

# **IFIP TC8 Information Systems**

## *Conception, Birth and Early Years*

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**Abstract.** The paper begins by discussing the conception and birth of IFIP TC8 in Amsterdam in 1975 and 1976, describing the roles of the main players (such as IFIP and IFIP ADP). The background in terms of the IFIP organization and its already extant technical committees is reviewed. The birth pains associated with IFIP TC8's early existence are also explained. The early meetings of TC8 and its Working Groups are discussed. From 1976 to 1986 formally planned events are discussed, with emphasis on the driving forces influencing the TC8 decision process throughout these years. The second half of this paper then reviews the background in the IT world (outside IFIP) as it prevailed in the period leading up to 1976. This background is examined in terms of software and hardware technology of the time

## **1 Conception**

In 1976, IFIP was 16 years old, a healthy teenager, possibly a little uncertain of its future in the world, but also brimming with confidence that the world was its oyster.

IFIP had held six major international conferences prior to 1976 including the first in 1959 in Paris. This congress took place in a UNESCO convention center. It took place before the existence of the organization then called IFIPS (International Federation for Information Processing Societies) as it was initially designated. The venues for the other five conferences prior to 1975 were 1962 Munich, 1965 New York, 1968 Edinburgh, 1971 Ljubljana and 1974 Stockholm. All of these were very successful with Edinburgh establishing a record, which is still standing, for the most attendees.

By 1976, IFIPS had already changed its name to IFIP. This change may have been motivated by an ambition in some quarters not to restrict membership to "information processing societies".

IFIP had already established seven Technical Committees and it is interesting to take note of the names they had adopted (as published in the IFIP Information Bulletin for July 1975.[1]

1. TC1 Terminology
2. TC2 Programming
3. TC3 Education
4. TC4 Information Processing in Medicine
5. TC5 Computer Applications in Technology
6. TC6 Data Communication
7. TC7 Optimization

It is interesting to note that TC1 was not listed in the 1975 Information Bulletin possibly because it had completed the task it set out to do, namely to produce a definitive list of terminology [21]. TC4 subsequently parted company with IFIP and formed its own association, IMIA.

Of relevance to TC8 in the July 1975 IFIP Newsletter is the mention of TC8 in terms the appointment of its first chair Børje Langefors of Sweden, as from 1 September 1975. The entry also gives the names of National Representatives from six IFIP member nations (Australia, Bulgaria, France, United Kingdom, Brazil and West Germany). Two Working Groups and their provisional names were identified:

1. WG 8.1 Analysis of Organizational Needs for Information
2. WG 8.2 Utilization of Information within Organizations.

WG 8.1 had 11 members and WG8.2 had 14 members. The names of these two working groups were subsequently formalized

1. WG8.1 Design and Evaluation of Information Systems
2. WG8.2 Interaction of Information Systems and the Organization.

The subsequently published volume entitled “Trends in Information Systems”, was an anthology [2] compiled in 1985 from earlier publications by TC8 to celebrate the 10<sup>th</sup> anniversary of TC8. It indicated the following in the first line of its Preface:

“In September 1975, on the premises of the IFIP Foundation in Amsterdam, a newly established technical committee met for the first time. To be dedicated to a field of increasing importance, the formal meeting of National Representatives of TC8 “Information Systems”, lasted one hour and was attended by only five persons.”

In fact both the July 1975 IFIP Newsletter and the claim in the 10<sup>th</sup> anniversary proceedings were probably pre-emptive. TC8 was not formally endorsed by the IFIP General Assembly until its meeting in 1976.

The formal attendance records [3] indeed show that the 1975 meeting was attended by only five national representatives, but by the time the more formally constituted 1976 meeting was held there were 15 national representatives present.

The organization which provided considerable support to IFIP TC8 during its period of birth was the IFIP Administrative Data Processing Group (IFIP ADP or IAG). This group had been founded in Amsterdam in 1967 with the aim of serving “the specific needs of the Administrative Data Processing community”. IAG consisted of a number of partners namely “commercial and industrial computer centers, companies, national and local government organizations involved or interested in the use of computers.” It also published in a journal.

When the proposal for creating an IFIP Technical Committee on “information systems” was put forward, IFIP IAG offered to host the preparatory meeting as mentioned above. Apart from providing a meeting room at their own offices in Amsterdam, they also provided a staff member, Ms. Ria Lucas, as secretary and local organizer. She served at both the 1975 and 1976 meetings of the technical committee.

Another activity which must be mentioned in connection with the early conception of TC8 is the Pergamon Journal of Information Systems. This was founded in 1964. An Editorial Board meeting had taken place in Stockholm in conjunction with the IFIP Congress. The chairman of the Editorial Board was Han Jochem-Schneider from what was then Western Germany. The same person was responsible for proposing to the IFIP Council that a technical committee on information systems should be founded.

## 2 Early Years

The aim of this paper is not to present and review the whole 30 years of TC8’s activity, but rather to concentrated on the first ten years starting in 1976.

At the 1976 meeting, the first activity to which TC8 agreed to lend its name was a Working Conference held in The Hague in April 1977. The conference had the title “Education and large information systems”. The more established Technical Committee TC3 Education was very much the main organizer and participation from the TC8 side is believed to have been minor.

The year 1977 was the year of the Toronto IFIP Congress to be held as always during the last week of August. TC8 had decided at its 1976 meeting to meet in Toronto in conjunction with the IFIP Congress. The 1977 TC8 National Representatives meeting was something of a disaster. Only nine national representatives attended. Borje Langefors resigned as TC8 Chair prior to the meeting. Fortunately, the Dutch representative, the late Alex Verrijn Stuart was willing to chair the meeting.

As already indicated, secretarial duties had been carried out at the earlier two meetings by Ms. Ria Lucas, an employee of the IFIP Administrative Data Processing Group in Amsterdam. She was unfortunately not able to attend the Toronto Congress. The present author and UK National Representative to TC8 was designated to perform the role of secretary for the meeting.

TC8 elected to hold its 1978 National Representatives’ meeting in Venice. The main achievement of the Venice meeting was to set up a 1981 TC8 working

conference involving both working groups to be held in Budapest. The title of this conference was “Evolutionary Information Systems” [4].

The lead time to proposing and organizing working conference was in those days much longer than is currently the case. It was not until 1979 that both of the new TC8 working groups cut their teeth. In April, WG8.1 held a working conference at Oxford University in St. Edmund’s college, memorably organized by one of their graduates, Ron Stamper. The title was “Formal Models and Practical Tools for Information Systems Design”[5].

In June 1979, WG8.2 held a working conference in Bonn with the title “The Information Systems Environment” [6]. TC8 held its National Representatives meeting in Bonn in conjunction with the WG8.2 working conference. The precedent for holding a National Representatives meeting in conjunction with a working group conference was thereby established at an early stage.

However, the June 1980 National Representatives meeting was held independently of either working group meeting or IFIP Congress, namely in Jouy en Josas (near Paris).

The ambitious, but highly successful, IFIP 1980 Congress was held later in the summer in Tokyo and Melbourne. TC8 had considered both venues to be unacceptably remote for what was at that time a rather Eurocentric TC8 National Representatives meeting.

In 1981, TC8 elected to hold two National Representatives meetings, The March 1981 meeting in London was held separately from any working group conferences.

The September 1981 TC8 meeting was held in Budapest after the conference involving both working groups [4]. It was fairly well attended (the best so far) with 14 National Representatives out of the 22 appointed in attendance. The meeting was a milestone in that a third TC8 working group was formed. It had the title “WG8.3 Decision Support System”. There was considerable debate about the establishment of this new working group, as members representing the two existing working groups felt that their “turf” was being threatened.

WG8.3 held its first conference in 1982 in Laxenburg, Austria with the title “Processes and tools for decision support” [7]. WG8.1 actually held two working conferences in 1982, one on each side of the Atlantic. These were in New Orleans and in Noordwijkerhout in the Netherlands. This last conference was the first of a series of so-called CRIS conferences which were collectively part of an in-depth comparative review of information systems methodologies [9]. The TC8 meeting was held in Leiden in conjunction with the WG8.1 conference in Noordwijkerhout.

In Zurich in March 1983, IFIP TC8 held its first two day National Representatives meeting. A significant part of the agenda was given over to a brain storming session reviewing the past, present and future of TC8’s work.

Two working conferences were also held in 1983. In July 1983, WG8.1 held the second in the CRIS series in York in the north of England. The title was “Information Systems Design Methodologies: A feature analysis” [10]. WG8.2 held its first working conference North America in the city of Minneapolis in August 1983. The title was “Beyond Productivity: information systems development for organizational effectiveness” [11].

In September 1983, IFIP held its ninth World Computer Congress in Paris. It attracted 2300 participants from 59 countries. However, it was possibly the first

congress at which one began to question why the organization of the technical program appeared to be so divorced from the Technical Committee structure.

As a result of the free standing TC8 National Representatives meeting in Zurich in 1983, the Australian National Representative, Cyril Brookes, raised the question of whether it was meaningful to travel “half way round the world” to attend a two day business meeting. He offered that, in April 1984, the Australian Computer society would organize an open conference on information systems at which selected TC8 National Representatives would give presentations [12]. The TC8 National Representatives meeting would then be held in conjunction with this conference. (This formula was successful and was repeated in Australia in 1988 and in 1993).

In 1984, a second TC8 National Representatives’ meeting was held in London in September. In addition, both WG 8.3 and WG8.2 held working conferences in England that year. WG8.3 held a conference in Durham with the title “Knowledge Representation for Decision Support”[13]. This was WG8.3’s second working conference.

WG8.2 held what proved to be a significant and seminal conference in Manchester with the very open title “Research Methods In information Systems” [14]. After the fact, it was agreed to have been significant in stimulating interest in the work of WG8.2, a fact which was celebrated 20 years later in 2004 with a WG8.2 conference at the same location.

For TC8, 1985 was a significant year in many ways. Again WG8.1 held two working conferences, one on each side of the Atlantic. The first was held in Sitges in Catalonia in April 1985 [14]. TC8 held its most controversial National Representatives meeting in conjunction with the Sitges working conference.

The controversy was triggered by an invitation from the South African representative, Neil Duffy, based on the success of the Australian formula, to hold a subsequent meeting in South Africa. Several representatives stated that they could lose their job if they attended. Others argued IFIP should not be concerned with internal politics of a member nation and that such politics should not dictate IFIP related decisions. The compromise decision was that TC8 would lend its name to a conference held in Johannesburg and those TC8 representatives who wished to participate were free to do so, but there would be no TC8 meeting held in conjunction with the conference. (The conference was actually held in April 1987[15].)

Another item of significance in 1985 was the creation of a fourth working group, namely WG8.4 Office Systems. The creation process was started in Sitges. WG8.4 held its inaugural working conference in Helsinki in October 1985 [16]. TC8 National Representatives held a second meeting during 1985 in Helsinki in conjunction with that conference.

The year 1985 was deemed to be the 10<sup>th</sup> anniversary of the founding of TC8. The anthology of selected papers presented at earlier working conferences was prepared with the three representatives who had so far held the position of TC8 chair designated as editors, namely Børje Langefors, Alex Verrijn-Stuart and Giampio Bracchi [3].

To complete this review of the “early years” with 1986, this was in some ways a significant year for IFIP itself. The then triennial IFIP Congress was held in Dublin Ireland in September 1986, although TC8 chose not to meet there.

The Irish Computer Society was the smallest ever to try to host an IFIP Congress. They were strongly supported by their national government and it was assumed that strong support would be forthcoming from their nearest neighbors, namely the United Kingdom. Sadly this was not the case and the Irish Computer Society sustained a significant and apparently unsustainable loss as a result of the congress.

After three successive years (1983-85), each with two National Representatives meetings, TC8 held only one meeting in 1986 and this in Vienna in June and this was an independent meeting. Each of the four TC8 working groups held a working conference during 1986. Three of these conferences were held on different dates in the Netherlands at what was then a popular venue, namely Noordwijkerhout. The exception to this was WG8.4 which held its conference in Pisa in October.

In 1986 and 1987, IFIP TC8 met each year. In 1988, there were two meetings, the first in Sydney using the Australian formula and the second in Egham in conjunction with a WG8.1 working conference. From 1989 onwards, TC8 has met on an annual basis planning its meetings in the IFIP Congress years 1989, 1992, 1998, 2000 and 2002 in conjunction with the congress and in other years in conjunction with a TC8 working group activity.

### **3 IT Development and its Impact on TC8**

As indicated in the opening section of this paper, TC8 Information Systems came into being in the mid-seventies. The organizational aspects of its conception and the development in the early years were described in the first half of this paper. It is now appropriate to look at the wider picture of information technology as it impacted on the formation and direction of TC8.

Stored program computers had been under development and in practical use since 1948 [17]. Purpose-built computers which could perform a specific task (such as breaking enemy codes or calculating missile trajectories) were in use even earlier. Punched card equipment goes back even further in time.

The years between 1948 and 1975 had seen a significant increase in the use of computers. Such use at the time was frequently categorized as either “administrative” or “scientific”. The term “administrative” was preferred, particularly by civil service representatives, as more appropriate than the earlier and possibly limiting term “business”.

Scientists found it possible to get the computer to perform complex calculations, such as solving differential equations, finding the roots of polynomials or inverting matrices.

Administrative uses involved performing much simpler calculations on higher volumes of data. Applications such as payroll, stock control and various kinds of accounting may be cited.

In both cases, the emphasis was on doing a job and producing results for human perusal. The technology was limited (by today’s standards). It was extremely expensive and required considerable office space.

The IBM announcement in April 1964 [18] of a range of compatible computers which could be used for either scientific or business purposes had an enormous

impact on the computer manufacturing industry and in turn on the way people thought about the uses of computers.

It is perhaps pure coincidence that, around the same time, the COBOL programming language was being increasingly accepted as some kind of lingua franca for administrative applications. COBOL (Common Business Oriented Language) was much derided for its wordiness, especially by workers in the field who were familiar with any kind of mathematical formulation of numeric variables.

Whatever its faults, COBOL introduced the programming of administrative and business applications to a wider group of people.

The early sixties turned out to be a productive time for significant developments in the computer field. The era of magnetic tape storage had long been the main means of storing large volumes of business data. When the magnetic disc made its appearance, it was inappropriately referred to as a “random access” storage medium. [19]. The faux pas was recognized and the term “direct access storage” came in to more widespread use.

Direct access storage cried out for a more effective approach to storing and processing data than had been possible with magnetic tapes. The pioneer in this respect was Charles Bachman. Bachman was the first to recognize that data could be structured on direct access storage in such a way that ways of processing the data other than the established “sequential processing” were recognized. His approach led to use of the term “network structures” which were clearly more flexible than the limiting hierarchical structures possible with magnetic tape storage.

With all this relatively new technology to be harnessed, there was a move towards computer applications which were more powerful and more flexible in several ways. Firstly, the separation between data and programs (initiated in COBOL with its Data Division and Procedure Division) became more significant. The same data could be used in different ways by different programs. It was possible to modify data without having to make otherwise unnecessary changes to the programs which used that data.

Another development was the recognition that the perception of data could and should take several forms. Since the advent of stored program computers, data had been defined in the way it was being represented in storage. However, the new kinds of uses needed to take account only of the logical view of the data and preferred not to be aware of the complexities of the representation in storage. This split was reflected in the acceptance of the terms “datalogical” and “infological” introduced by TC8’s first chairman Børje Langefors [20].

It is also useful to reflect on the evolution of the term “information system”. The difference between “data” and “information” is an old chestnut in the IFIP environment. TC1’s epoch breaking reference book entitled “IFIP/ICC Vocabulary of Information Processing” published in 1966 [21] distinguished between the two terms. “Data” is defined as “a representation of facts or ideas capable of being communicated or manipulated by some process”. “Information” is defined as “the meaning that a human assigns to the data by means of the known conventions used in its representation”. For the record, the term “information system” was not defined in this vocabulary.

The term “management information system” was in use long before it was broadened to “information system”. There is an item of folklore which suggests that

the term “management information system” was created by an IBM salesman who was selling an IBM 1401 to client management. “This machine”, he said proudly, “is a management information system”!

Evolutionary thought dictated that terms used should be as broad as possible. The “management information system”, whatever it was, should not necessarily be limited to “management” (even though it provided a useful sales pitch to management). Hence, the term “information system” came into use.

However, the term was too simple and too obvious not to have been used in other contexts. For example, the proceedings of the IFIP Congress 65 held in New York City [22] contain a section heading for a special session entitled “Design of Information Systems”. The four papers in that section were not what TC8 would subsequently have considered relevant to its interests.

A conference organized jointly in Rome in 1967 by IFIP and FID (Federation Internationale de la Documentation) contained a paper entitled “A system to manage an Information System” by D. Hsaio and N.S. Prywes [23]. The opening sentence reads :

*“An information system, as considered in this paper, consists of a network of computers with their related information bans and of consoles that are all interconnected by communication lines.”*

Clearly the term “information system” was perceived in the sixties and early seventies as one which could be given a multitude of interpretations. It is probable that the interpretation which the term was being given in other natural languages such as French, Dutch, German and all three varieties of Scandinavian, was closer to the usage which was chosen by the founding fathers of TC8. Apparently, the acceptance of the name for the technical committee was criticized by IFIP General Assembly members as being too broad and too much of a “catch all”.

Somehow the name has survived and there has never been an attempt to change it. This is more than can be said for the names of some of the TC8 working groups. However, the name for an IFIP Technical Committee is of necessity a capacious umbrella, under which many more specific names must be able to shelter.

## 4 Conclusions

In conclusion, it is useful to review TC8’s thirty year history. From the ten year old of 1986, it has matured to the 30 year old of today. There are now seven working groups – numbered WG8.1 to WG8.6 and most recently WG8.8.

Subsequent to the initial decade of TC8’s life discussed in the first part of this paper, TC8 approved the creation of WG8.5 “Information systems in Public Administration” in 1988 and WG8.6 “Transfer and Diffusion of Information Technology” in 1994.

TC8 created WG8.7 “Informatics in International Business Enterprises” in 1996 but had the courage of its convictions to close it down in 2000 when it realized



that the group was not active in any way and not responding to any contacts from TC8 officers.

TC8 created WG8.8 “Smart Cards” in 2001. This group provides a home for an annual conference called CARDIS which focuses on smart card research and applications. This group has a broadening effect on TC8’s scope of activity.

The future of TC8 seems fairly secure. Information systems after 30 years is a much changed and much broader area of interest than it was in 1976. TC8 has established a modus operandi within the overall framework of IFIP activities which seems set to ensure its survival for another 30 years!

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