A National School Computer for the Emerging Digital Society

East German and Swedish Efforts to Develop a State-Mandated Educational Computer in the 1980s-1990s

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I. Introduction

II. The case of the «Bildungscomputer» (GDR)

III. The case of the «Compis» (Sweden)

IV. Conclusion and outlook

I. Introduction

Comparison between Sweden and the GDR:
The «Compis» and the « BIC»

- 1970s-1980s: General interest in Europe in introducing computers into schools as educational tools.
- Development of national computers: Netherlands, Denmark, Finland, UK, Canada, Switzerland, Poland, GDR, Sweden.
- Comparison between two cases of centrally commissioned computers.
- East Germany: Socialist State with a planned economy.
- Sweden: Mixed economy with market orientation and strong public sector.
- Both cases have been regarded as a failure due to short life of school computers and inability to create a profitable product for the school market.
- Why did these projects fail? What implications did this endeavors had for the introduction of technology in schools and the involved industries?

The case of the Bildungscomputer «BIC» in the GDR

II. The case of the Bildungscomputer «BIC» in the GDR




	KC 85/1 (Z 9001)	KC 85/2 (HC 900)	KC 85/3	KC 87
Release date	1984/85	1984/85	1986	1987
Media	Cassette tapes	Cassette tapes	Cassette tapes	Cassette tapes
Operating System	CAOS - Cassette Aided Operating System; BASIC interpreter loaded from external module	CAOS - Cassette Aided Operating System; BASIC interpreter loaded from external module	CAOS - Cassette Aided Operating System; BASIC interpreter in ROM	CAOS - Cassette Aided Operating System; BASIC interpreter in ROM
CPU	U880 (@ 2.5 MHz)	U880 (@ 1.75 MHz)	U880 (@ 1.75 MHz)	U880 (@ 2.5 MHz)
ROM	4 KByte	4 KByte	16 KByte	14 KByte
RAM	16 KByte	32 KByte	32 KByte	16 KByte

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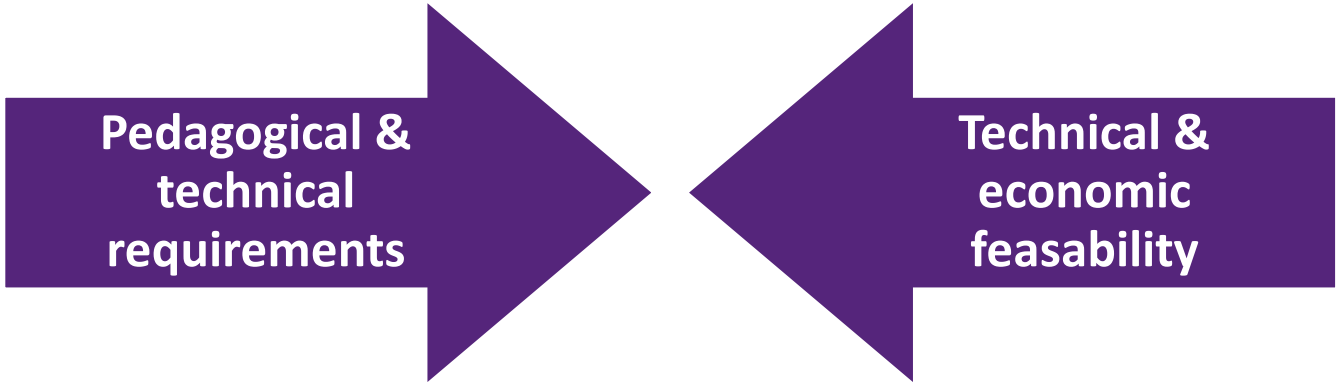

- 16-bit
- runs all necessary software to fulfill curricular requirements
- Sturdy and ergonomic
- guaranteed repair service
- Color capability
- Floppy disk
- „modern, in line with international trends“

- Very limited availability of technical components
- Cost containment

II. The case of the Bildungscomputer «BIC» in the GDR





	KC 85/1 (Z 9001)	KC 85/2 (HC 900)	KC 85/3	KC 87	BIC (A 5105
Release date	1984/85	1984/85	1986	1987	1989
Media	Cassette tapes	Cassette tapes	Cassette tapes	Cassette tapes	Floppy Disc, Cassette Tapes
Operating System	CAOS - Cassette Aided Operating System; BASIC interpreter loaded from external module	CAOS - Cassette Aided Operating System; BASIC interpreter loaded from external module	CAOS - Cassette Aided Operating System; BASIC interpreter in ROM	CAOS - Cassette Aided Operating System; BASIC interpreter in ROM	SCP - Single User Control Program; RBASIC
CPU	U880 (@ 2.5 MHz)	U880 (@ 1.75 MHz)	U880 (@ 1.75 MHz)	U880 (@ 2.5 MHz)	U880 (@ 3.75 MHz)
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II. The case of the Bildungscomputer «BIC» in the GDR

Outdated from the start

"However, the computer must be a 16-bit device. Other (8-bit) computers have no chance internationally, not even in the educational market sector. It can be estimated that the GDR development of an ‚educational computer' will have a locally and also temporally limited impact. Already now it can be recommended to start preliminary investigations for the use of the IBM compatible 16-bit computer EC 1834 in schools and other educational institutions".

Immo O. Kerner, professor for informatics at the University of Education (PH) Dresden, 1988

The case of the «Compis» in Sweden

III. The case of the «Compis»

A technology procurement project for schools

1970s- early 1980s context

- Swedish industrial policy: Prioritization of the electronic industry; information technology a new domain for industrial expansion.
- Political interest: Effects of computerization in the labor market.
- Technology procurement: A strategy to develop the industry and create a skilled workforce and a strong internal market.
- Education policy: Pilot projects to assess the need to introduce computers in education (PRINCESS, DIS, DOS, PRODIS, GLAS concept). Positive results.

III. The case of the «Compis»

A technology of the future

- **Specifications**

- General but restrictive
- Single-user station with the possibility of upgrade to multi-user system; equipped with control, measurement and regulating functions, with registration, storage and presentation capabilities. Graphic resolution of 500X500 dots. Uniform user interface, similar menus and options in different programs. Interpretative programming language. Should allow structrured programming (restricted to COMAL). Working memory of 32 kb, upgradeable to 128.Language interpreter implemented in the computer hardware.
- Challenge: high technical and functional capability at a low price.
- Esselte-MCI and Olesen & Lindgren won the bid in 1982

III. The case of the «Compis»

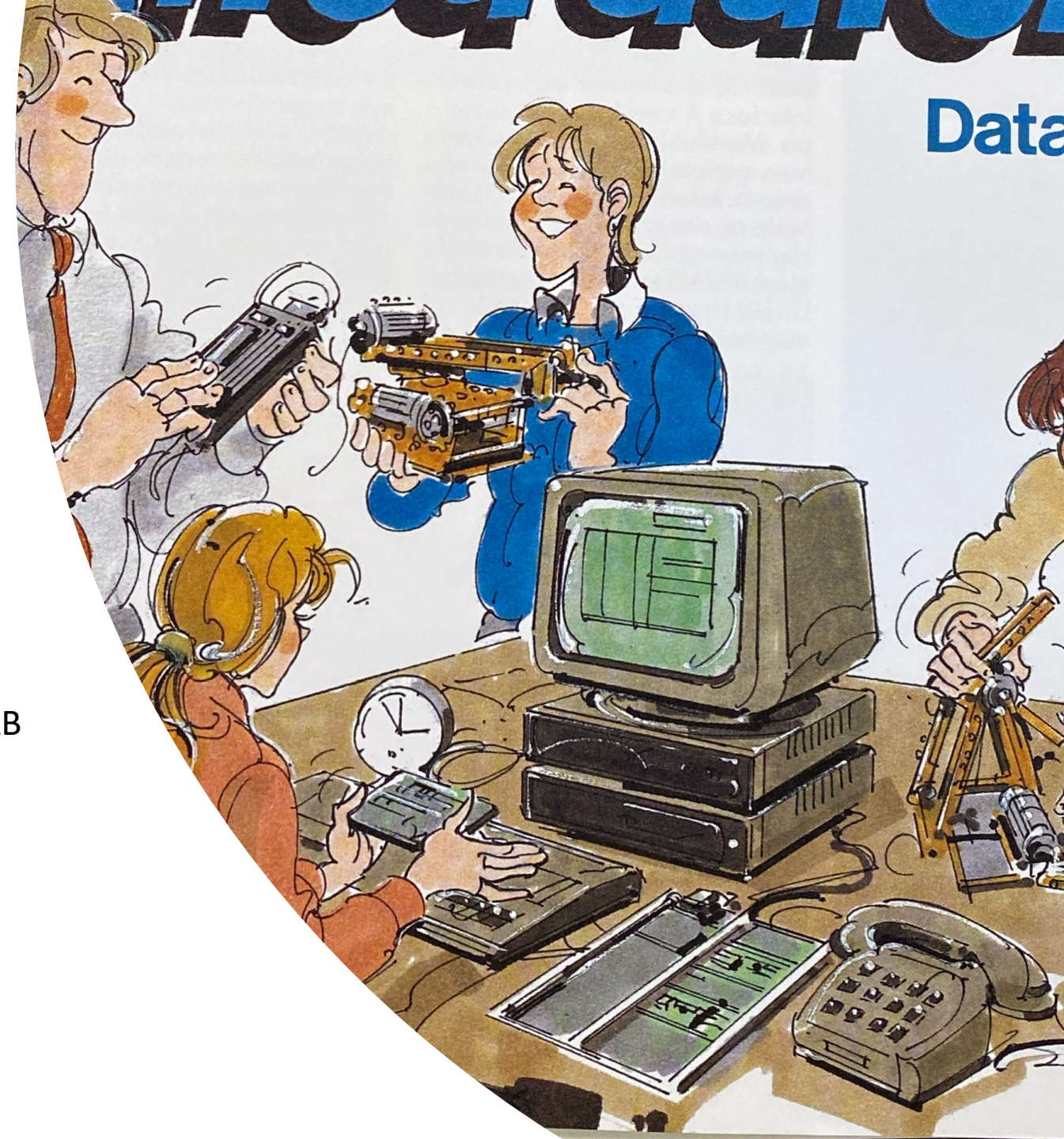
TUDIS encounters challenges

- Tele-Nova took over the manufacturing.
- Delays during production
- Problems with suppliers
- Changes in currency exchange rates made parts more expensive
- 1985 Three-year Campaign: New specifications for computer purchases, stimulus grant for municipalities and schools.

III. The case of the «Compis»

Compis computer: A failure?

- COMPIS was the most popular computer in schools, partly due to price. This changed after 1987 when manufacturers were no longer tied to a fixed price.
- Increased competition.
- Features of Compis became obsolete
- 1987- Personal computer company Victor Svenska AB takes over Compis from Esselte-Telenova.
- An experienced computer company gains a market and expertise in educational technology.
- Schools left behind with an outdated and discontinued computer.



III. Conclusion and Outlook

Comparison between Sweden and the GDR: The «Compis» and the « BIC»

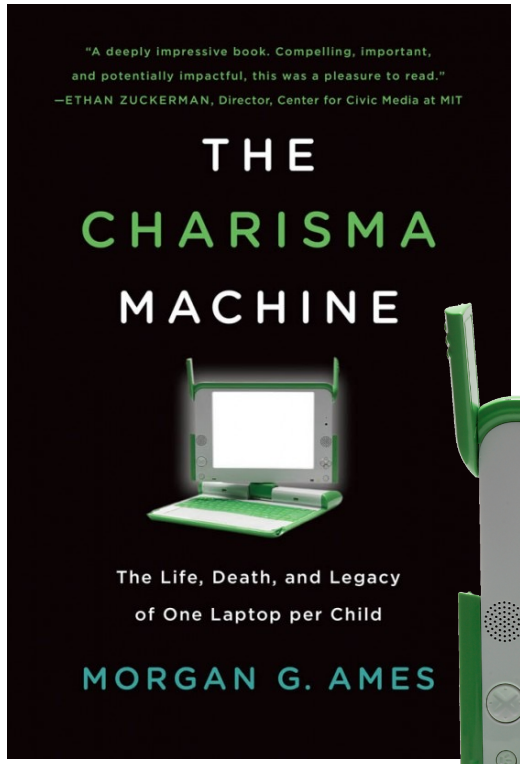
Similarities

- centralized approach to introduce computing instruction into schools.
- involvement of pedagogues in setting the specifications of a school computer
- Priority of pedagogical considerations in hardware development
- Not competitive and unprofitable in a free market

Differences

- Sweden: technology development strategy to promote a national computer industry
- GDR: domestic computer industry unable to satisfy demand;
  primary concern was to increase efficiency in classroom instruction, teacher training and software development

III. Conclusion and Outlook

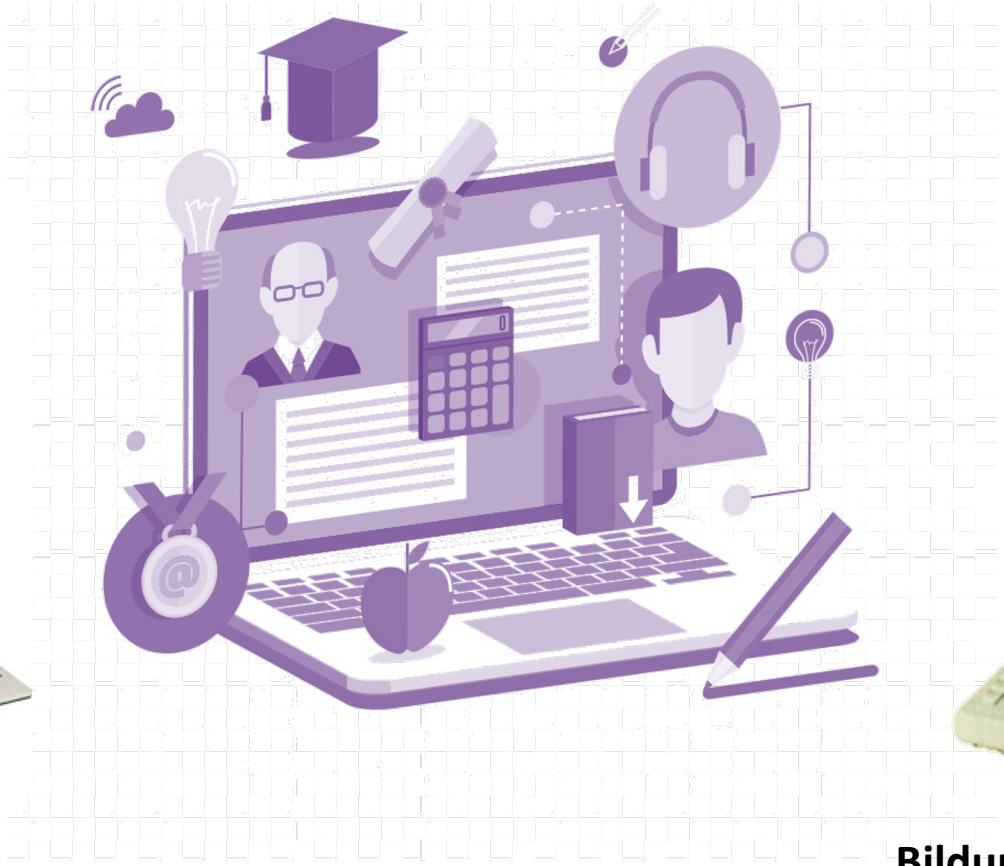


OLPC XO-1

Aakash tablet (Ubislate 7+)

III. Conclusion and Outlook

Compis



Bildungscomputer «BIC»