Achieving Quality in Software

IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

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.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- the IFIP World Computer Congress, held every second year;
- open conferences;
- working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Achieving Quality in Software

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FOREWORD

Software quality is a generalised statement difficult to agree or disagree with until a precise definition of the concept of "Software Quality" is reached in terms of measurable quantities. Unfortunately, for the software technology the basic question of:

- what to measure;
- how to measure;
- when to measure;
- how to deal with the data obtained

are still unanswered and are also closely dependant on the field of application.

In the past twenty years or more there have been a number of conferences and debates focusing on the concept of Software Quality, which produced no real industrial impact. Recently, however, the implementation of a few generic standards (ISO 9000, IEEE etc.) has produced and improved application of good practice principles at the industrial level. As a graduate in Physics, I still believe it is a long way before the concept of Software Quality can be defined exactly and measured, if ever.

This is way I think the AQuIS series of conferences is important, its object begin to provide a platform for the transfer of technology and know how between Academic, Industrial and Research Institutions, in the field of Software Quality. Their objects are:

- to provide a forum for the introduction and discussion of new research breakthroughs in Software Quality;
- to provide professional Software Quality engineers with the necessary exposure to the results of current research;
- to expose the research community to the problems of practical application of new results.

In line with the general trend in the area of Software Quality, AQuIS'96 as many other conferences focus on the aspects of quality modelling, quality measurements and process improvement. What we believe is new, and important, is the attempt to investigate:

- potential relations between conventional software systems quality and knowledge-based system quality;
- the impact of formal methods to software quality;
- the impact of object-oriented approach to software quality

Of course we do not pretend to provide an answer to all these issues but we hope at least to encourage further motivation to participate in AQuIS'96 and enjoy reading their proceedings.

Last but not least I want to thank all, who have devoted their work to AQuIS'96 and made it possible to prepare this volume.

The Program Chair
Sandro Bologna

GENERAL CHAIR'S MESSAGE

AQuIS '96 is the third in series of international conferences on "Achieving Quality in Software". AQuIS has been established by Qualital and IEI-CNR in the aim of providing a forum in which theoretical and practical results in the field of software quality could be discussed and compared.

Previous AQuIS conferences have been held in Pisa (1991) and in Venice (1993).

There are many factors that contribute to the success of a conference, the quality of the program being the first. The program includes three invited paper by three leading software quality experts, plus twenty-eight contributed papers presented by authors belonging to Europe, USA and Japan.

These papers cover areas ranging from Formal Methods to Process Improvement, thus providing a significant picture of the state-of-art in software quality.

For the first time a session is dedicated to the quality of Knowledge-Based Systems (KBS). In structuring the program we deliberately avoided parallel sessions, to favour discussion and interaction among the attendees.

I wish to acknowledge all the authors who have submitted their papers to AQuIS '96 and the large number of anonymous referees as well as the members of the Program Committee.

I wish to thank Qualital, IEI-CNR and CESVIT for their support in organising the conference. CESVIT deserves a special acknowledgement for the constant support it has provided in solving the big and the little problems that are brought about by the organisation of an international conference.

In this sense, I greatly appreciated the dedication of Maurizio Campanai and Silvia Lucci, and the work they have done to make the conference successful.

I also acknowledge IFIP, the sponsor of AQuIS '96, all the co-sponsors and the supporting organisations.

It is with great pleasure that I welcome in Florence all AQuIS '96 participants. After all, the choice of this town should be a further factor making the conference successful.

The Conference Chair
Giacomo Bucci

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