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Summary. The paper presents a look on the role and structure of CIM and present development stage.

CIM - A STEP TOWARDS FUTURE

Although the abbreviation CIM is common, and everybody knows what does it stand for, its meaning still has got many ambiguities. Furthermore a problem of its definition is still open, and becomes more difficult if a more precise definition is required.
Short definitions as "factory of the future" (1) are less thoughtfull but are easy to interpret. Contrary, long definitions which last more then one page, are nothing more than a list of constituents comprising CIM. Moreover, this definition is specific for their author, who creates their model image by himself.

The development of technology, technological equipment, tool material, cutting tool and marketing, and the image of the future CIM model will take place simultaneously. We can say that CIM would be a new technological breakthrough, and moreover we are only partly able to understand it, since it is not defined. This could be a reason of the lack of the proper definition, but it should not be an obstacle in attitude to science.

In November 1985, German AWF (2) has presented an interesting recommendation how CIM should be understood: "CIM (Computer Integrated Manufacturing) beschreibt den integrierten EDV-Einsatz in allen mit der Produktion zusammenhängenden Betriebsbereichen. CIM umfasst das informationtechnologische Zusammenwirken zwischen CAD, CAP, CAM, CAQ und PPS. Hierbei soll die Integration der technischen und organisatorischen Funktionen zur Produkterstellung erreicht werden. Dies bedingt die gemeinsame, bereichübergreifende Nützung einer Datenbasis".

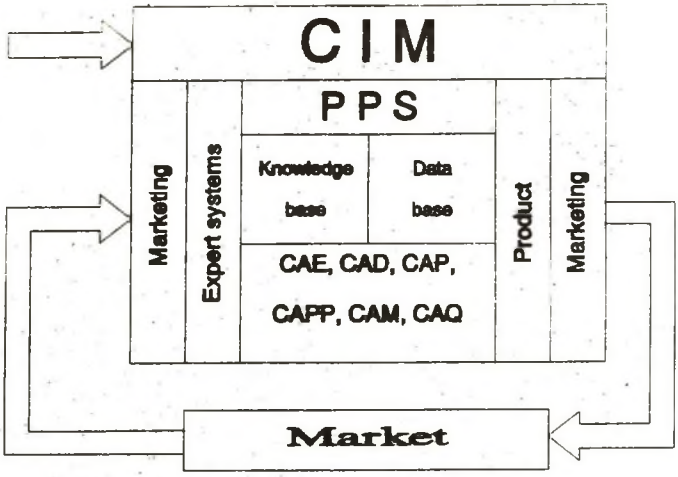

Fig. 1. : Schematic concept of CIM.
Bild 1 : Schematisches Konzept von CIM.

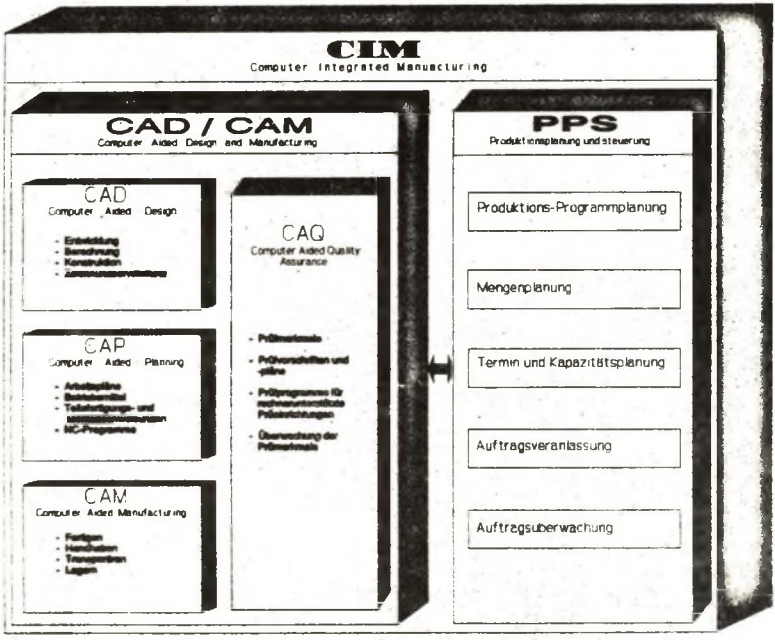

Fig. 2. : Component function of CIM (after AWF)
Bild 2 : Teilfunktion von CIM (nach AWF-Empehlung)

A general concept of CIM could be a working optimal feedback between the market and technology, what is depicted in Fig.1. Comparing this diagram with the CIM's recommendation (see Fig.2) (3) it is easy to spot the difference i.e. this recommendation is not completely compatible to the logic showed in Fig.1. A vision of CIM is stricly dependent upon the authors, e.g. IPK-Berlin (2) forecast a model which is close to the Fig.1 and a Year 2010 is a date of achieving this level (see Fig.3).

A present CIM structure is depicted in Fig.4 (2), and it is consist of:

i. CAD/CAM (Computer Aided Design and Manufacturing)
ii. PPS (Production Planning System)
iii. Data and knowledge base
iiii. Communication systems (for i - iii Subsystems).

Without any doubt CAD/CAM system may be treated as the most developed and available.

However an attention is drawn on the PPS system as well, but an available software is not well spread (commonly inside the firms) and is protected. A situation looks similar with data base and knowledge systems, where their application and structure is strictly tailored to the companies needs, however systems of data base management are better know. Communication systems and interfaces still have not got world standard, but there are very strong competitiveness. Problems of computer aided marketing are treated as the least known element of PPS.

It became obvious that a level of all subsystems investigation is strongly dependent upon the advancement of technology and financial strength of the investor. Recently, suggestions of low cost CIM have appeared, suitable for a small (even very small) companies, which manufacture a large program in the small series using NC technological equipment. This may have an influence on the necessity of changes in the programs of studies. It is evident that the progress of the post communist countries in this field (especially in PPS) has drastically slowed down, caused by general changes in their economies (including Poland as well). However CAD/CAM as a more technical look slightly better. Communication systems, communication reports and interfaces for CIM level are carefully studied for our future needs, because we can't see applications of most data and knowledge bases now.

The general goal of our conference CIM'92 is to instigate an interest the CIM subject by presenting our achievements, however we are conscious of the stage of their advancement, and familiarizate with the real achievement of the western countries. As far as polish situation is concerned, we are supporting the works on software components investigation for the low cost CIM systems, and we are especially interested in this subject.

Survey of more than 80 presented papers alows to show their connection with the CIM structure depicted in Fig.4. It is evident that the 7 main topics of the conference covers a considerable range of the CIM subject. In particular 12% of papers concern subject of CAE/CIM, 19% CAE/CAD, 22% CAD, 12% CAD/CAM, 28% CAP/CAM and 5% PPS. The problems of PPS are rather modestly presented, which is understood, because they are very complicated and still weakly elaborated. In spite of that it is hopefully a good chance for the suitable level and useful results of our conference.

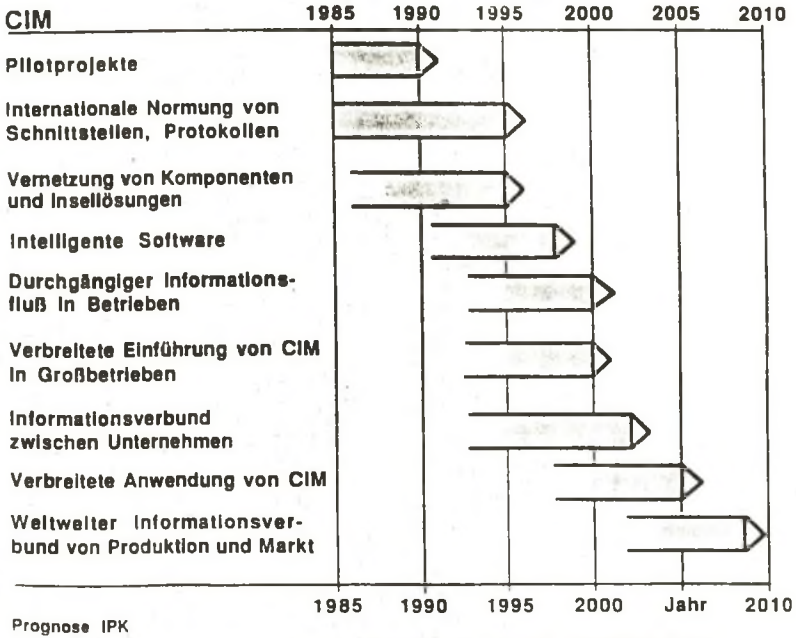

Fig.3.: Development stage of computer aided production

Bild 3: Entwicklungsschritte der rechnerintegrierten Fertigung

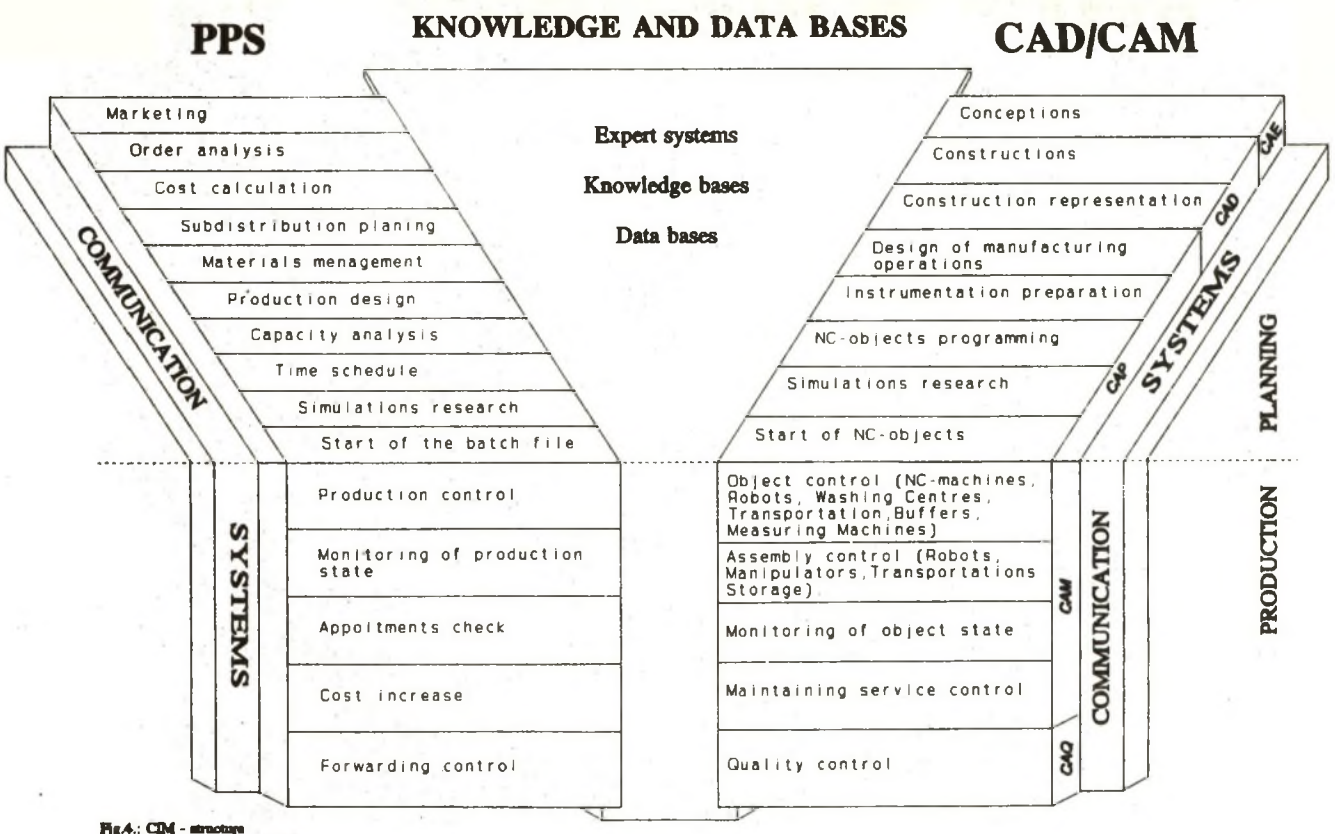

Fig.4.: CIM - structure
Bild 4: Die Struktur von CIM

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CIM - DER SCHRITT IN DIE ZUKUNFT

Zusammenfassung

In der Arbeit wurde ein Überblick auf die Bedeutung und Struktur von CIM sowie aktuelle Entwicklungsstand dargestellt.

CIM - KROK KU PRZYSZŁOŚCI

Streszczenie

W pracy przedstawiono ogólny pogląd na znaczenie i strukturę CIM oraz na aktualny stan rozwoju.

Wpłynęło do redakcji w styczniu 1992 r. Recenzent: Ryszard Knosala