IT DIRECTIONS – 20 YEARS' EXPERIENCE AND FUTURE ACTIVITIES FOR CIB W78

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INTRODUCTION

- **The first CIB W78 conference, London 1984**

- **Context and goals for IT in construction**

- **Analysis of papers presented 1984 – 2003**

- **Patterns of research in conferences & journals**

- **Future directions for W78 with other groups**

W78 BRE, WATFORD, UK, 1984

- **Planned at a meeting in Stockholm in 1983**

- **Hosted by the Building Research Establishment**

- **12 papers given to 51 people from 13 countries**

- **Visit to Oxford to see integration of CAD & quantities and Milton Keynes hospital, designed and built using the OXSYS object based modelling system**
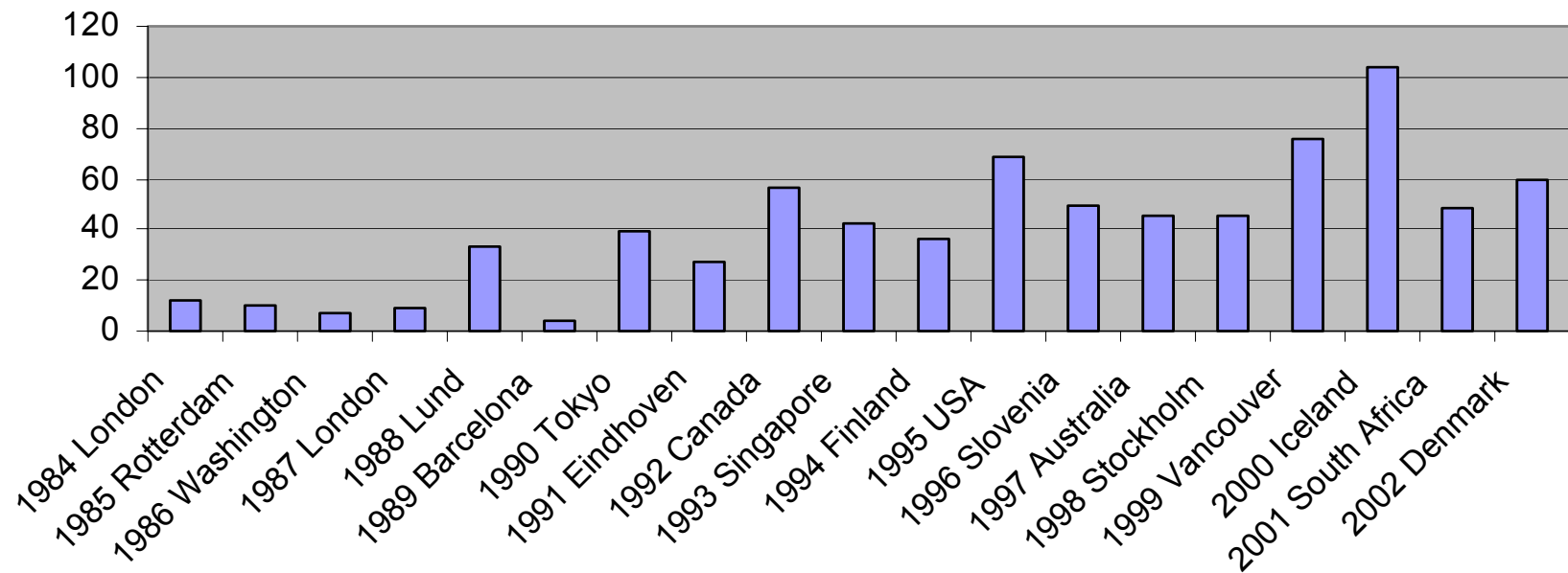
IT CONTEXT IN 1984

- **Japanese 5th generation project threatened to introduce new levels of speed and intelligence**

- **IBM PC recently arrived with early version of AutoCAD, but mini-based systems prevailed.**

- **Paul Richens specified the CAD system of the future**

- **Janet Spoonamore of US CERL – identified four software needs: Databases of technical information, Design modelling, Expert systems, Data exchange**
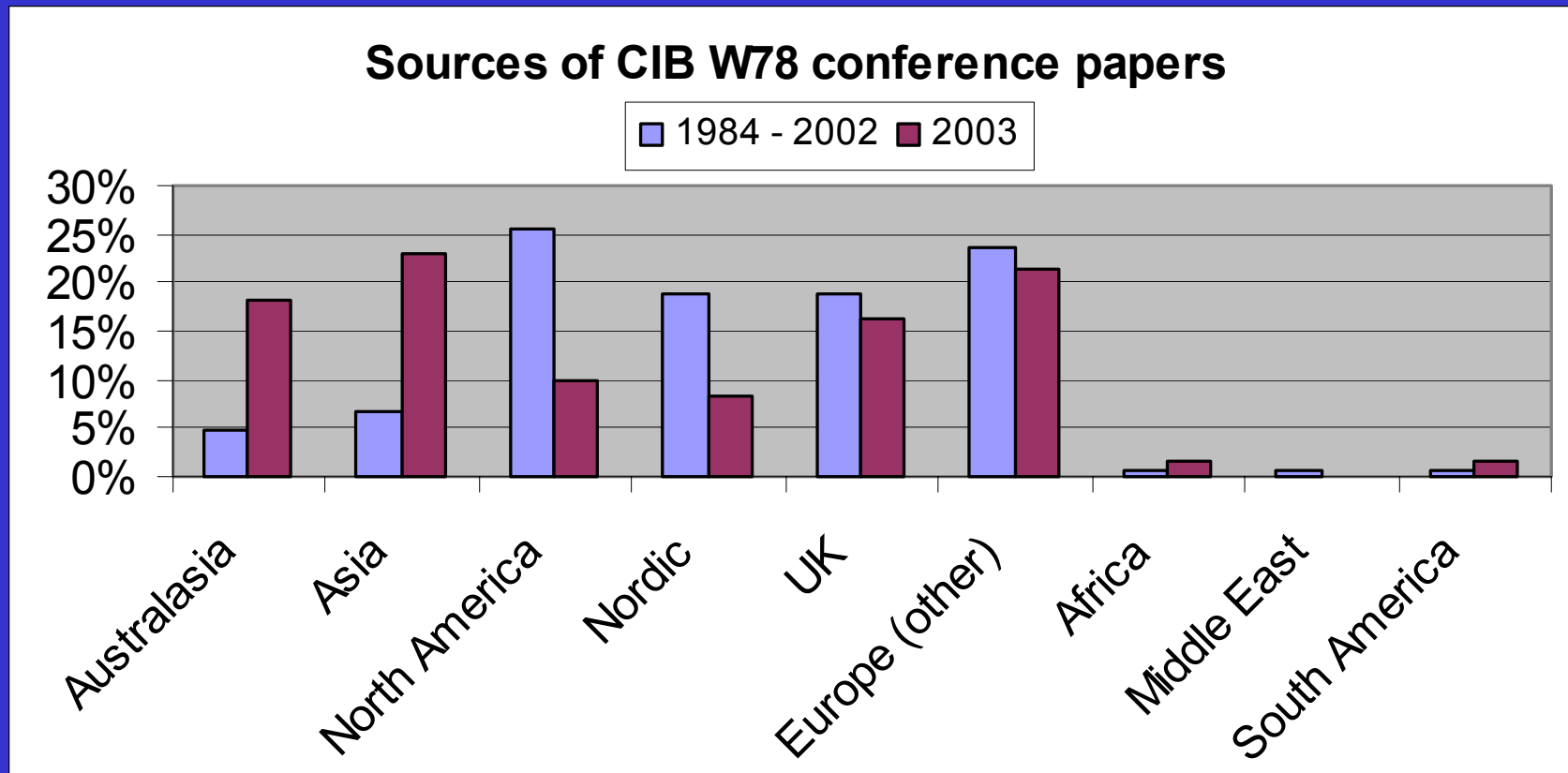
ANALYSIS OF CIB W78 PAPERS

- **Analysis of topics by Amor & Betts, 1988-2002**

- **Mapping onto ICCI topics by Turk, 1998-2002**

- **This analysis of titles based on Amor 1984-2002**

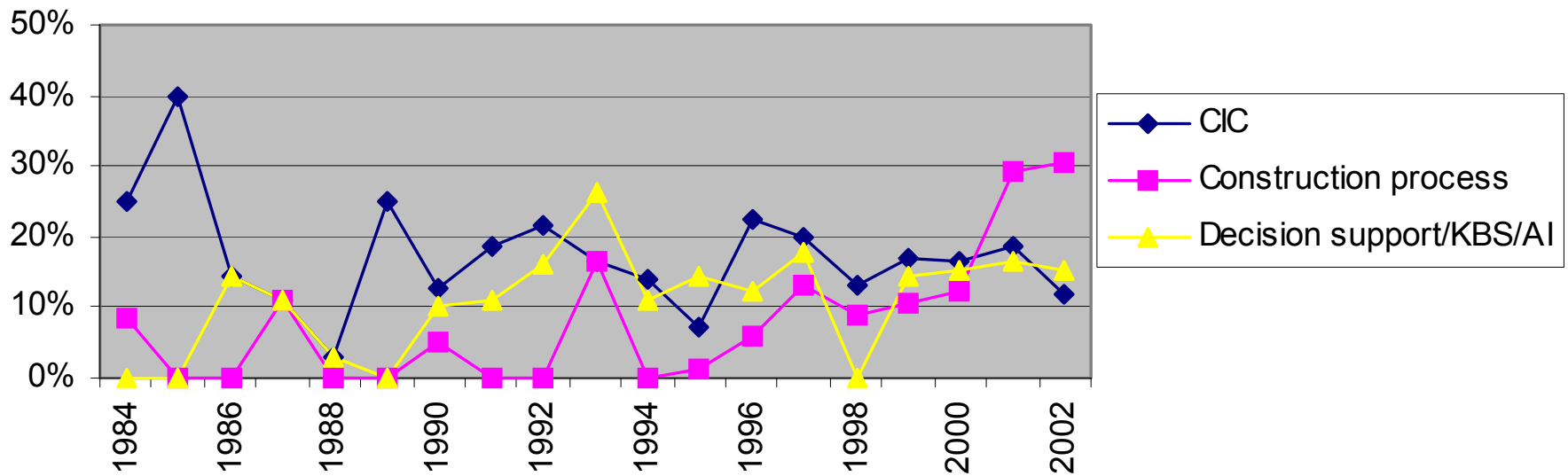**Number of papers/workshops in CIB W78 conferences**

ANALYSIS OF CIB W78 PAPERS

Sources of papers relate to location of conference. New regions should be encouraged by addressing their needs.

Sources of CIB W78 conference papers

Legend: ☐ 1984 - 2002 ☐ 2003

Categories (x-axis): Australasia, Asia, North America, Nordic, UK, Europe (other), Africa, Middle East, South America

Y-axis: 0% to 30% in 5% increments

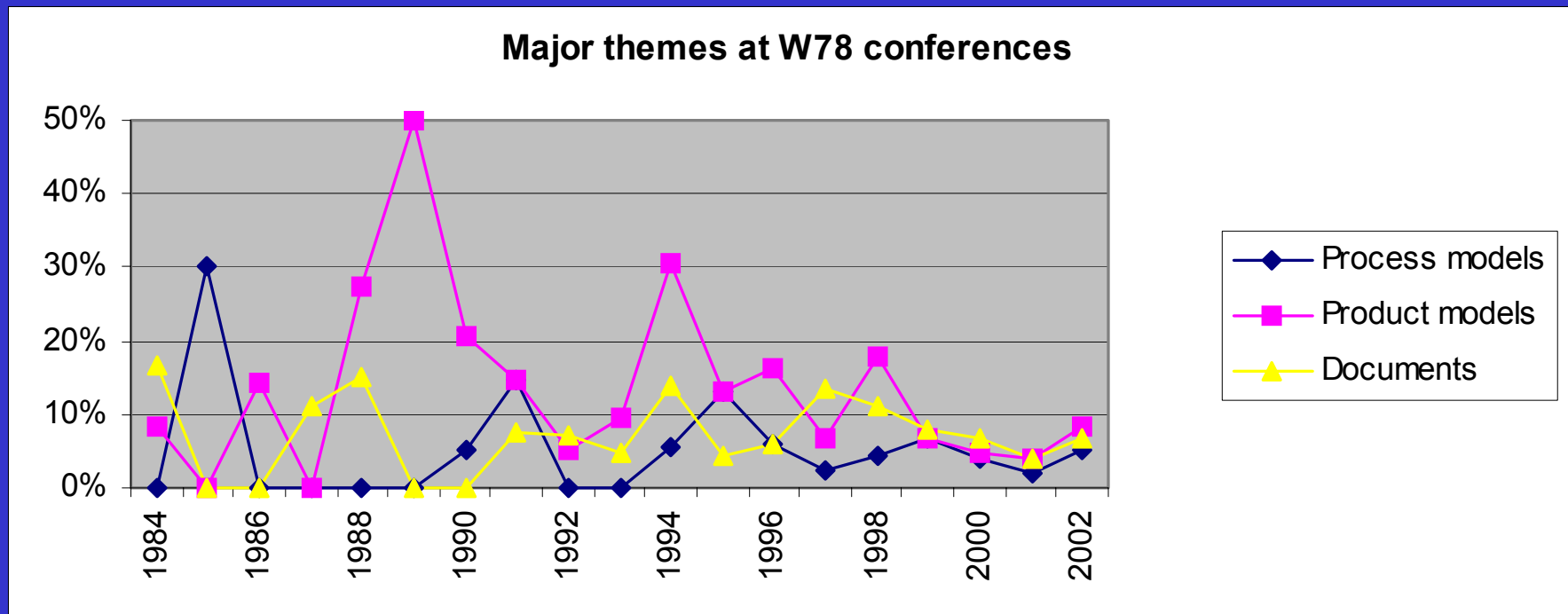# MAJOR THEMES –Integration, Construction Process, Knowledge

Integration a persistent theme, Process becoming more important and Decision Support/KBS/AI since 1990.

Major themes at W78 conferences

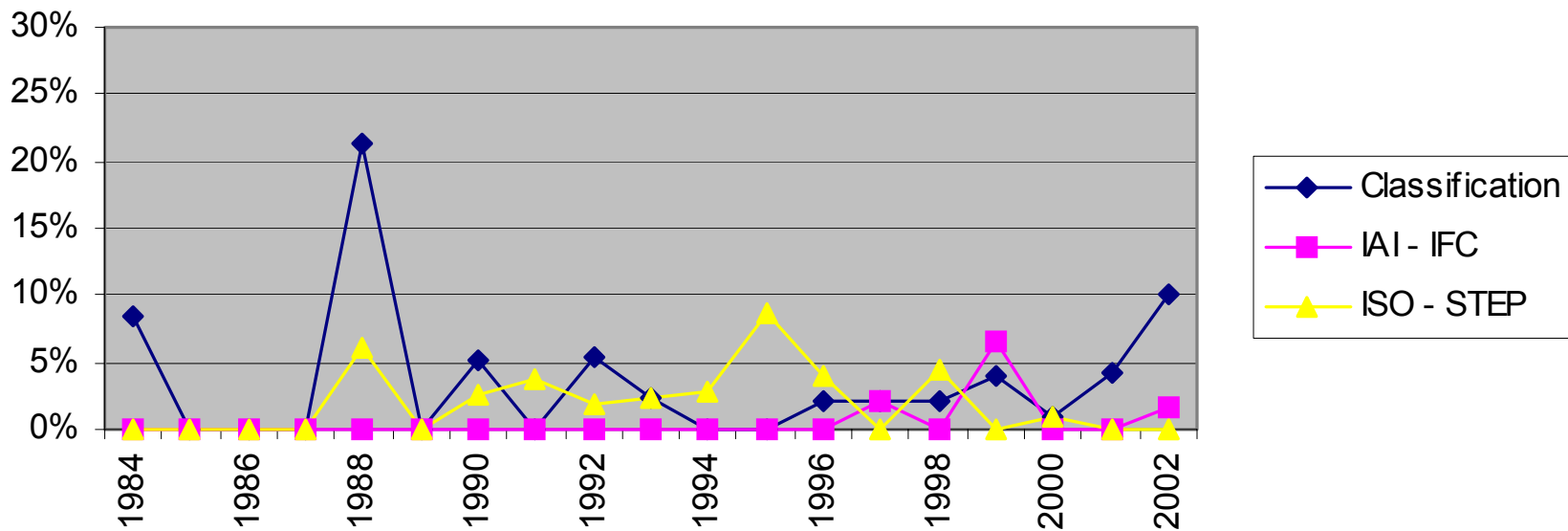# MAJOR THEMES –Process and Product models, Documents

Product models have existed since 1984 but the peak in 1989 is based on only 4 papers. Process models arrived in 1991 at the event in Holland with the work on STEP

Major themes at W78 conferences

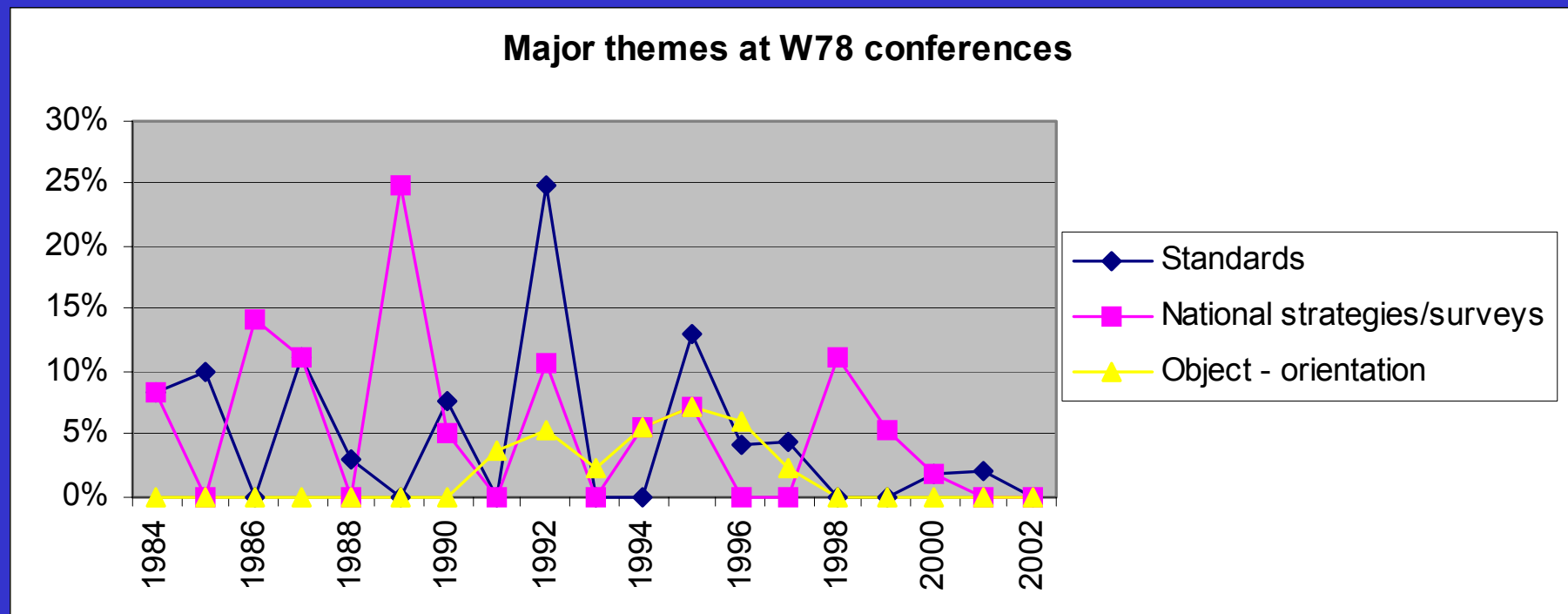# MAJOR THEMES –Classification, IAI-IFC, ISO STEP

Classification was strong in Lund 1988, held with W74, and is now featured again. STEP has recurred as a theme but IFCs, although referred to, are a development theme.

Major themes at W78 conferences

MAJOR THEMES – Standards, National strategies/surveys, Objects

Standards have featured most in North American events and National Strategies appear strong, but as one of four papers in 1989. Object oriented software continued from 1991 – 7.
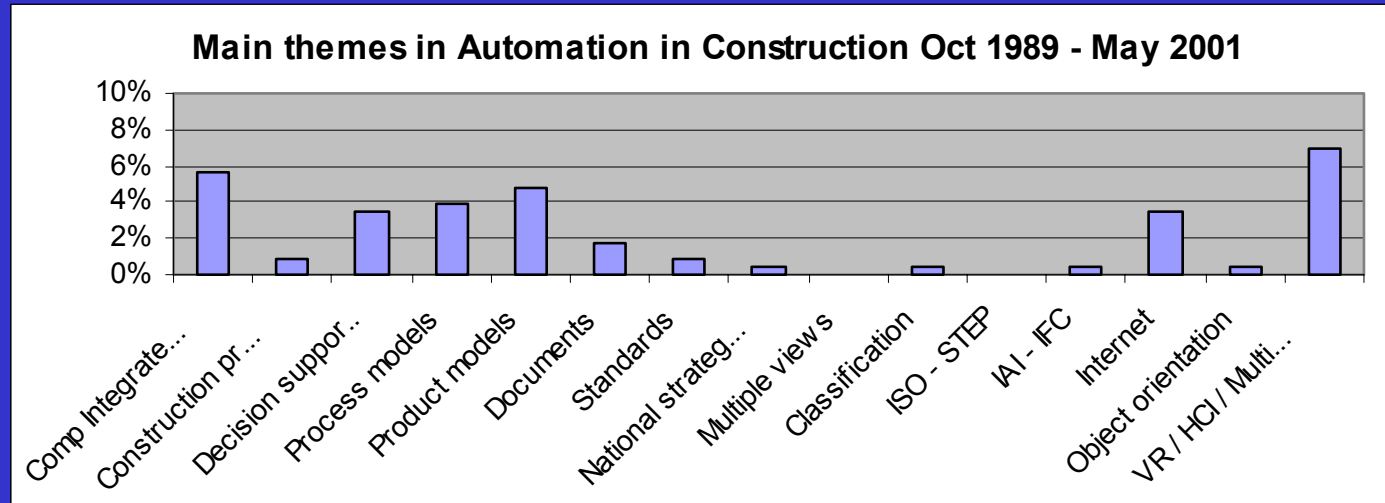

Major themes at W78 conferences
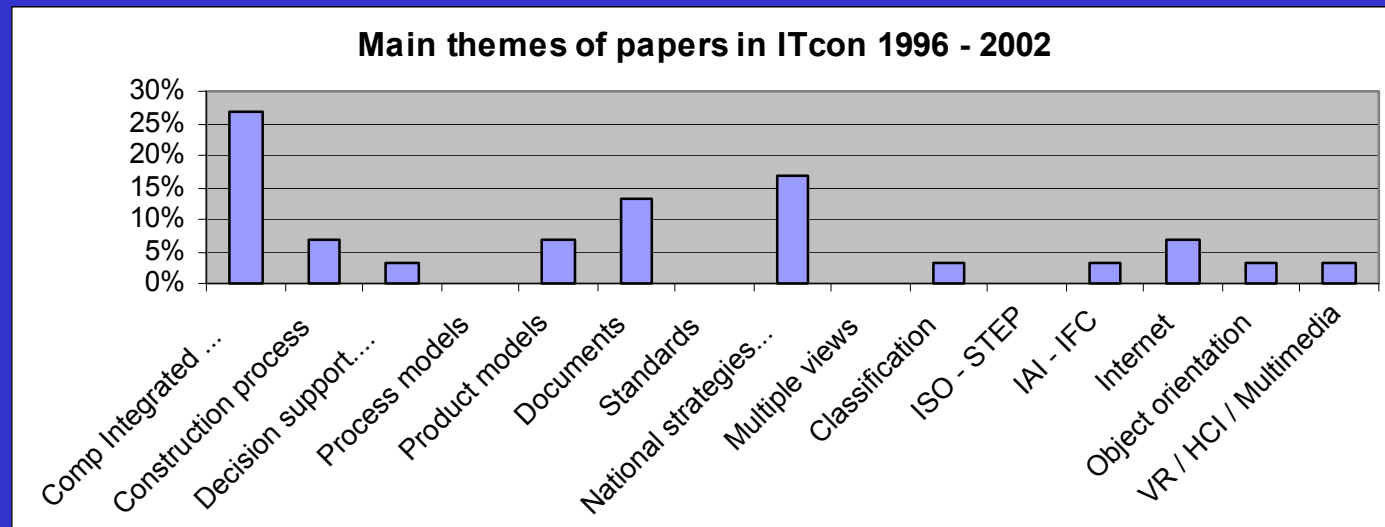
PROGRESS WITH 1984 TOPICS

- **Databases of technical information –** the Internet has made them more accessible but they are still incomplete

- **Design modelling** – the advantage of models was known in 1984 and much research has been done.

- **Expert systems** – the Japanese stimulated an interest now absorbed in knowledge management and KBS.

- **Data exchange** –a major need with disparate systems but now satisfied by de facto standards and project extranets.

THEMES FROM JOURNALS

Automation
in
Construction
Oct 1989 –
May 2001

ITcon

1996 - 2002

Main themes in Automation in Construction Oct 1989 - May 2001

Main themes of papers in ITcon 1996 - 2002

CURRENT THEMES Amor/Betts

- **Modelling of processes and products –** a complete virtual building is a goal which will take many years to achieve but could be done now on conventional buildings

- **Implementation and management of strategy** – not featured much in W78, but new gains from IT are now seen as being dependent upon industry process change

- **Reengineering processes & integrating supply chains** – integration of IT has improved. The construction industry is still fragmented but starting to integrate.

COLLABORATION WITHIN CIB

- **Other groups in CIB with which W78 could hold events:** W082 Future studies, W089 Research & innovation, W102 Information & knowledge management, etc.

- **So far most research has concentrated on the IT needs of the industrialised countries.** Application of appropriate technology in less developed countries could be explored with W107 Construction in developing countries.

FUTURE DIRECTIONS

- **Predicting future directions for research** – there is a need to know where the gaps are between research & application to help researchers focus on lasting topics.

- **Application of IT related to construction processes** – gains have already been achieved from automating tasks, the next stage is to reengineer business processes.

- **Themes from Construct IT vision** – models rather than documents, life-cycle thinking, performance simulation.

- **CIB W78 tasks** – the group facilitates international collaboration but should encourage individual research groups to work together rather than doing the work itself.