Requirements Engineering est. 1993

AIMS (prelim.)
The aim of the Working Group is to develop a better understanding of:
1. the elicitation, specification, analysis and management of the requirements for large and complex software intensive systems;
2. the interpretation and documentation of those requirements in such a way as to permit the developer to construct a system which will satisfy them.
SCOPE
The Scope of the WG includes all aspects of requirements engineering. Some examples of areas of special interest are:

- formal representation schemes and requirements modelling;
- descriptions of the requirements engineering process;
- tools and environments to support requirements engineering;
- requirements engineering methods;
- requirements analysis and validation;
- requirements elicitation, acquisition and formalisation;
- reuse and adaptation of requirements;
- domain modelling and analysis;
- requirements engineering for distributed, safety-critical, composite, real-time and embedded systems.

URL: http://www.cis.gsu.edu/~wrobinso/ifip2_9/

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WG2.10 - Software Architecture est. 2000

AIMS
The purpose of WG 2.10 is to further the practice of software architecture by integrating software architecture research and practice.

Software architecture is concerned with
1. the structure and organization by which components and subsystems interact to form systems, and
2. the properties of a system that can best be designed and analyzed at the system level, for example end-to-end performance and system-family compatibility.

Software architecture is important because
1. it captures and preserves designers’ intentions about system structure, thereby providing a defense against design decay as a system ages, and
2. it is the key to achieving intellectual control over the enormous complexity of a sophisticated system.

Some of the concerns of a software architect are
1. early analysis of critical whole-system properties and
2. preservation of the integrity of design over time in the face of system modifications and the creation of families of related systems.

SCOPE
The aspects of software architecture within the working group's scope are:

- identifying common problems encountered by practitioners,
- investigating notations, languages, techniques, tools, and methodologies for improving the practice of software architecture; current areas for improvement are describing software architectures, supporting...
reuse at the architectural level, interoperability and integration, evaluating and analyzing software architectures (e.g. for fulfillment of requirements or properties, comparing design alternatives, etc.), supporting the correspondence between the architecture and the implementation, reverse-engineering the architecture of an implemented system,
- training, education, and certification of software architects.

URL: http://www.softwarearchitectureportal.org/

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WG2.11 – Program Generation est. 2003

AIMS
Generative approaches have the potential to revolutionize software development as automation and components revolutionized manufacturing. At the same time, the abundancy of current research in this area indicates that there is a host of technical problems both at the foundational and engineering levels. As such, the aim of this Working Group of researchers and practitioners is to promote progress in this area.

SCOPE
The scope of this WG includes the design, analysis, generation, and quality control of generative programs and the programs that they generate.

Specific research themes include (but are not limited to the following areas):
- Foundations: language design, semantics, type systems, formal methods, multi-stage and multi-level languages, validation and verification.
- Design: models of generative programming, domain engineering, domain analysis and design, system family and product line engineering,
- model-driven development, separation of concerns, aspect-oriented modeling, feature-oriented modeling.
- Engineering: practices in the context of program generation, such as requirements elicitation and management, software process engineering
- and management, software maintenance, software estimation and measurement
- Techniques: meta-programming, staging, templates, in-lining, macro expansion, reflection, partial evaluation, intentional programming,
- staged configuration, stepwise refinement, software reuse, adaptive compilation, runtime code generation, compilation, integration of domain specific languages, testing.
- Tools: open compilers, extensible programming environments, active libraries, frame processors, program transformation systems,
- program specializers, aspect weavers, and tools for domain modeling.
- Application: IT infrastructure, finance, telecom, automotive, aerospace, space applications, scientific computing, health, life sciences, manufacturing, government, systems software and middle-ware, embedded and real-time systems, generation of non-code artifacts.

URL: http://www.cs.rice.edu/~taha/wg2.11/

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WG2.12/12.4 - Web Semantics est. 2004, revised 2005

AIMS
The aim of the WG2.12 is to obtain a deeper understanding of the semantic web, and help in the development of its theoretical foundations and technological underpinning, as well as its impact on computing in general.

SCOPE
The scope of the working-group includes:
- Study of the formal and practical knowledge representation issues of the semantic web
- Provide input into developing standards for adding semantics to the web and their enabling technologies
- Design, evaluation and use of ontologies
- Study of the semantics of agent and web interaction
- Issues related to the development, design and deployment of web services particularly the impact of semantic aspects
- Metrics for evaluation of the quality of web semantics
- Studies of human centered aspects specifically for the semantic web
- Study of the impact of semantic web computing on organizations and society
- Interoperability of data and Web Services including aspects of Trust and Security
- Content-based information and knowledge retrieval
- Metadata and knowledge markup
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AIMS
1. To provide an international forum for educators to discuss research and practice in:
   - teaching informatics
   - educational uses of communication and information technologies (ICT)
2. To establish models for informatics curricula, training programs, and teaching methodologies.
3. To consider the relationship of informatics in other curriculum areas.
4. To promote the ongoing education of ICT professionals and those in the workforce whose employment involves the use of information and communication technologies.
5. To examine the impact of information and communication technologies on the whole educational environment:
   - teaching and learning
   - administration and management of the educational enterprise
   - local, national and regional policy-making and collaboration.

URL: http://www.edu.ge.ch/cptic/prospective/projets/ifip/

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WG3.1 - Informatics and ICT in Secondary Education est. 1966, revised 1998

The Working Group is concerned with the role of both informatics and resulting Information and Communication Technologies (ICT) in secondary education (age range from 11 to 18 years).

The mission of the Working Group is to provide a forward look on the development and impact of informatics and resulting technologies in secondary education from an international viewpoint. It tries to identify problems, document experiences and find solutions. It does not strive to offer a unique solution to problems, as it is aware that specific circumstances of people and countries must in general be taken into account.

AIMS
1. The Working Group aims to develop effective communication among its members who come from many countries. This communication network which is based on group communication through telecommunications, meeting in person at working conferences and workshops, allows members to actively access state-of-the-art results of research and practice and to develop a collective expertise.
2. On the basis of this collective expertise, prospective ideas about development and impact of informatics and related technologies in secondary education are formed.
3. The collective expertise is shared with others in open conferences, seminars and workshops, consultancy, and through telecommunications and publications.

SCOPE
The work in Working Group 3.1 covers all aspects of the role of informatics and resulting technologies in secondary education. Among these aspects are:
- informatics curricula
- informatics in other subject areas
- use of ICT within the subject of informatics and other subject areas
- impacts of informatics and ICT on contents and methods of teaching and learning
- impacts of ICT on organisation and management of teaching and learning
- education of teachers

URL: http://www.didaktik-der-informatik.de/tc3/wg31/

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The Working Group is concerned with the rôles of both informatics and resulting Information and Communication Technologies (ICT) in higher education. The mission of the Working Group is to provide a forward look on the development and impact of informatics and resulting technologies in higher education from an international viewpoint. It tries to further the professional work of each of its members and to identify problems, experiences and solutions. It does not strive to offer a unique solution to problems, as it is aware that specific circumstances of people and countries must in general be taken into account.

AIMS
The Working Group aims to develop effective communication among its members who come from many countries. This communication network, which is based on meetings in person at working conferences and workshops, allows members to actively access state of the art results of research and practice, and to develop a collective expertise.

1. On the basis of this collective expertise, prospective ideas about development and impact of informatics and related technologies in higher education are formed.
2. The collective expertise is shared with others in open conferences, seminars, and consultancy and through publications.
3. The Working Group strives to achieve a proper understanding of the impact of the information technologies on society in order to be able to define the consequent new professional responsibilities of all students.
4. The curricular work of the working group aims:
   5. to revise curricula for informatics dealing with changes both from technological development and from theoretical advances;
   6. to provide guidance on the informatics component needed in the curricula of all disciplines;
   7. to provide model curricula, adaptable to various cultural needs and educational systems, especially those of developing countries.

SCOPE
The work in Working Group 3.2 covers all aspects of the role of informatics and resulting technologies in higher education (universities, polytechnics, colleges of higher education, institutes of technology, etc.) covering education of specialists (like informaticians, computer scientists, software engineers, etc.), as well as the education of students from other disciplines.

- Among the aspects covered are:
  - informatics curricula
  - informatics in other subject areas
  - use of ICT within the subject of informatics and other subject areas
  - impacts of informatics and ICT on contents and methods of teaching and learning
  - impacts of ICT on organisation and management of teaching and learning.

URL: http://poe.netlab.csc.villanova.edu/ifip32/

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WG3.3 - Research on Education Applications of Information Technologies re-est. 1988, rev. 2004

AIMS
To provide a forum to identify issues and priorities for research and to map research policies arising from the differing cultures in IFIP Member countries.

SCOPE
- Identification of research needs and topics in the field of education
- Improvement of research approaches and methods
- Production of synthesis of research on major topics in the field
- Dissemination of research, in partnership with educational research communities.


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WG3.4 - IT-Professional and Vocational Education in Information Technology est. 1971, revised 1983, 1989,1995

AIMS
1. To promote the acquisition and updating of appropriate IT knowledge and expertise by all whose working environment requires contact with computer-based systems.
2. To consider the nature, content and method of delivery of IT in vocational education to enable students to achieve their employment expectations.
3. To promote the effective use of IT as a medium for the delivery of professional and vocational education.
4. To examine the activities of IT professional bodies concerning the professional development and certification of their members.

SCOPE
- The integration of IT knowledge and practice with other vocational and professional education.
- The on-going professional development of IT practitioners.
- The provision of initial and on-going IT training and education for non-IT professionals to enable them to use and contribute to the development of IT systems.
- The use of computer-based training methods in the delivery of education.
WG3.4 is focused on the area of professional and vocational education rather than on specific computing curricula in primary, secondary or tertiary educational institutions. The membership of WG3.4 comprises academics and IT practitioners whose interests are reflected in the conference activities organised by the Working Group over recent years. These include the use of computer-mediated education, the on-going professional education of both IT and non-IT professionals, the activities of national IT professional bodies, the delivery of effective IT vocational education to post-secondary students and the integration of IT into other tertiary curricula.

URL: http://www.cs.uta.fi/ifip/wg3.4/

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WG3.5 - Information and Communication Technologies in Elementary Education est. 1983, revised 1999

The working group is concerned with the role of Information and Communication Technologies (ICT) in elementary education (age range from pre-school to 13 years). Its mission is to provide educationalists with an international forum where ideas, practical educational experiences, research and project-oriented work can be presented and discussed in a professional way in order to promote the development of elementary education teaching and children's learning.

AIMS
1. develop pedagogical perspectives and respond to challenges raised by ICT in education;
2. study and evaluate the issues arising when ICT is used in pre-school and elementary education, and used in pre-service and in-service teacher professional development as well as for teacher educators;
3. assist teachers, administrators and other educators to assess the impact of ICT on children, teachers, and the school community;
4. develop understanding of learning environments appropriate to ICT use and where ICT is used;
5. promote critical use of educational technologies in pre-school and elementary school settings;
6. promote the development of ICT materials and equipment, of recognised quality;
7. promote the use of ICT to support the school integration of disabled and hospitalised pupils;
8. focus on consequences and implications for teacher education and pedagogical needs of the future in ICT;
9. ensure that ethical perspectives raised by the applications of ICT on education and children's lives are handled in a critical and appropriate way;
10. enable ICT to make a beneficial contribution to children's learning and living; and
11. bring the problems of ICT education in pre-school and elementary education to the attention of school administrators and appropriate authorities to whom they report.
SCOPE
The scope of this working group is ICT in Elementary Education including:

- pre-school (nursery or early childhood) education;
- elementary (primary) schools;
- disabled and hospitalised pupils;
- teachers (initial training and professional development);
- the curriculum;
- use in all disciplines and across all curriculum areas;
- national policies;
- equity and gender;
- social, cultural and psychological aspects;
- competency and assessment;

URL: http://ifip35.inf.elte.hu/

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WG3.6 - Distance Learning est. 1987

AIMS
1. to consider what is necessary to prepare the whole society for living in the information age, using a distance learning system for:
   - teaching the application of intelligent electronic tools, as computers, terminals, computer-numerically controlled equipment, etc.,
   - teaching possible use of informatics (databases, information systems, program package, software tools, etc.) and the handling of such systems;
2. to investigate the technology of distance learning to be aware of the new and advanced methods and to support the spread of distance learning in the educational institutions of the different countries;
3. to support the teaching of informatics with the technology of distance learning, particularly in the countries where this technology is not applied;
4. to support cooperation, especially in the development of courseware and the exchange of teaching material (courseware).
SCOPE

- to investigate distance learning methods for adult education in informatics in Open Universities;
- to introduce the methods of distance learning to postgraduate training on different levels;
- to realize the connection and the cooperation of the distance learning educational systems with other public and high-level education systems;
- to cooperate with the telecommunication-media (TV, radio, journals, etc.).


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WG3.7 - Information Technology in Educational Management est. 1996

AIMS

1. To promote effective and efficient use of Information technology within the educational management of educational institutions, educational authorities and educational system networks, to enhance educational effectiveness and development;

2. To promote the use and advancement of decision making tools within educational management, including those from operations research, decision science, expert systems, human-computer interaction and others;

3. To follow-up technological developments (hardware, software, communication systems), their possible impact on ITEM application and to recommend and forecast the development of ITEM systems;

4. To investigate human, social, ethical, aspects of ITEM systems and to provide recommendations for their adequate treatment;

5. To investigate security and confidentiality aspects of ITEM systems and to provide recommendations for their adequate treatment;

6. To care for international exchanges of information on the state of the art of research, development and implementation of ITEM systems;

7. To promote international cooperation among ITEM research teams;
8. To propose themes for international, collaborative research and development in ITEM and to seek funding for such research and development from national and international bodies;
9. To provide advice and support to countries/educational systems in the developmental stage of their ITEM systems, with special emphasis on developing countries and emerging educational systems.

SCOPE
The whole range of educational institutions from kindergarten to primary and secondary education, to universities, adult education and in-service training.

Educational authorities/systems
- local, regional, national, international. Research and development institutions
- academic, non-profit organizations, government, commercial.

URL: http://item.wceruw.org/

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SIG3.8 - Lifelong Learning est. 2005

AIMS
1. The Special Interest Group aims to develop effective communication among its members. This communication network which is based on group communication through telecommunications and meetings in person at working conferences and workshops, allows members to actively access state-of-the-art results of research and practice and to develop a collective expertise.
2. On the basis of this collective expertise, prospective ideas about development and impact of informatics and related technologies in lifelong learning are formed.
3. The collective expertise is shared with others in open conferences, seminars and workshops, consultancy, and through telecommunications and publications.

SCOPE
The work in Special Interest Group 3.8 covers all aspects of the interactive role of informatics and resulting technologies in lifelong learning. Among these aspects are:

- Lifelong Learning as an economic issue;
- Lifelong Learning as a social issue;
- Lifelong Learning as a civic issue;
- Lifelong Learning as a cultural issue;
- Lifelong Learning as a personal issue;
- Lifelong Learning as an Information and Communication Technology issue;

Lifelong Learning is an economic issue: Economies are changing; In knowledge intensive economies the demand for competent knowledge workers and skills workers is increasing. Supply is not in balance with the demand. The main economic importance of knowledge workers in knowledge intensive economies derives from innovation through knowledge creation; the main economic importance of skills workers from innovation in knowledge application. To keep up with economic demands both groups have to enhance their competence in
"Learning teams". Learning is integrated into the work, learning on the job. This constitutes Lifelong Learning from the employment related perspective.

**Lifelong Learning as a social issue:** Social changes occur because of part-time work during initial education, of disappearing transition between initial education and working life, and of change as a second nature in work. Also new technological possibilities such as mobile phones play a role. We want (to do) it now, we want to do more at one time, we want it flexible and we want it personal and meaningful. We do not want to wait for general supply, we demand it now and want it personalized. This also applies to our social learning where 'learning communities' appear, be it local communities or communities of hobby or interest, including citizenship communities (civic life).

**Lifelong Learning as a civic issue:** New opportunities for active participation is society are needed, empowering citizens to increase their influence over social, cultural and economic factors, locally and further a field, as ICT permits remote participation. Lifelong Learning in citizenship communities is a means to this active participation: "Just as Learning is being taken to the learner enhanced by the use of ICT, so is citizenship with developments in electronic governance." [2]

**Lifelong Learning as a cultural issue:** We have moved to a ‘zap’ culture with television, local satellite and webTV, that now is amplified by Information and Communication Technology. Small chunks of information, or entertainment, build up the mosaic of our cultural experiences, a culture of ‘blips’. Ubiquitous mobile communication ("where are you?")", video and gaming, surfing the globe, all allow us to create our own cultural communities.

**Lifelong Learning as a personal issue:** Changes in economic and social life require on-going personal development. In personal life a person may be a 'lonely' learner. But economic, social and cultural life require 'team learning' or 'community learning'. 'Lone wolf' learners fall into several age groups. Attention must be given to reaching all ages.

**Lifelong Learning as an Information and Communication Technology issue:** Lifelong Learning provides new opportunities for active participation in society, empowering citizens to increase their influence over social, cultural and economic factors, locally and further a field, as ICT permits remote participation. Economic, social and cultural developments all point in a direction where personalized, flexible learning will be part of our economic, democratic, cultural and social life. Just as at the work place where its use is integrated, Information and Communication Technology will play an important enabling role. And ICT is able to play this role because also its integration in our social and cultural life is just a matter of time. It can furthermore be noted that: "ICT is a major component in merging personal, private, leisure and work time". Lifelong Learning takes place in the real world, that means in a real life setting where new knowledge has to be created and applied, because it is needed (to steer our actions). Therefore Lifelong Learning may appear in different contexts:

- Professional context;
- Local/dispersed community context;
- Individual context.

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AIMS
To promote research and the development of fundamental concepts, models, and theories to support applications of Information Technology.

1. Research: To identify and study advanced issues related to the application of techniques and information technologies that automate, integrate, and optimize the processes of innovation, design, production and management, including environmental issues.

2. Communication: To provide an international forum for government, academia, research and industry for the dissemination, publication and peer review of information, research, education and practices.

3. Collaboration: To foster interdisciplinary work and to collaborate with other Technical Committees, Working Groups and global professional organizations with allied interests.

SCOPES
This Technical Committee provides a focus for multi-disciplinary research into the application of information technologies and practices to facilitate information management - that is, to make it easier for people to have up-to-date knowledge, to be flexible, and to adapt. Some non-exclusive examples are:

- Product Lifecycle Management
- Digital Engineering / Digital Modeling and Simulation / Digital Manufacturing
- Computer Aided Product Realization
- Integrated Manufacturing / Production Management including Data Management for Production, Process Planning and Tools
- Virtual Product Creation, Visualization and Digital Verification of Product and Process
- Environmental Information and Decision Support Systems for Environmental Monitoring, Management, Research and Policy, including Risk and Crisis Management
- Virtual collaboration supporting the interaction between product, production, supply chain management, recycling and end of life disposal

Enterprise integration to facilitate product realization.

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WG5.2 - Computer-Aided-Design est. 1972, revised 1986

AIMS
To promote and encourage the advancement of the field of computer-aided design (CAD) and its associated topics.

SCOPE
- the theory of CAD;
- software philosophy related to CAD;
- systems software and architecture;
- the methodology of CAD-systems;
- CAD-oriented data structures, data bases and relationships with other databases;
- the lifetime of CAD software;
- the language in which the CAD-system is written;
- human/computer interaction including computer graphics issues for CAD;
- input/output organizations;
- expert systems for CAD;
- coupling with manufacturing, testing and other CAD-related topics;
- applications;
- economic and social justifications.

It will further work to reduce cost through the development and standardization of techniques, software, firmware and hardware, taking into account the job satisfaction of the user of a specific CAD application and its impact on society.

URL: http://www.cs.wpi.edu/~dcb/WG5.2/

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WG5.3 - Computer-Aided Manufacturing est. 1972, revised 1985, 1986

AIMS
To promote and encourage the advancement of computer and computer-related applications in the fields of research, development, design, construction, and operation of machines and plants for the discrete manufacturing industries, such as automotive, machine tool, appliance, aircraft, electronic, furniture and similar and related industries.
SCOPE
includes, but is not limited to, the following items:

- standards, design and implementation of computer-aided manufacturing;
- integration of CAD and CAM;
- use of computer-aided design and interactive graphics in the design and use of machines and automated manufacturing systems;
- machine-tool languages;
- computer-aided process and operation planning and optimization;
- CNC, DNC and PC;
- robotics and assembly;
- flexible manufacturing systems;
- parts transportation, handling and identification;
- inspection, testing and measurements;
- artificial intelligence in CAM;
- economic and social implications of automated manufacturing systems.

The Working Group will be responsible for IFIP’s work in organising and presenting the PROLAMAT Conferences.

URL: http://goanna.cs.rmit.edu.au/~pbertok/ifip/w.g.5-3/wg53.htm

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WG 5.5 (Cooperation Infrastructure for Virtual Enterprises and electronic Business - “COVE”) est. 2001

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WG5.6 - Maritime Industries est. 1974

AIMS
To promote and encourage the advancement of computer and computer-related applications in the fields of research, development, design, construction and operation of shipping companies, shipyards, ships, oil drilling platforms, fisheries, and other maritime plants and industries.

SCOPE
1. methods of automation of the operations of shipping companies and shipyards, of ocean-going vessels and smaller craft, of fisheries, and of other maritime industries and installations, topics in the use of the associated computers, signal gathering equipment, data presentation devices, and associated equipment and techniques;
2. study and development of general and special programming languages and other programming aids necessary for the work of item 1 above;
3. study of requirements for and methods of enhancement of the overall reliability and operability of the computers and other equipment involved in these automation programs.

The Working Group will be responsible for IFIP's work in organizing the Series of conferences on
- Ship Operation Automation currently being conducted in cooperation with IFAC;
- Computer Applications in the Automation of Shipyard Operation and Ship Design currently being conducted in cooperation with IFAC;
- Automation in Off-Shore Oil Field Operation currently being conducted in cooperation with IFAC.

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AIMS
To promote and encourage the advancement of the field of computer systems for the production management of manufacturing, offshore, construction, electronic and similar and related industries.

SCOPE
- design and implementation of new production planning and control systems taking into account new technology and management philosophy;
- CAPM in a CIM environment including interfaces to CAD and CAM;
- project management and cost engineering;
- knowledge-engineering in CAPM;
- CAPM for Flexible Manufacturing Systems (FMS) and Flexible Assembly Systems (FAS);
- methods and concepts in CAPM;
- economic and social implications of CAPM.
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AIMS
To promote and encourage the advancement of the field of computer graphics and virtual worlds and their applications in technology.

SCOPE

- Graphics and CAD for Engineering and Scientific Applications: Electric, Electronic, Mechanical, Civil and Architectural Engineering, Robotics, Virtual Factories, Cartography, Transportation Systems, etc.
- Graphics Modelling and Rendering: Techniques of Data Capture, Curves and Surfaces Modelling, Surface and Volume Rendering, Simulation of Natural Phenomena.
- Virtual Reality: Virtual Environments, 3D Interaction, Techniques of Immersion, Senseware, Teleoperation, Telepresence.
- Animating Virtual Worlds: Physics-Based Animation, Simulation of Articulated Bodies, Facial Animation and Virtual Communication.
- Modelling and Animating Human Beings for Medical Applications: Understanding anatomy through Virtual Bodies, Learning Surgeon Techniques on 3D Solid Modelled Humans.

URL: http://miralabwww.unige.ch/~ifip/

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WG5.11 - Computers and Environment est. 1991, revised 1992

AIMS
To investigate existing methods and applications of computer based technologies to environmental engineering, environmental protection, and environmental research.

SCOPE
- Monitoring and remote sensing of environmental variables.
- GIS and mapping systems.
- Natural resources conservation (land, water, noise ...).
- Hazardous waste management.
- Environmental impact assessment.
- Environmental information and decision support systems.
- Environmental AI applications.
- Cultural and artistic patrimony protection.

URL: http://www.enviromatics.org

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WG5.12 - Architectures for Enterprise Integration est. 1995

AIMS
To foster research into enterprise integration, and in particular enterprise reference architectures, enterprise engineering methodologies, enterprise modelling, and generic enterprise models.

To identify theoretically sound and practically viable techniques for the process of change toward the integrated enterprise. The multi-disciplinary perspective of WG5.12 is expressed in the strategy to develop liaisons and to co-sponsor activities with other relevant Working Group and Technical Committees of IFIP, and other organizations, conducting research and development in enterprise integration technology.

SCOPE
- Continue the evaluation of enterprise reference architecture proposals as they become available, and solicit additional proposals (life-cycle architectures, methodologies).
- Expand the work with information systems physical and functional description architectures (integration infrastructure architectures), as well as program architectures for complete enterprise life-cycle development and management.
- Work to develop specifications and/or recommended manifestations for each class above. This specification would include, for each phase of the enterprise life-cycle - development, (re)design,
implementation / migration, and operation
- the requisite
- Architectural framework,
- Enterprise modelling tools and languages (language specifications, ontological theories, computer-aided enterprise engineering tools)
- Methodology for use (enterprise engineering methodology)
- Generic building blocks and models (intra- and inter-enterprise integration, agent based integration, information infrastructure, organisational models, self-similar structures, reusable industry-specific models)


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SIG-CAI Computer Aided Innovation est. 2004

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**AIMS**

1. to promote the international exchange of information related to communication systems;
2. to bridge gaps existing between users, telecommunication operators, service providers and computer and equipment manufacturers;
3. to establish working contacts with international bodies concerned with data communication, such as ITU, ETSI, ISO, IEEE, IETF, ITC and ATM Forum.

**SCOPE**

The Scope of its work includes all aspects of communication systems, such as research on and design, manufacture and operation of products, systems, concepts and architectures related to information exchange. Some examples of areas of special interest are:

- Work fostering the development of standards;
- Formal protocol specification and verification techniques;
- National and international communication networks;
- Local and wide area communication networks;
- Integrated services digital networks;
- Network management;
- Distributed computing and information interchange between databases within a network of computers;
- Communication systems in the office and manufacturing area;
- Communications tools and communication services;
- Promotion of existing and innovative communication concepts both in developing countries and in developed countries;
- Teleservice architectures;
- Multimedia communications;
- New applications of communication systems, e.g. electronic commerce.

URL: http://www.ifip.tu-graz.ac.at/TC6/

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- ZA Koos Koen  
- ZW Jean Whiley

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AIMS

1. To identify and study questions associated with the development of distributed systems and the communications and middleware protocols that support distributed applications.
2. To support convergence of information processing systems, communication and networking technologies into a distributed infrastructure that is open for application to all members of the global society.
3. To investigate rigorous methods applicable to the specification, verification, implementation and testing of distributed systems and applications.
4. To support and promote the systematic use of these methods, and make them amenable to the practitioners, hence increasing awareness of formal methods in the distributed networking and computer networking areas at large.
5. To bring together researchers, developers, and practitioners working in these areas to discuss recent innovative results and future directions by promoting and supporting the organization of meetings, workshops and conferences.
6. To disseminate information and publications, foster an active participation of industry and encourage the transfer of knowledge between academia and industry.
7. To encourage young researchers to enter this field.

SCOPE

This WG provides a framework for the launching and the continued organization of activities in areas that include:

- Formal Description Techniques: including rigorous models, methods and tools applicable to the design, specification, validation, verification, implementation, easy prototyping, efficiency evaluation, and testing of communicating systems and object-based distributed systems.
- Open Distributed Systems: including the design, implementation, deployment and evaluation of distributed systems platforms and architectures for networked environments and distributed applications.
- Quality of Service: including architectures, services, multimedia, operating systems and middleware in a networked or distributed environment.

URL: http://www.run.montefiore.ulg.ac.be/IFIP/

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WG6.2 - Network and Internetwork Architectures est. 1994, revised 2001

AIMS
To identify and study advanced issues related to networking and internetworking design, with main emphasis on the provision of services at the network layer and on the integration of all present and future technologies for physical and data link layer.

SCOPE
This WG provides a framework for the launching and the continued organization of activities in the area of Network and Internetwork architectures, namely:

- Network Architectures: including architectures of local area networks, wide area networks, access networks, mobile IP networks, internetworking.
- Network Protocols: including transport and network layer protocols, IP and ATM integration, IP and ATM mappings on the lower layers, Multi Protocol Label Switching.
- Network Control and Quality of Service: including traffic engineering and control, signalling, network quality of service.
- Network Components Design: including switch and router design, techniques for the transport of packetized voice and video.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm

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US Marjory J. Johnson
US Harry G. Perros
US Catherine Rosenberg
US Fouad Tobagi
US C-K. Toh
AIMS
To improve the state of the art in the performance evaluation of new and existing communication systems.

SCOPE
- Analysis of the performance (i.e. throughput, response time, buffer occupancy distribution, etc.) of various aspects of current communication networks, such as IP and ATM networks, wireless networks, and LANs/MANs.
- Congestion and call admission control in communication systems.
- Performance evaluation of future high-speed networks as they would be deployed over optical switching networks.
- Performance evaluation of internetworking devices.
- Performance analysis of protocol enhancement for LANs/MANs.
- Traffic characterization of existing and future networks.
- Monitoring and tuning communication systems, for better performance.
- Knowledge acquisition for performance evaluation of communication systems.
- Development of relevant performance evaluation techniques, as motivated by real-life communication systems.
- Understanding the performance of communication software systems as they interact with kernels, and applications such as multimedia.

URL: http://www4.ncsu.edu/eos/users/hhp/WWW/

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US   Debasis Mitra
US   Arne Nilsson
US   Ralf O. Onvural
US   Harry G. Perros
US   Catherine Rosenberg
US   John Silvester
US   William J. Stewart
US   Don Towsley
US   Satish K. Tripathi
US   Kishor S. Trivedi
US   Yannis Viniotis
ZA   Pieter S. Kritzinger

AIMS
To investigate and report on Internet applications which typically reside above the IP level, encompassing World Wide Web applications.

SCOPE
This Working Group provides a framework for the launching and the organization of activities in the area of Internet applications engineering, including:

- Applications: agent technologies, distributed games, hypertext and hypermedia, multimedia on the Web.
- Infrastructure: audio/video/voice coding for Internet services, Internet security, multicast, searching and querying, virtual private networks, Web navigation strategies.
- Performance: caching, quality of service, scalability aspects, traffic characterization.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm

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WG6.6 - Management of Networks and Distributed Systems est. 1986, revised 2001

AIMS
To facilitate cooperation between different organizations and individuals internationally in the areas of distributed operations and management, systems management, and integrated network management. To be an effective conduit in the technology transfer between the academic and research communities, industry and the standard bodies.

SCOPE
Our planet is increasingly being networked using a variety of media, a variety of protocols and a variety of services. On the other hand, computers are becoming increasingly pervasive in a variety of forms and architectures ranging from large scale parallel systems, vector machines and mainframes to micro computers in any type of appliances, cars, etc. The scope of WG 6.6 is Operations and Management paradigms and technologies for these novel and complex systems and networks continuously evolving over different levels of abstraction such as element, network, service, and business level. The Operations and Management encompass different function areas such as configuration, fault, accounting, performance and security. This includes new technologies such as policy based management, active networks and mobile agents as well as already established management protocols and information models.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm
WG6.7 - Smart Networks est. 1996, revised 1998, 2001

AIMS
To identify and study current issues related to the development of intelligent capabilities in networks. These issues include the creation, distribution and management of telecommunication and Internet services. The services can be based on circuit and packet switched networks and applied from fixed, mobile and wireless terminals.

SCOPE
Smart Networks is concentrated on research into telecommunications and Internet services programmed on top of network functionalities such as switching, routing, locality and mobility. The concept of Intelligent Networks (IN) was developed for voice and telephony services and is now applied widely in mobile networks for service creation and integration. At the same time, as there has been a shift from centralized IN based services to more distributed architectures, centralized solutions are also proposed to combine Internet and IN services. New emerging research includes Intelligent Agents, Active Networks, Programmable Networks, Hybrid Networks, Configurable Architectures for software and hardware, Dependable Reconfigurable Networks, Mobility Management, QoS Management and Network Integration issues. The creation, distribution and management of intelligent services on top of Internet infrastructure will demand standardized solutions for authentication, billing, security and service platforms.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm
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<td>Veikko Hara</td>
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**AIMS**
To organise and promote the exchange of information on wireless communication systems and networks, fixed and mobile, terrestrial and space, local and global. To help in the research, development, design, standardisation and applications for mobile and wireless modules, equipment and systems. To examine technical operational capabilities of the future mobile and wireless networks for voice, data, text and image communications. The results of the work will be made available to individuals as well as organisations concerned, such as manufacturers, operators, common carriers, standardisation bodies, users.

**SCOPE**
The scope of the Working Group includes:
- Wireless LANs.
- Mobile computing.
- Cellular networks.
- Ad-hoc networks.
- Mobile and wireless personal communications.
- Short range communications and applications.
- Digital microwave systems and networks.
- Digital radio and TV broadcasting.
- Satellite networks.

All topics should be examined from the viewpoint of architecture and protocols, modulation, coding and decoding, methods of communication functions (multiple access, error control, flow control, routing, etc.), security, implementation, user aspects, legal, economic, social and human related issues.

URL:http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm

**Chair**
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WG6.9 - Communication Systems for Developing Countries est. 2002

AIMS
To identify and study technical problems related to the access to, understanding of and application of network and telecommunications technology in developing countries or regions.

To encourage cross-fertilisation of concepts and techniques among developing countries, and between developing countries and developed countries.

To promote activities oriented to the diffusion of the methods and techniques for accessing computer networks in developing countries or regions.

SCOPE
The areas of study include models and methods for transfer of concepts and methods in communication systems and establishment of new applications in developing regions for existing technologies. The requirements of the users of those regions include cost-effective technologies for global access, rural access to services and social development in those regions through appropriate applications of communication systems.

The problems of human resources, sharing of experience and cost of technology are particularly acute, and are to be examined in detail.

Although not limited to, the following items are of particular significance in the scope of the Working Group:

- Satellite systems
- Applications for cellular technology
- Alternative network technologies
- Technologies for distance learning, e-business, tele-meeting and any other reducing the distance effect between partners
- Global access and interconnectivity technologies
- Internet services.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm

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TN Farouk Kamoun
ZA Koos Koen

MOTIVATION
Photonic Communication networks hold the promise of solving several problems in the current generation of networks, among them restricted transmission capacity and limited performance capability.

AIMS
To strengthen research on photonic networks, to explore the potentials of photonic networks and to accelerate their early development. Additionally, the Working Group provides a platform for presenting and discussing research activities, major achievements and trends involving the all-optical communication networks.

SCOPE
The Working Group scope includes:
- Architectures, system design, control mechanisms and applications that exploit the abundant transmission capacity and flexibility of photonics.
- Development of analytical and simulation tools as well as methods for analysing, operating, dimensioning, and planning photonic networks.

URL: http://www.ifip.tu-graz.ac.at/TC6/WG/index.htm

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AIMS
To organise and promote the exchange of information on communication protocols and information exchange mechanisms for Electronic Commerce. To foster research, development, standardisation, and applications for communication platforms and services for pre-sales support, sales and service management, settlement, and virtual enterprises in an open trading environment.

SCOPE
The scope of the work encompasses all aspects of communication and information exchange in Electronic Commerce, including:
- Navigation, brokerage, advertising, and catalogue exchange in pre-sales activities.
- Negotiation and contract making protocols in interactions between consumers, businesses, and public administration.
- Secure exchange of documents, content and value in open trading protocols.
- Communication platforms for the e-Economy, including e-commerce, e-business and e-government.
- Application of mobile agent technology.
- Advanced devices and protocols for the support of mobility and the ubiquitous access to electronic markets.

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PT Luis Manuel Camarinha-Matos
SE Dipak Khakhar
TN Farouk Kamoun
ZA Jan H. P. Eloff
ZA Koos Koen
AIMS
1. to provide an international clearing house for computational (as well as related theoretical) aspects of optimization problems in diverse areas and to share computing experience gained on specific applications;
2. to promote the development of necessary high-level theory to meet the needs of complex optimization problems and establish appropriate cooperation with the International Mathematics Union and similar organisations;
3. to foster interdisciplinary activity on optimization problems spanning the various areas such as Economics (including Business Administration and Management), Biomedicine, Meteorology, etc., in cooperation with associated international bodies.

SCOPE
Computational aspects of optimization problems arising in such areas as Aerospace, Biomedicine, Economics, Meteorology, and Public Services (Health, Environment, Police, Fire, Transportation, etc.).

Some specific examples are:
- on-line and off-line computational techniques in modelling and control of dynamic systems;
- trajectory analysis and computation;
- optimization of decentralized systems (macro-economic systems) and systems with multicriteria;
- optimization of resource allocation in urban systems;
- optimization of pollution-control systems;
- optimization of man-machine systems;
- optimization of power systems operation.

URL: http://www.math.Virginia.EDU/~ifip

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JP  Hisao Kameda
NL  Adrie J.M. Beulens
PL  Kazimierz Malanowski
RU  Yury G. Evtushenko
SG  Kok Chuan Ng
SI  Janez Grad
SK  Baltazar Frankovic
US  Sanjay Ranka (IEEE)

ex-officio members: WG Chairs
*) honorary member
WG7.1 - Modelling and Simulation est. 1972

AIMS
To foster cooperation and information interchange among those engaged in the simulation of large and complex systems including specialists in:

1. Modelling and Identification Methodology;
2. Simulation Methodology;
3. Computer Simulation Languages;
4. Interactive On-Line Computation;
5. Hybrid Computation.

SCOPE
The work will include three major classes of problems:

- Environmental Systems
- Biological Systems
- Societal Systems

using various approaches such as:

- new simulation languages for digital simulation;
- new computer graphics techniques;
- application of pattern recognition and feature extraction methods;
- new mathematical techniques (e.g. finite elements);
- new data base organisations and simulations of data bases.

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WG7.2 - Computational Techniques in Distributed Systems est. 1973

AIMS
To foster the international exchange of ideas and experience in the area of Computational Techniques with particular emphasis on distributed systems arising in diverse disciplines such as Mechanics, Economics, Biomedical Engineering, Geophysics, etc.

SCOPE
Computational Techniques for Identification and Optimal Control of Systems Modelled by Partial Differential Equations;

Computational Techniques for Structural Problems, Elasticity, Plasticity, etc., including various approaches such as: Finite Element Approximation Techniques, Decomposition Techniques, Interactive and Graphic Computer Techniques.

URL: http://www.math.virginia.edu/~ifip/wg72/
WG7.3 - Computer Systems Modelling est. 1973

AIMS
The work of the Group is directed toward improving the art of analyzing and optimizing performance and costs of data processing systems through the use of analytical models.

SCOPE
- optimized allocation of resources (such as memory, telecommunication lines, computer power, and points of concentration and switching), in distributed information processing systems;
- analyses of throughput and response time;
- analyses of reliability in the presence of failures of hardware, software or telecommunications;
- analyses of CPU main memory and I/O channel scheduling and allocating procedures;
- analyses of storage systems including memory hierarchies and geographically distributed data bases;
- comparison with simulations and with performance indices measured experimentally.
### WG7.4 - Discrete Optimization est. 1986

**AIMS and SCOPE**

- to promote theoretical contributions on the fundamental issues of discrete mathematics, such as graph theory, finite algebras, polyhedral combinatorics, discrete probability, etc.;
- to promote methodological contribution on specific fields of discrete optimization like topological network design, network optimization problems, scheduling and routing, game theory, combinational problems on graphs, etc.;
- to encourage the exchange of information and the cooperation between algorithms designers and computer scientists on the issues of problem solving and artificial intelligence;
- to promote the definition of standards for combinatorial optimization algorithms software production;
- to promote the definition of standards for combinatorial optimization software performance evaluation.

**URL:** [http://www.math.tu-bs.de/ifip/welcome.html](http://www.math.tu-bs.de/ifip/welcome.html)

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WG7.5 - Reliability and Optimization of Structural Systems est. 1986

AIMS and SCOPE

- Promote modern structural system reliability and optimization theory;
- Advance international cooperation in the field of structural system reliability and optimization theory;
- Stimulate research, development and application of structural system reliability and optimization theory;
- Disseminate and exchange the information on reliability and optimization of structural systems;
- Encourage education in structural system reliability and optimization theory.

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WG7.6 - Optimization-Based Computer-Aided Modelling and Design est. 1989, revised 1999

AIMS
The Working Group 7.6 considers high-performance computer-aided systems to support modelling, decision analysis, optimization and multi-criteria decision making.

The Working Group is focused on
1. Policy and Management (Application Focus)
2. Optimization, Multi-Criteria Decision Analysis and Simulation (Methodological Focus)
3. Design, Planning and Scheduling (Problem Type Focus)
4. Modelling and Implementation of Intelligent Systems (Information Technology Focus)

SCOPES
Any methodological approach or combination of solution techniques, which solves real world problems successfully. Thus, the following problem types are examples of application areas in policy and management the WG will deal with:

- Network Design (Communication, Transportation, Traffic)
- Planning and Scheduling in Transportation Logistics
- Production Planning and Scheduling
- Environmental. Planning Problems

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WG7.7 - Stochastic Optimization est. 1989

AIMS
To foster international cooperation among experts in stochastic optimization, and to spread information about the achievements of the field into areas of possible applications.

SCOPE
Subject of this WG are all problems involving in an essential way stochastic components (variables or processes) and the task of optimizing functions. In particular this includes:

- Theoretical investigation of stochastic optimization models;
- Design, development and analysis of solution methods;
- Modelling practical problems by stochastic optimization problems, e.g. in agriculture, industrial production, finance, power systems, water reservoir management, and implementing stochastic optimization models into decision support systems.
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TC 8 (INFORMATION SYSTEMS) est. 1966, revised 1990

AIMS
To promote and encourage interactions among professionals from practice and research and advancement of investigation of concepts, methods, techniques, tools, and issues related to information systems in organisations.

SCOPE
The planning, analysis, design, construction, modification, implementation, utilization, evaluation, and management of information systems that use information technology to support and coordinate organisational activities including:

- effective utilization of information technologies in organisational context;
- interdependencies of information technologies and organisational structure, relationships and interaction;
- evaluation and management of information systems;
- analysis, design, construction, modification and implementation of computer-based information systems for organisations;
- management of knowledge, information, and data in organisations;
- information systems applications in organisations such as transaction processing, routine data processing, decision support, office support, computer-integrated manufacturing, expert support, executive support and support for strategic advantage plus the coordination and interaction of such applications;
- relevant research and practice from associated fields such as computer science, operations management, economics, organisation theory, cognitive science, knowledge engineering, and systems theory.

URL: http://ifiptc8.itu.dk

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ex-officio members: WG Chairs

AIMS
The planning, analysis, design and evaluation of information systems for organisations.

SCOPE
- Identify concepts and develop theories relevant to the planning, analysis, design and evaluation of information systems;
- Develop languages, techniques, tools and methods for applying these concepts and theories to the:
  - planning
  - requirements analysis and determination, and specification
  - design
  - evolution of information systems, and their verification, validation and overall evaluation;
- Develop methodologies for the analysis, evaluation and selection of information systems development methods;
- Take cognizance of relevant work from associated fields - such as computer science, software engineering, knowledge engineering, cognitive science, management science, organisation theory and systems theory - and apply the findings to the development of information systems.

URL: http://www.elet.polimi.it/upload/pernici/ifip81/

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WG 8.2 - The Interaction of Information Systems and the Organization est. 1977, rev. 2005

AIMS
1. To develop integrative frameworks that facilitate recognition and transfer or relevant knowledge about the role and uses of IT. Such frameworks can be based on a wide range of disciplines. these frameworks should be open to all research traditions and lines of research which further the study of the uses of IT in organizational contexts., and can also include the critical questioning of their relevance for the scope and aims of WG 8.2.
2. To build theories and generate evidence about the role and impact of IT in specific organizational contexts.
3. To improve the ways and means by which organizations design, implement and maintain IT.
4. To nurture a critical discourse about the role which IT plays in the lives of people as individuals and as members of complex social institutions such as government, community, business, professional societies and other forms of social associations.

5. To engage in ethical discourse about the practices and dilemmas which arise in the development, use and consequences of IT, or in research about such technology.

**SCOPE**

Working Group 8.2 is concerned with the generation and dissemination of descriptive and normative knowledge about the development and use of information technologies in organizational contexts, both broadly defined. By information technology (IT), we mean technologies that can be used to store, transfer, process or represent information. By organizational context, we mean the institutional arrangements in which information is used or created. Descriptively, the WG seeks to generate and disseminate knowledge about and improve understanding of the role and impact of information technology across a range of social levels (society, organization, individual) and across a diversity of spheres (marketplace, workplace, home, community). Normatively, it seeks to improve the design and application of information technologies that are both useful and effective for individuals, groups, organizations and society at large.

URL: http://www.ifipwg82.org
WG 8.3 - Decision Support Systems est. 1981

AIMS
The development of approaches for applying information systems technology to increase the effectiveness of decision-makers in situations where the computer system can support and enhance human judgements in the performance of tasks that have elements which cannot be specified in advance.

SCOPE
To improve ways of synthesizing and applying relevant work from resource disciplines to practical implementations of systems that enhance decision support capability;

The resource disciplines include
- information technology
- artificial intelligence
- cognitive psychology
- decision theory
- organisational theory
- operations research and modelling.

URL: www.ifip-dss.org

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AIMS
To promote collaboration across disciplines in E-Business research and practice.

SCOPE
This working group provides a reference point and a focus for multi-disciplinary research and practice in E-Business. The intention is to extend the community’s focus on E-Business to recognize, acknowledge and facilitate research and practice as it crosses the boundaries of IS, organizational, consumer, community, industry and national domains.

Where researchers and practitioners focus on specific issues and technologies, eg smart-card developments, mobile technologies or organizational adoption of IT practices then that research is more properly located within existing working groups. Where that work is cross or multi-disciplinary it can be located here.

URL: http://ifip84.econ.usyd.edu.au/
WG 8.5 Information Systems in Public Administration est. 1988

AIMS
To improve the quality of information systems in public administration at international, national, regional and local levels. The Working Group's special emphasis is on the relationship between central and local use of information systems and the provision of citizen services, together with the accomplishment of social goals.

SCOPE
- analyse information processing policies in public administration;
- discuss specific applications of information systems in public administration;
- analyse the impacts of information systems on public administration;
- apply the results of other IFIP Working Groups, and specifically of TC 8 Working Groups, to public administration.
WG 8.6 - Transfer and Diffusion of Information Technology est. 1994

AIMS
To foster understanding and improve research in practice, methods, and techniques in the transfer and diffusion of information technology within systems that are developed and in the development process.

SCOPE
- Diffusion, transfer, and implementation of both mature and immature information technologies and systems in organizations and among organizations, sectors, and countries.
- Transfer of technology to be incorporated in systems for customers and clients.
- Transfer of both system and development technologies to technologists, developers, managers, and sponsors of systems.
- Development of frameworks, models, and terminology for information technology transfer and diffusion.
- Identification of risk factors and barriers to success in technology transfer and strategies for addressing them.
- Conditions or scenarios under which specific transfer and diffusion techniques are applicable.
- Methods to evaluate the efficiency, effectiveness, and value of technology transfer programs and approaches, including time and effort estimators and metrics.
- Organization design and process issues related to technology transfer and diffusion.
- Case studies of technology transfer and diffusion to provide instances to guide research, development, and practice.
- Standards and intellectual property issues that inhibit or facilitate information technology transfer.

URL: http://www.ifip8-6.cbs.dk/
AIMS
Smart cards are to be understood as personal, portable, flexible, secure tokens that form an integral part of a larger information infrastructure. Therefore the aims of WG 8.8 are:

1. to encourage interaction between the numerous actors in the smart card area.
2. to create a common and coherent approach of a specific methodology.
3. to address the background technologies of component architectures; for example dedicated chips, security devices, memory management.
4. to specify and design smart card operating systems.
5. to identify and develop relationship between different themes of information systems and smart cards, for example promote the theme of smart cards as a widely distributed data base.
6. to specify interfaces between smart cards as an active components of distributed systems and networks.
7. to promote a global security analysis of information systems using smart cards.
8. to investigate the field of applications of smart cards and propose a scheme for a design methodology.
9. to create new models for information systems which use smart cards.
10. to participate to advanced standardization discussions and propositions.

SCOPE
The study of smart cards as an innovative component of widely distributed systems. The scope includes all the aspects of smart cards design and applications:

- Technology with hardware, software and security specific requirements.
- Application design with a special emphasis on development methodology of distributed systems.
- Service providing including analysis of transactions, protocols and more generally speaking, the process of a top down design of smart cards projects.
- The interaction of smart card related technology with society, economics, public services and organisations.
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FR Gilles Grimaud
FR Sebastien Jean
FR Sylvain Lecomte
GB Konstantinos Markantonakis

GB Braden Phillips
HU Zoli Kincses
JP Tatsuaki Okamoto
NL Pieter H. Hartel
NL Ray Hirschfeld
US Peter Honeyman
US Eduard de Jong
TC 9 (RELATIONSHIP BETWEEN COMPUTERS AND SOCIETY) est. 1976

AIMS
To influence the applications of computers with respect to individuals, groups, institutions and society. It is not concerned with computer developments which are strictly technical, or developments in which there is no scientific or technical component.

SCOPE
- Communicating Social Consequences:
  promote communication between computer-related professionals and others on relationships between computer technology and society.
- Promoting Social Accountability:
  help computer professionals to develop increasing awareness of the social consequences of their work, within IFIP and in the profession at large.
- Facilitating Research:
  encourage studies on the effects of the uses of computers on individuals and society.
- Humanizing Information Systems:
  examine how the needs of individuals and society affect the design of technical systems involving computers.
- Enhancing the Quality of Life:
  identify and promote those uses of information processing which improve the quality of life of individuals and of society as a whole.
- Encouraging Responsible Long-Range Planning:
  promote forecasting studies to disseminate early warnings on human consequences of the use of computers, and encourage the development of long-range social plans to ensure that the use results in human benefits.

URL: http://www.info.fundp.ac.be/~jbl/IFIP_tc9/index.html

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US Ronald E. Anderson (ACM)
US Gerald L. Engel (IEEE)
ZA Letlibe Jacob. Phahlamohlaka
WG 9.1 - Computers and Work est. 1977

AIMS
1. to study and report on how computers have affected employment levels, job content and structure, working conditions, career patterns, and participation problems;
2. to give an account of problems relating to computers and work, and of proposed measures for dealing with these problems;
3. to encourage and support the design and development of systems which promote not only efficiency but provide job satisfaction, for example through interesting work and reduction of stress.

SCOPE
The effects of computerization on the lives of three distinct groups of person:
- computer professionals,
- users of computers,
- non-users affected by computers.

URL: http://orgwis.gmd.de/~mambrey/ifip9.1.html

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WG 9.2 - Social Accountability est. 1977

AIMS
1. helping make computer professionals and system designers and others aware of the social consequences of their work;
2. developing criteria to determine how well the public is served when it comes into contact with computerized systems;
3. enabling and encouraging designers and users of computer systems to make a human choice, i.e. a choice which takes into account human needs and wishes.

SCOPE
Those aspects of computers which affect the public interest. Among these are:
- ethical issues arising out of the use of computers,
- the freedom of access to information, as well as the right to privacy and to the protection of sensitive data,
- shifts in the balance of power arising out of the use of computers,
- the effects of computers in public and private organisations,
- education of the public about computers, and of computer professionals about the effects of their work.

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**SIG 9.2.1 - Disability**

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WG 9.3 - Home-Oriented Informatics and Telematics est. 1988, revised 1989

AIMS
1. Foster benevolent design, development, implementation, applications and use of Home-Oriented Informatics and Telematics (HOIT).
2. Encourage surveys and studies on HOIT.
3. Develop methodologies for studying social implications of HOIT.
4. Establish a global platform for interaction, exchange, joint initiatives and co-operation between such groups as:
   - the end of users of HOIT: members of households
   - industrial developers and designers of HOIT technology and related services
   - implementation designers
   - policy, decision making, social and consultative bodies
   - architects and urban planners
   - scientists.

SCOPE
The social implications of informatics, communications and telematics in the home, the family and its environment (HOIT);
including:

- actual and potential human usefulness of HOIT;
- social impact of these technologies and their applications;
- developments of the underlying infrastructure;
- rationale in innovation and design processes;
- dynamics of technology development.

WG 9.3 explicitly cares about the position of and the potentials for vulnerable groups like children, less-educated, disabled, elderly and non-employed people, paid and non-paid workers at home, cultural minorities, unaware users and others.
WG 9.4 - Social Implications of Computers in Developing Countries est. 1989

AIMS

1. to collect, exchange and disseminate experiences of developing countries;
2. to develop a consciousness amongst professionals, policy makers and public on social implications of computers in developing nations;
3. to develop criteria, methods, and guidelines for design and implementation of culturally adapted information systems;
4. to create a greater interest in professionals from industrialized countries to focus on issues of special relevance to developing countries through joint activities with other TCs.

SCOPE

- national computerization policy issues;
- culturally adapted computer technology and information systems;
- role of transnational corporations, regional and international cooperation and self sufficiency in informatics;
- social awareness of computers and computer literacy.

URL: http://is.lse.ac.uk/ifipwg94
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WG 9.5 - Applications and Social Implications of Virtual Worlds est. 1989, revised 1999, 2000

AIMS
This WG works about international trends in interactive media and virtual reality, their philosophical foundations and the impact of these technologies on culture and society. The WG will discuss in workshops and conferences applications and social implications of these emerging technologies.

SCOPE
The topics cover interdisciplinary aspects and interrelations in the field of multimedia and virtual reality between fine arts, computer science, design, philosophy, man-machine interaction, historical aspects, technology assessment. We are welcoming case studies on and experiences with virtual reality systems e.g. in medicine, architecture, industry, education, entertainment, information spaces.
- Applications of virtual worlds and their social implications,
- Social application of virtual worlds,
- Virtual environments for learning and communication like virtual universities, knowledge cities, virtual laboratories,
- Opportunities and risks of virtual environments in education, science, and
- Culture in industrialized and developing countries

URL: http://www.lrv.ufsc.br/IFIP-WG-9.5

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WG 9.6/11.7 - Information Technology Mis-Use and the Law est. 1990, revised 1992, 2001

AIMS
1. To foster co-operation between the "Computers and Society" and "Information Security" communities on issues of "IT misuse and the law".
2. To develop an understanding in IFIP committees and national bodies of:
3. threats associated with IT systems and the related legal concerns.
4. risks to people and organisations arising from these threats.
5. responsibilities of people and organisations arising from legal and other provisions for information security.
6. risks arising from incoherence between legal, technical and managerial provisions.
7. the impact of IT systems on the current law, e.g. (criminal and civil law) and potential problems.
8. To propose and/or evaluate legal and other prescriptions to combat these threats and their associated risks.
9. To engender information exchange on threats, their origins, and possible consequences.
10. To propose and/or evaluate legal and other appropriate courses of action.

SCOPE
- Analysis of existing and emerging threats to IT systems security, and the associated risks to people, organisations and society.
- Analysis of security principles.
- Aspects of the law where the use or introduction of IT on a global scale has rendered the current law (and/or its interpretations) obsolete or obsolescent or made it unenforceable.
- Analysis of potential means of countering and mitigating threats, e.g. legal frameworks, ethical standards, managerial procedures, and other social factors applicable to behaviour and responsibilities in the context of IT systems.
- Possible solutions.
- New legal, social and organisational consequences of the development and use of IT systems.


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WG 9.7 - History of Computing est. 1992

AIMS
1. To provide a central vehicle for information interchange regarding the methods and techniques of historio-graphy, especially as related to the opportunities for the studies of contemporary history.
2. To provide expertise for the design, implementation and operation of archives and displays related to the history of information processing.
3. To encourage the development of national archives.
4. To develop a program of "Pioneers' Days" which recognize the contribution of pioneers and anniversaries of major events.
5. To identify pioneers worthy of an appreciation and distinction and make "IFIP Pioneer Awards".
6. To develop publication plans for histories of Information Processing.
7. To promote the inclusion of historical modules in appropriate curricula.

SCOPE
The history of computing and informatics with a view to providing the impetus to preserve the records and artifacts of information processing inventions, practices and activities throughout the world under the auspices of IFIP and its constituent organizations. One special focus is the socio-historical context and consequences of Information Technologies.

URL: http://www.comphist.org

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US Jeffrey Yost

WG 9.8 Women and Information Technology est. 2001

AIMS
This WG is dedicated to research and action how different areas of society being transformed by computer technology with particular emphasis on changes in women’s work and life and how these have come about. It is based on the integration of gender studies and computer science. Membership is open to both women and men.

In this context the WG aims
1. to serve as an international, interdisciplinary communication forum and to hold discussions in workshops and conferences,
2. to exchange women’s experiences as scholars and professionals in information technology,
3. to integrate feminist perspectives into computer science,
4. to develop an understanding in the IFIP communities and national bodies of the gendered aspects in
   design, realisation, and implementation of information systems,
5. to propose and/or evaluate appropriate courses of action.

**SCOPE**
The topics cover the transitions from women’s traditional work to work based on modern technology, from
communication within personal communities to virtual communities, from traditional gendered life to new
gendered perspectives. Computerisation is understood in the narrow sense of computing systems as well as in
the broader sense which includes the organisational, ethical, and social context of design and usage.

Discourses are linked to
- the analysis of the effects of computer technology on women’s status as citizens,
- the analysis of opportunities and risks of computerised technologies for women’s work in the paid labour
  force and in domestic spheres,
- the analysis of gender perspectives in the formative and constructive processes of computers and
  information systems,
- the analysis of gender in computing education and educational strategies for girls and women.

**URL:** http://www.informatik.uni-bremen.de/~oechteri/IFIP

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- Gregory John Michaelson
- Eva Turner
- Hettie Abimbola Soriyan *

*) regional coordinators

**WG 9.9 ICT and Sustainable Development est. 2005**

**AIMS**
1. To contribute to the development of an information society that meets the human needs of the present
   without compromising the ability of future generations to meet their own needs.
2. To be actively involved in the development of ICT applications which involve the goal of sustainable
   development.
3. To investigate the interaction among social, environmental and economic issues in the development of
   ICTs and their applications.
4. To promote worldwide research and practice for further advancement of ICT towards a safe and
   sustainable self developing World
5. To strengthen interdisciplinary research efforts in technology assessment for ICTs with a focus on ICT-induced opportunities and risks for the individual, for social systems and for the global ecosystem.
6. To provide a platform for presenting and discussing emerging ideas and trends in the intersection of the topics 'information society' and 'sustainable development'.
7. To promote or support the organization of meetings as well as easy access to high-quality data, information and knowledge in this area and related areas.

SCOPE
- To create a network of experts working on ICT applications or implications related to sustainable development
- To support the coordination of policies related to information society issues with policies related to sustainable development
- To support applications of ICT for global environmental and development issues
- To facilitate research assessing the environmental and health impacts
  a) of ICT hardware life cycles; production, use, recycling and final disposal
  b) of ICT applications with respect to the resource efficiency of processes they influence
  c) of ICT-induced long-term changes of consumption patterns or lifestyles.
- To promote the communication between computer professionals and other experts on relationships between ICT and sustainable development
- To promote prospective studies to disseminate early warnings on consequences of applications of ICT that could compromise the goal of sustainable development, and encourage the development of strategies to ensure that ICT applications will contribute to sustainable development.

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AIMS
The Aims of the Committee are the promotion of the State-of-the-Art and the coordination of information exchange on concepts, methodologies, and tools in the stages in the life cycle of computer systems.

SCOPE
- system and component concepts, architecture and organisation;
- specification, design and verification methodologies of computer systems;
- logical design and fabrication of components and systems;
- evaluation of the parameters of computer systems and components;
- reliability;
- assessment of emerging technologies;
- application specific computer systems and components including peripherals.

URL: http://www.upb.de/cs/ag-rammig/TC10-Webpages/membertc10.htm

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WG10.1 - Computer-Aided Systems Theory est. 1994

AIMS
To explore problem areas and solutions in the development of tools for the application of systems theory in the field of computer systems and computer-based engineering systems. CAST research and development supplements current Computer-Aided Design (CAD) research and development activities by providing applicable formal modelling methodologies to systems and circuit designers. By such goals, CAST research aims to provide the theoretical backbone for many methods and tools as they are in the interest of other TC10 Working Groups.

SCOPE
- Exploration of theoretical frameworks for formal specification of computer systems both at component and systems levels.
- Provision of formal methods and related tools for multi-level modelling of computer systems of different kind.
- Realization of a method base to develop tools for the application of formal methods for functional design in microelectronics and computer systems.
- Support of the integration of different tools by providing a common conceptual basis.

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WG10.3 - Concurrent Systems est. 1978, revised 1979, 1988

AIMS
The Aim is the study of computer systems, having several computing elements, with the goal of improving the quality of attributes such as cost, performance, programmability, extendability and function.

The study includes the interrelation of software/firmware/hardware in specification, design and implementation.

SCOPE
- exploration of problem areas and solutions pertaining to the interrelation between the hardware functions and the software functions in systems such as supervisors, data management, language translators, I/O systems, and user interfaces;
- evaluation of the implications of trends in computer systems technology on the interrelation of software/firmware/hardware;
- evaluation of the implication of this interrelation on the trends in computer systems technology.

URL: http://www.ifipwg103.org
AIMS
Increasingly, individuals and organizations are developing or procuring sophisticated computing systems on whose services they need to place great reliance. In differing circumstances, the focus will be on differing properties of such services - e.g. continuity, performance, real-time response, ability to avoid catastrophic failures, prevention of deliberate privacy intrusions. The notion of dependability, defined as that property of a computing system which allows reliance to be justifiably placed on the service it delivers, enables these various concerns to be subsumed within a single conceptual framework. Dependability thus includes as special cares such attributes as reliability, availability, safety, security. The Working Group is aimed at identifying and integrating approaches, methods and techniques for specifying, designing, building, assessing, validating, operating and maintaining computer systems which should exhibit some or all of these attributes.

SCOPE
Specifically, the Working Group is concerned with progress in:
- understanding of faults (accidental faults, be they physical, design induced, originating from human interaction; intentional faults) and their effect;
- specification and design methods for dependability;
- methods for error detection and processing, and for fault treatment;
- validation (testing, verification, evaluation) and design for testability and verifiability;
- assessing dependability through modelling and measurement.

URL: http://www.dependability.org/wg10.4/
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SIGDeB - IFIP WG 10.4 (special Interest Group on Dependability Benchmarking) est. 1999

URL: http://www.dependability.org/wg10.4/SIGDeB/

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**AIMS**
Electronic system design demands a tight integration on a very large profile of knowledge and skills ranging from hardware and software system architecture to semiconductor physics.

Functionality of complex embedded or stand-alone systems, to be applied in areas such as general-purpose computing, telecommunications, automotive, entertainment, and multimedia, may be realized by various combinations of analog and digital hardware and software parts.

Systems can be implemented by single or multiple integrated circuits and software modules that can be either of special purpose, programmable or reconfigurable.

The working group aims at providing a forum amongst creative experts to explore problem areas and solutions for the design of such complex electronic systems and also disseminating the solutions to a broader industrial and educational sphere.

**SCOPE**
The Working Group is interested in a broad range of topics related to the design and engineering of heterogeneous systems, containing hardware, software, and even mechanical parts.

- System Design Methods
- Embedded Systems
- Modeling and Specification
- Design Validation
- Formal Methods in Design
- Synthesis
- Design Environments
- Reconfigurable Computing
- VLSI Systems and Applications
- Physical Design
- Test and Testability
- Power-aware Design
- Analog and Mixed-Signal Systems
- Fundamental CAD Algorithms

URL: http://www.inf.ufrgs.br/ifip10-5/

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**TC 11 (SECURITY AND PROTECTION IN INFORMATION PROCESSING SYSTEMS) est. 1984**

**AIMS**
To increase the reliability and general confidence in information processing, as well as to act as a forum for security managers and others professionally active in the field of information processing security.

**SCOPE**
- the establishment of a frame of reference for security common to organisations, professionals and the public;
- the promotion of security and protection as essential parts of information processing systems.

URL: http://www.ifip.tu-graz.ac.at/TC11

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**WG11.1 - Information Security Management** est. 1985, revised 1992

**AIMS**
As management, at any level, may be increasingly held answerable for the reliable and secure operation of the information systems and services in their respective organizations in the same manner as they are for financial aspects of the enterprise, the Working Group will promote all aspects related to the Management of Information Security.

These aspects cover a wide range, from purely managerial aspects concerning Information Security, (like upper management awareness and responsibility for establishing and maintaining the necessary policy documents), to more technical aspects (like risk analysis, disaster recovery and other technical tools) to support the Information Security management process.

**SCOPE**
- to study and promote methods to make senior business management aware of the value of information as a corporate asset, and to get their commitment to implementing and maintaining the necessary objectives and policies to protect these assets;
- to study and promote methods and ways to measure and assess the security level in a company and to convey these measures and assessments to management in an understandable way;
to research and develop new ways to identify the Information Security threats and vulnerabilities which every organization must face;
- to research and identify the effect of new and changed facilities and functions in new hardware and software on the management of Information Security;
- to study and develop means and ways to help information security managers to assess their effectiveness and degree of control;
- to address the problem of standards for Information Security.

STATEMENT OF CASE

There is a growing trend for senior business management to be held answerable for the reliable and secure operation of their information systems, as they are for control of their financial aspects. Information Security is, and should always be upper management responsibility.

Information security professionals and WG 11.1 in particular, should therefore be responsible for the development of all types of tools, mechanisms and methods to support top management in this new responsibility.

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AIMS
To investigate methods and issues in the area of information security, particularly those related to small systems.

SCOPE
- to promote awareness and understanding of small systems security.
- to provide a forum for the discussion and understanding of small system security matters
- to advance technologies and methodologies that support small systems security
- to contribute, as feasible and appropriate, to international standards for small system security

STATEMENT OF CASE

Small systems shall be defined to include personal computers, local area networks, multi-user and similar installations where there is typically no-one dedicated to security administration and the end user(s) are in the main responsible for system administration. It is the management of all organizations who are responsible for the reliable and secure operation of information systems which support the organization. Thus, it is management who must address security issues in the small systems environment.
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**WG11.3 - Data and Application Security** est. 1987, revised 2001

**AIMS**

To promote wider understanding of the risks to society of operating data management systems that lack adequate measures for security or privacy.

To encourage the application of existing technology for enhancing the security of database systems.

**SCOPE**

To advance technologies that support:

- the statement of security requirements for database systems;
- the design, implementation, and operation of database systems that include security functions;
- the assurance that implemented data management systems meet their security requirements.

URL: http://seclab.dti.unimi.it/~ifip113/

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AIMS

1. to promote research on technical measures for securing computer networks, including both hardware- and software-based techniques;
2. to promote dissemination of research results on network security in real-life networks in industry, academia and administrative institutions;
3. to promote education in the application of security techniques, and to
4. promote general awareness about security problems in the broad field of information technology.

SCOPE

Research on network security is understood to encompass at least the following topics:

- cryptographic techniques and their applications (confidentiality, digital signatures, integrity checking, ...);
- cryptographic protocols, including protocols for authentication, key distribution, electronic voting, electronic commerce, digital cash, ...
- practical implementations of cryptographic protocols in network security systems (Kerberos, SSL, KryptoKnight, ...);
- secure mobile code (language based security, Java Security, proof-carrying code, code signing, meta-level protocols for security, aspect languages for security, ...);
- security from a software engineering point of view; adding security to applications in an orthogonal way using meta-level protocols, aspect languages, secure software engineering ...;
- firewalls;
- software for intrusion detection and audit tools.
STATEMENT OF CASE
Management in any organization is responsible for the reliable and secure operation of the information systems that support the organization. As inter and intra-organization networking between information systems become the rule as well as the daily operational environment, the scope of concern takes on new aspects and new technical details come into play.

Management must not only address the security issues of wholly internal systems together with any networks to which they might be connected, but also must assure that the protective mechanisms installed in them are not accidentally or intentionally thwarted or subverted by other systems with which data exchange connections are established.

The range of subjects includes local area networks, regional and wide area networks, homogeneous and heterogeneous networks, and the networks which can arise for varying periods of time as a result of operational requirements for temporary or semi-permanent interconnections which can exist for varying periods of time.

Such networks will include dial-up or other connections which permit an organization's employees to work from their homes, and those external connections enabling organizations to transact mutually linked business activities e.g. such as will take place under EDI agreement.

URL: http://www.ifip.tu-graz.ac.at/TC11/WG/index.htm

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WG11.5 - Systems Integrity and Control est. 1987, revised 1989 and 1991

AIMS
To promote awareness of the need to ensure proper standards of integrity and control in information systems in order to ensure that data are complete and in accordance with its owners' expectations.

SCOPE
- study and promote the use of appropriate control measures to ensure that data integrity requirements are satisfied within information systems;
- study and promote the use of advanced auditing tools and techniques as a means to identify integrity and control weaknesses;
- promote the EDP Auditing function as a tool for senior management to obtain an independent and objective appraisal of the effectiveness and continuing appropriateness of integrity and control measures within information systems;
- promote the mutual understanding of the EDP Audit, Security and Development functions between personnel engaged in those functions.
WG 11.7 (joint with WG9.6; see TC9)

WG11.8 - Information Security Education est. 1991

AIMS
To promote information security education and training at the university level and in government and industry.

SCOPE
- To establish an international resource center for the exchange of information about education and training in information security.
- To develop model courses in information security at the university level.
- To encourage colleges and universities to include a suitable model course in information security at the graduate and/or undergraduate level in the disciplines of computer science, information systems and public service.
- To develop information security modules that can be integrated into a business educational training program and/or introductory computer courses at the college or university level.
- To promote an appropriate module about information security to colleges and universities, industry and government.
- To collect, exchange and disseminate information, relating to information security courses conducted by private organizations for industry.
- To collect and periodically disseminate an annotated bibliography of information security books, feature articles, reports, and other educational media.

URL: http://www.ifip.tu-graz.ac.at/TC11/WG/index.htm
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WG11.9 - Digital Forensics est. 2004

AIMS
The aim of the IFIP WG11.9 group is to promote through education, research and outreach, the awareness and understanding of (i) the scientific methods and techniques that help to tell about a computer related security incident (including those that involve converging digital technology), what occurred, when it occurred, how it occurred, what resources were affected and who initiated the incident, in a manner that will support a legal action, and (ii) the operational and legal aspects of new and emerging digital technology so as to help develop such methods and techniques.

SCOPE
The scope of the WG9.11 group is
- To establish and expand a common digital forensics lexicon so that international community speaks the same language.
- To propose, define and evaluate core technologies that assist in the discovery, explanation and presentation of conclusive and persuasive digital evidence that will meet the heightened scrutiny of the courts and other decision-makers in military and civilian environments.
- To promote through education, research and outreach, a wider understanding of the legal, social and operational issues related to digital forensics.
- To foster cooperation between international communities so as to promote scholarly discussion related to digital forensic research and its application.

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AIMS
1. To foster the development and understanding of Artificial Intelligence and its applications worldwide.
2. To promote interdisciplinary exchanges between Artificial Intelligence and other fields of information processing.
3. To contribute to the overall aims and objectives and further development of IFIP as the international body for Information Processing.

SCOPE
Artificial Intelligence covers a wide range of techniques, which can be applied to a very wide range of application areas. Its subfields include (but are not restricted to) the following:
- Automated Reasoning
- Belief Revision
- Case-Based Reasoning
- Computer Vision
- Constraint Satisfaction
- Data Mining
- Evolutionary Algorithms
- Intelligent Agents
- Intelligent Planning and Scheduling
- Intelligent Robotics
- Knowledge Acquisition
- Knowledge Discovery and Data Mining
- Knowledge Engineering
- Knowledge-Based Systems
- Knowledge Management
- Knowledge Representation and Reasoning
- Machine Learning
- Machine Translation
- Model-based Reasoning
- Natural Language Processing
- Neural Nets
- Pattern Recognition
- Qualitative Reasoning
- Search
- Semantic Web
- Temporal Reasoning

URL: http://www.ifiptc12.org/

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US Daniel O'Leary (IEEE)
US Ramasamy Uthurusamy (IJCAI)
WG12.1 - Knowledge Representation and Reasoning est. 2004

AIM
To study and develop theory and techniques for knowledge representation and reasoning.

SCOPE
The scope of the Working Group’s activities includes (but is not restricted to) the following:
- Abductive Reasoning
- Inductive Reasoning
- Non-monotonic Reasoning
- Reasoning about Actions and Change
- Spatial Reasoning
- Temporal Reasoning
- Automated Reasoning
- Computational Logic
- Logic Programming
- Situation Calculus
- Production Systems
- Semantic Networks
- Frames
- Object-orientated Representation
- Bayesian Networks

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WG12.2 - Machine Learning and Data Mining est. 1993, revised 2003, 2005

AIM
To explore computer methodology and algorithms that improve automatically through experience. Applications range from data mining programs that discover general rules in large data sets, to information filtering systems that automatically learn users’ interests.

SCOPE
Concept Learning and Inductive Learning
- Association Rules
- Case-based Learning
- Artificial Neural Networks
- Bayesian Learning
- Uncertainty Learning
- Reinforcement Learning
- Evolutionary Learning
- Perceptual Learning
- Computational Learning Theory
- Population-based Learning
- Data Mining
- Application Case Study
- Web and Text Mining
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WG12.3 - Intelligent Agents est. 2003

AIM
To study and develop theory and techniques for intelligent agents.

SCOPE
- Theory and agent modelling
- Agent architectures
- Agent-based software engineering
- Coordinating, cooperation and negotiation
- Evolution, adaptation and learning
- Multiple agents
- Mobile agents
- Agent-based grid computing
- Agent-based applications

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WG12.5 - Artificial Intelligence Applications est. 1993, rev. 2003

AIM
To explore the use of Artificial Intelligence techniques for applications development.

SCOPE
All areas of application in which Artificial Intelligence techniques can give benefits to users.

Techniques for application development including:
- Conceptual frameworks for application specification and design
- User interface design
- Integration of AI software and systems with conventional databases, programming languages, and operating systems
- Related research issues such as knowledge acquisition, learning, validation and implementation techniques.

URL: http://www-staff.it.uts.edu.au/~debenham/wg12.5/

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WG12.6 - Knowledge Management est. 1998, rev. 2003

AIMS
1. To develop advanced methods for organizing, accessing and exploiting heterogeneous multimedia data which becomes available through modern communication technology.
2. To bring together various areas of AI research and technology to meet this challenge, e.g. knowledge representation, natural language understanding, speech and image understanding, reasoning methods, learning, and agent technologies.
3. To develop technology for diverse applications, e.g. subject-specific brokers, corporate knowledge bases, data-mining tools, content-based query languages, multimedia data indexing schemes and web-based information services.

SCOPE
Technologies, processes, and systems for supporting such aspects of knowledge management as collaboration, learning, innovation, decision making, investigation, embedding and archiving.

The interplay between inter-organizational, enterprise, group-based, and personal technologies.

Technology trends including
- the convergences of E-Learning with Knowledge Management, E-Business with Knowledge Management, Collaborative Commerce with Knowledge Management, and Science of Learning with Knowledge Management
- the gradual alignment of business process management tools in enterprise portals
- the impacts of peer-to-peer and grid computing on enterprise collaborations and computing.


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US Daniel O'Leary
WG12.7 - Computer Vision est. 2003

AIM
To study and develop techniques for signal and image interpretation and understanding based on Artificial Intelligence methods such as case-based reasoning and data mining.

SCOPE
The scope of the Working Group's activities includes (but is not restricted to) the following:
- Similarity assessment
- Case representation, refinement, generalization and retrieval
- Data mining of signals, images and video

URL: http://www.ibai-research.de/

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TC 13 (HUMAN-COMPUTER INTERACTION) est. 1989

AIMS
To encourage development towards a science and a technology of human-computer interaction, the Technical Committee will pursue the following Aims:

1. to encourage empirical research (using valid and reliable methodology, with studies of the methods themselves where necessary);
2. to promote the use of knowledge and methods from the human sciences in both design and evaluation of computer systems;
3. to promote better understanding of the relation between formal design methods and system usability and acceptability;
4. to develop guidelines, models and methods by which designers may be able to provide better human-oriented computer systems;
5. to co-operate with other groups, inside and outside IFIP, so as to promote user-orientation and "humanization" in system design.

SCOPE
The main orientation is toward the users, especially the non-computer-professional users, and how to improve the human-computer relationship for them.

Areas of study include:
- the problems people have with computers;
- the impact of computers upon people in both individual and organizational contexts;
- the determinants of utility, usability and acceptability;
- the appropriate allocation of tasks between computers and people;
- modelling the user as an aid to better system design;
- harmonising the computer to the characteristics and needs of the user.

While the Scope is thus set wide, with a tendency towards general principles rather than particular systems, it is recognised that progress will only be achieved through both general studies to advance theoretical understanding and specific studies on practical issues (e.g. interface design standards, software system consistency; documentation, appropriateness of alternative communication media, human factors guidelines for dialogue design, the problems of integrating multi-media systems to match user needs and organizational practices etc.).

URL: http://www.ifip-hci.org

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WG13.1 - Education in HCI and HCI Curricula est. 1990, revised 1991

AIMS
1. to improve HCI education at all levels of higher education;
2. to coordinate and unite efforts to enhance the development of HCI curricula;
3. to recommend fundamental structures for curricula and course materials and for their adaptation to the various national educational systems;
4. to advance international recognition of qualifications in this field, and
5. to promote the teaching of HCI

SCOPE
The scope of the Working Group will build upon existing work in IFIP member countries to include:
- the evaluation of the needs of industry to enhance the qualifications of HCI, based upon societal objectives to improve the work environment;
- the collation of existing curricula, course literature and other relevant materials developed by member societies or institutions who are contributing to their work;
- the design of recommendations and guidelines for HCI curricula at different levels of higher education, and the adaptation of the guidelines to the cultural situation within which the respective education systems are based.

URL: http://www.org.id.tue.nl/IFIP-WG13.1/

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WG13.2 - Methodology for User Centred System Design est. 1992

AIMS
The principal objective of the Working Group will be:
1. to foster research, dissemination of information and good practice in the methodical application of HCI to software engineering.

This objective decomposes into two sub-goals:
1. to encourage research into and development of HCI principles, methods and techniques applied to system design and integrated with principles, methods and tools in software engineering, and
2. to encourage research into human action within the system development process and to promote knowledge transfer from such studies into the construction of integrated HCI-SE design methods.

SCOPE
- evaluation and synthesis of HCI specification and design methods;
- implications of cognitive psychology for the design of human-computer interfaces;
- evaluation and study of different approaches to design delivery: cognitive models, design rationales, task artifact cycles, engineering principles, development methods;
- methods and techniques of human factors in software engineering as practised in industrial environments;
- human behaviour in software development, i.e. cognitive studies of software engineering;
- cooperative work techniques applied to software development.

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AIMS
The principal objectives of the Working Group will be:
1. to make HCI designers aware of the needs of people with disabilities;
2. to recommend guidelines for the design of HCI to facilitate the use of computers by people with disabilities;
3. to monitor the latest developments in the design of HCI and their impact on accessibility and usability;
4. to encourage the development of information systems and complementary tools which permit the adaptation of the human interface for each specific user.

SCOPE
There are over 500 million people with disabilities in the world. Social exclusion and many other problems often result from their situation. It is recognised that developments in IT/HCI can often help with problems, for example to maximise choice and integration. However, there is also a danger that such developments can lead to the further exclusion of this user group if they are not designed from the beginning with universal access as an aim.
Working Group 13.3 intends to make designers of information systems and complementary tools aware of the needs of this group in order to encourage the development of more appropriate tools for access and usability. As a result, systems will become universally accessible, and the market for them will increase.

Specifically the scope of WG13.3 will include the following activities:

- coordination and exchange of information with other relevant bodies;
- collaboration with institutions interested in this field of HCI and disability;
- focussed HCI orientation to enable people with disabilities to use information systems and complementary tools for positive advantage.

URL: http://www.info.fundp.ac.be/IFIP13-3/

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WG13.4 (joint with WG2.7; see TC2)

WG13.5 - Human Error, Safety and System Development  est. 1998

AIMS
This working group aims to support practitioners, regulators and researchers to develop leading edge techniques in hazard analysis and the safety engineering of computer-based systems. Particular emphasis will be on the role of human error both in the development and in the operation of complex processes and on techniques that can be easily integrated into existing system engineering practices. Specifically, the aims are:

1. to provide a framework for studying human factors that relate to systems failure;
2. to provide a forum for practitioners, regulators and researchers interested in the ‘human contribution’ to major accidents and incidents;
3. to identify leading edge techniques for the development of safety-critical interactive systems and integrate them with existing systems engineering techniques;
4. to support and guide international accreditation activities in the area of safety-critical systems.
SCOPE
To build on existing work in IFIP member countries in the following areas:

- techniques for analysing human, managerial and organisational factors that relate to the occurrence of accidents;
- the integration of human factors concerns into risk analysis and assessment;
- the integration of human factors concerns into systems engineering techniques for safety-critical systems development;
- the ergonomics of human-computer interaction with safety-critical applications;
- the role of human error both in the development and in the operation of complex processes.

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WG13.6 - Human-Work Interaction Design est. 2005

AIMS
The aims of the HWID working group are:

1. To encourage empirical studies and conceptualisations of the interaction among humans, their variegated social contexts and the technology they use both within and across these contexts.
2. Promote the use of knowledge, concepts, methods and techniques that enables user studies to procure a better apprehension of the complex interplay between individual, social and organisational contexts and thereby a better understanding of how and why people work in the ways they do.
3. Promote a better understanding of the relationship between work-domain based empirical studies and iterative design of prototypes and new technologies.
4. Establish a network of researchers, practitioners and domain/subj ect matter experts working within this field.

Thus on an overall level the working group aims at establishing relationships between extensive empirical work-domain studies and HCI design.

SCOPE
A Human-Work Interaction Design group (HWID) will provide the basis for an improved cross-disciplinary cooperation and mutual inspiration among researchers, but it will also lead to a number of new research initiatives and developments, as well as to an increased awareness of HWID in existing HCI educations. Complexity will be a key notion in the working group, it is not a priori defined or limited to any particular domains. A main target of the work group is the analysis of and the design for the variety of complex work and life contexts found in different business.

Technology is changing human life and work contexts in numerous, multi-faceted ways:

- Interfaces between collaborating individuals; advanced communication networks
- Small and large-scale distributed systems
- Multimedia and embedded technologies
- Mobile technologies and advanced "intelligent" robots
With this evolution, toward new ways of working, has followed an intensive demand for techniques and technologies that address contemporary issues connected to:

- Communication, collaboration, and problem solving
- Large information spaces, variability, discretion, learning, and information seeking

This evolution toward new ways of working and living must be embraced as a challenge to current knowledge and practice and one, moreover, which presents exciting new opportunities in:

- Epistemology, with knowledge acquisition, knowledge creation, management and knowledge sharing
- The symbiosis of users and contexts of use, between work and life-quality and with both professional and individual development.

It is a challenge to design applications that support users of technology in complex and emergent organisational and work contexts, and thus opportunities exist to focus on methods, theories, tools, techniques and prototype design on an experimental basis.

Under these circumstances, the primary question is less whether we choose to study the use of a particular computer application or prefer, instead, to conduct bottom up empirical experiments of work contexts. The new problem is how we can understand, conceptualise and design for the complex and emergent contexts in which human life and work are now embroiled. This problem calls for cross disciplinary, empirical and theoretical approaches that focus on Human-Work Interaction Design, meaning that the technology itself and particularly the design and use of technologies mediates the interaction between humans and specific work contexts.

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*) Observers
SG 16 (SPECIALIST GROUP ON ENTERTAINMENT COMPUTING) est. 2002

AIMS
To encourage computer applications for entertainment and to enhance computer utilization in the home, the technical committee will pursue the following aims:

1. to enhance algorithmic research on board and card games
2. to promote a new type of entertainment using information technologies
3. to encourage hardware technology research and development to facilitate implementing entertainment systems, and
4. to encourage haptic and non-traditional human interface technologies for entertainment.

SCOPES
(1) Algorithm and strategy for board and card games
-- algorithms of board and card games
-- strategy control for board and card games
-- level setup for game and card games

(2) Novel entertainment using ICT
-- network-based entertainment
-- mobile entertainment
-- location-based entertainment
-- mixed reality entertainment

(3) Audio
-- music informatics for entertainment
-- 3D audio for entertainment
-- sound effects for entertainment

(4) Entertainment human interface technologies
-- haptic and non-traditional human interface technologies
-- mixed reality human interface technologies for entertainment

(5) Entertainment robots
-- ICT-based toys
-- pet robots
-- emotion model and rendering technologies for robots

(6) Entertainment systems
-- design of entertainment systems
-- entertainment design toolkits
-- authoring systems

(7) Theoretical aspects of entertainment
-- sociology, psychology and physiology for entertainment
-- legal aspects of entertainment

(8) Video game and animation technologies
-- video game hardware and software technologies
-- video game design toolkits
-- motion capture and motion design
-- interactive story telling
-- digital actors and emotion model

(9) Interactive TV and movies
-- multiple view synthesis
-- free viewpoint TV
-- authoring technologies

(10) Edutainment
-- entertainment technologies for children's education
-- open environment entertainment robots for education
SCOPE
Storytelling is one of the core technologies of entertainment. Especially with the advancement of information and communication technologies (ICT), new type of entertainment called video games have been developed where interactive story development is the key that makes those games really entertaining. At the same time, however, it has not been studied well what is the difference between the interactive storytelling and the conventional storytelling. Also as the development of interactive storytelling need a lot of time and human power, it is crucial to develop technologies for automatic or semiautomatic story development. The objective of this working group is to study and discuss these issues.
WG16.2 – Entertainment Robot est. 2004

SCOPE
Robot is becoming one of the most appealing entertainment. New entertainment robot and/or pet robot is becoming popular. Also, from theoretical point of view, compared with computer graphics based characters/animations, robot is an interesting research object as it has physical entity. Taking these into considerations, it was decided at the SG16 annual meeting that a new working group on entertainment robot is to be established.

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WG16.3 – Theoretical Basis of Entertainment est. 2004

AIMS
1. For the benefit of society, to promote visibility and to increase the impact of research and development in the entertainment computing area, especially in the fields defined in the scope of this working group.
2. To promote quality and relevance of academic and industrial research and development in the entertainment computing area.
3. To promote ethical behavior and appropriate recommendations or guidelines for research related activities, for example, submission and selection of publications, organization of conferences, allocation of grants and awards, and evaluation of professional merits and curricula.
4. To promote cooperation between researchers and with other established bodies and organizations pursuing the above aims.
5. To contribute to assessing the scientific merits and practical relevance of proposed approaches for entertainment technology and applications.

SCOPE
- The notion of entertainment technology has evolved to include systems and applications that can be used for entertainment purposes in a wide spectrum of interactivity, education, and any other beneficial services.
- The group's interest cover formalisms, models, architectures, techniques, empirical investigations and methodologies for the purpose of designing, realizing, and assessing such entertainment technology.
- These currently include in particular:
  * new models and theories for entertainment applications;
  * new concepts and techniques, e.g. narratives, empirical effects
  * impact of new technologies on human behaviour
  * understanding, reuse and interoperation of existing applications
  * advanced user interfaces and emerging interaction styles
  * new methodologies for building entertainment applications

URL: http://www.org.id.tue.nl/IFIP-WG16.3/
WG 16.4 - Games and Entertainment Computing (Proposal) est. 2005

AIMS
To research and develop computing techniques for the improvement of computer games and other forms of computer entertainment.

SCOPES
The scope of this workgroup includes, but is not limited to the following applications, technologies and activities.

Applications:
- Analytical games (e.g., Chess, Go, Poker)
- Commercial games (e.g., Action games, Roleplaying games, Strategy games)
- Mobile games (e.g., Mobile phones, PDA’s)
- Interactive multimedia (e.g., Virtual reality, Simulations)

Technologies:
- Search Techniques
- Machine Learning
- Reasoning
- Agent Technology
- Human-Computer Interaction

Activities:
- The workgroup will hold meetings at several conferences where Games and Entertainment Computing are prevalent, such as the ICEC.
- The workgroup will promote computer games as a viable and challenging area of research in state-of-the-art computing techniques, for instance by organizing special events at conferences.
- The workgroup members will engage in research activities in the aforementioned areas.

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member list under construction
WG 16.5 - Social and Ethical Issues in Entertainment Computing (Proposal) est. 2005

AIMS

1. Foster the ethical design, development, implementation, applications and use of entertainment computing.
2. Encourage surveys and studies on social, ethical and cultural aspects of entertainment computing.
3. Develop methodologies for studying social, ethical and cultural implications of entertainment computing.
4. Establish a global platform for interaction, exchange, joint initiatives and co-operation between such groups as:
   - the end users of entertainment computing
   - industrial developers and designers of entertainment computing
   - policy, decision making, social and consultative bodies
   - academics and scientists.

SCOPES

The social and ethical implications of entertainment computing including:

- actual and potential human usefulness or harm of entertainment computing
- social impact of these technologies
- developments of the underlying infrastructure
- rationale in innovation and design processes
- dynamics of technology development
- ethical development
- cultural diversity and other cultural issues
- education of the public about the social and ethical implications of entertainment computing, and of computer professionals about the effects of their work.

WG16.5 explicitly cares about the position of, and the potentials for, vulnerable groups such as children, the less-educated, disabled, elderly and non-employed people, cultural minorities, unaware users and others.

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