Success with, through and despite APL

- "Life confession" (insights) of an entrepreneur who also sees himself as an adventurer, a daredevil, an enthusiast, an acquirer, a curious person, an explorer and much more

- A success story in which failures are not concealed (as long as I can still lick my wounds, I will survive)

Success with, through and despite APL - this is a story of my EDP - development of the last 50 years
This lecture deals with entrepreneurship, willingness to take risks - and above all APL

- I worked at McKinsey from 1975 to 1980 as a so-called EDP support manager

- As such, I was responsible for analyzing customer data

- This task involved many areas of application

- For example:

- Preparation of a balance sheet simulation for 10 years for an energy supplier

- Liquidity simulation for an automotive supplier

- Creation of sales and production planning for a large baked goods manufacturer

- Bearing simulation for an aluminum manufacturer

- Forecast for a major bank as to when it no longer makes sense to pursue a customer who is unwilling to pay (10 steps - reminders, debt collection, oath of disclosure, etc. up to personal insolvency)

Preparation of analyses in timeshare,

at IBM in Germany and at CDC (in the USA via satellite)

- Realization that programming languages such as Fortran and PL1 were too "clumsy"

- Although various evaluation programs were available, the adaptation to changing tasks was laborious, time-consuming and error-prone (a random check of interim results produced a lot of unnecessary print output)

- At the beginning, we didn't know what to focus on in the evaluations

First trials with APL in timesharing at IBM, IP-Sharp, APL-Plus

- Difficult at the beginning, no programs available, no modules available, "little help from IBM"

- Small working ranges (200K for IBM, 500K for IP-Sharp, APL-Plus similar)

- Major problems with WSFULL, SYMBOL TABLE FULL, STACK FULL, SYSTEM ERROR, TIME OUT, runtime problem when compressing large amounts of data

- Problems with importing data (slow lines 300 baud- (acoustic coupler unauthorized up to1200) baud

- Data had to be sent by tape and by post to Frankfurt or Hamburg (the postal route was sometimes "out of control", where was the tape if it simply didn't arrive?)

- Enormous costs for slow telephone lines (69 DM/h from Düsseldorf to Frankfurt high connection costs (42 DM/h), high CPU costs and memory costs for saving work areas, 1000-2000 DM were easily "burned" per day

- Working with Datema (Swedish company with access point in Frankfurt) in a CMS system with 3Mbyte main memory (virtual up to 16M)

New findings

- We realized that there was also a data center with a CMS system in Düsseldorf - the IBM person, who was responsible for IBM time-sharing for McKinsey in Hamburg, had wisely kept this from us.

- **Development of evaluation programs and modules in APL**

- A workshop at APL-Plus (Rex Swain flew all the way from the USA to Düsseldorf, for a fee of course, to advise my employees and me on runtime problems and WS-Full problems). This helped us a lot (enormous CPU cost savings, avoidance of timeouts for long-running functions, etc.).

- Development of dialog programs for data evaluations, setting up databases with plausibility checks

- Development of highly adaptable and runtime-efficient programs for group summarization and cross-tabulation

The IBM 5100 - a milestone for APL development

- In 1976 IBM launched the IBM5100 (APL and Basic, 64K memory, 80-120 char/s matrix printer), the APL ran slowly under emulation of the host APL, but almost error-free,

- This machine cost DM 80,000 and IBM made it available to us for testing for a few months

- After a short period of enthusiasm, APL programs could be developed and tested on this computer and then uploaded to the mainframe (host)

- Enormous cost savings - after a short time we had six IBM5100, 5110 and 5120)

- Amortization time approx. 4 months - gigantic!

First McKinsey Yearbook of Life Insurance (1980)

- A large project that I carried out on an IBM5110 with 2 floppy disk drives: First yearbook of life insurances, this includes the comparison of about 50 German life insurances (AGs, public legal - and mutual insurances)

- Creation of comparative tables, cumulation in 3 groups

- For each insurance company approx. 200 comparative data over a period of 10 years

- Storage of the data on 20 floppy disks of 1.6 MB each

- Programming the first plots with APL and plotting 150 charts

- Expert advice from Prof. Seuß (University of Frankfurt) and Dr. Seiffert (McKinsey, later CEO of Deutsche Börse AG)

An IBM5110 with tape drive
2 floppy disk drives and printer

Leap into self-employment

- After 6 years, the team had grown to 10 employees

- Disciplines - mainly mathematicians, computer scientists, physicists, engineers, business economists, mathematical-technical assistants

- McKinsey became a pioneer in the direction of APL in Germany

- IBM brought potential customers for APL to us

- I (Gerald Dittrich) was a household name in the APL scene

- Unfortunately, there was no career prospect for IT specialists at McKinsey (financially at the ceiling, no opportunity to become a partner)

- Realization: If you fight against an established system, you lose

- The successor (and not you!) will inherit the fruits of your struggle (from which my successor benefited - he became a director and partner)

- Conclusion: you have to have the courage to be independent and jump into the water

- I did the same and founded the management consultancy Dipl.Math. Gerald Dittrich in 1981

Market analysis

- It was clear to me. I knew that the market needed quick solutions to problems.

- McKinsey's clients were not really an option for me - unless I came to terms with McKinsey

- I was completely wrong with my market analysis - I was simply too small for major customers at the beginning - despite having good contacts

- I had my first job with an expert opinion for the conversion to IT at Verkehrsverbund Rhein-Ruhr, where I also implemented the expert opinion myself - on an IBM5120

- But how do you get new engagements?

Development of own APL workshops

- IBM offered APL workshops in Sindelfingen - I could see that the presenters were anything but professionals (they were teachers, without empathy, without enthusiasm, not really convinced of what they were selling)

- I had worked intensively on projects with APL for 6 years - unlike the IBM employees, I knew what I was talking about - and what you could do with APL!

APL workshops
- the brilliant idea!

Who is the first customer for company workshop?

- The absolute "leader" in Germany for APL applications was Allianz Leben in Stuttgart

- At that time, around 100 employees in the specialist departments worked with APL

- Everyone wrote their own programs, there was hardly any exchange

- I developed an APL workshop for "professionals" in which instructions for working efficiently with APL were exchanged and developed in dialog with the participants

- One third of the workshop consisted of lectures, one third of tasks, the participants were supervised by me in working out solutions, and one third consisted of discussing solutions

Unexpected
"positive" side effects of the workshops

- Workshop participants recognized the competence of my company and asked for consulting services in APL projects during the workshops or even later

- Orders for projects came almost by themselves - "I" was contacted

Resounding success of the workshops

- When you know that an ex-Allianz man sits on the board or in a key position in (almost) every life insurance company in Germany, acquisition is almost a no-brainer

- Almost all life insurance companies used APL at that time

- I was able to convince most of those approached to order a workshop by pointing out that Allianz Life has requested this workshop time and again

- I developed workshops for "advanced" and for "beginners"

- In the beginning, I held all the workshops myself, later I was joined by experienced employees

Companies that have ordered APL workshops

- So far over 2500 participants from all sectors of the economy:

- Insurance - life, health and property, reinsurance

- Aviation

- Banks, savings banks, building societies

- Automotive companies

- Suppliers to the automotive industry

- Tax consultancy association

- Federal Office of Defense

- Energy industry

- Tourism

- In addition, many of our own workshops with up to 16 participants, initially in hotels, later in the DPC training room in Solingen

Further development and publicity through committees

- 1982 Joined APL-Germany

- From 1982 permanent lectures at APL-GSE (here you could only be a member if you had your own IBM computer (an IBM5100 did not count here, but from 1988 there was an IBM9370 (VM/CMS 3MB) (purchase price 400,000 DM), location due to lack of other possibilities in the "bathroom" on the 2nd floor.

- I had to give a lecture every time!

- 1983 Working group for documentation in APL

- 1988 Elected 1st Chairman of the APL Club Germany for 4 years (160 members at the time)

- 1989 Move from a 250 square meter Wilhelminian style villa (1902) to the administration building of a former Coop wholesale bakery (1920) with 1000 square meters and space for the up-and-coming system house DCS (Dittrich Computer und Systeme)

- Constant presentations in DACH made me well known (I also gave presentations on benchmarks for IBM-APL on the PC and APL-Plus under Windows) or how to improve the efficiency of APL in-house through workshops

- 2010 Chairman APL2010 Berlin (what do APL and the Ring Parable from Nathan the Wise have in

Search for a replacement for the IBM5100 series

- From 1983 IBM PC with IBM APL under DOS (very buggy!)

- APL Plus under Windows 3.11 (stable, fast, but not IBM-compatible)

- Wicat with APL68000 (not IBM compatible)

- Prime with APL68000 (not IBM compatible)

- From 1988 IBM9370

- Otherwise expensive timesharing with IBM, IPSharp, APLplus

"Baby mainframe" IBM9370

the domicile of DPC until 1989,
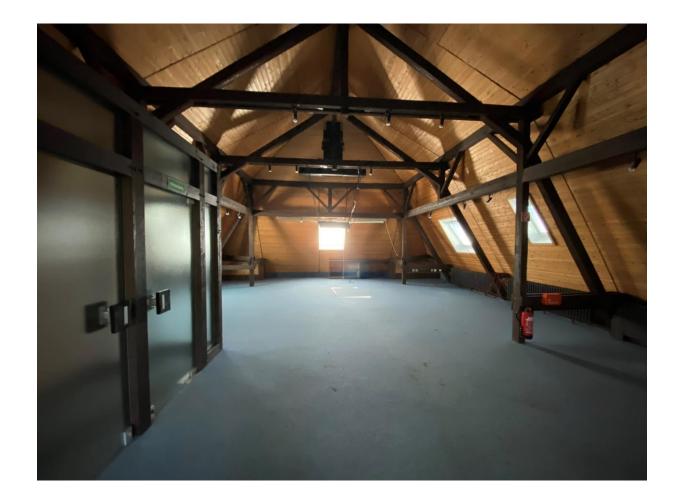a Wilhelminian style villa from 1902

The home of DPC and DCS since 1989

DPC training room at Prinzenstr. 2 in Solingen

APL infatuation is an obstacle

- Even if you are enthusiastic about APL, you should say goodbye to programming at some point, you can no longer maintain your know-how (APL also continues to develop, IBM-APL and Dyalog-APL now have more than 20 releases) if you have to concentrate fully on order acquisition (aquise).

- A major project convinced me not to do any real programming myself from 1988 onwards (or only to a limited extent for pleasure, e.g. lecture "Hunting crazy Idioms") or solving combinatorial problems, lecture "Computer Power meets (beats) intelligence" (problem "LYNDON x B = JOHNSON" (570140 x 6 = 3420840)).

Freelancer or company?

- As a freelancer with a lot of experience and specialized knowledge, you can work very efficiently for a long time (but in between you work at 150%)

- But: Everything depends on one person (me)

- Accepting larger engagements is almost impossible for a single person

- Hiring employees for a very small company is difficult

- I dared to inspire and hire a number of graduates with APL, I took everything I could get (mathematicians, physicists, engineers, economists, business economists, math.techn. assistants, sometimes with a bit of luck also with previous APL knowledge)

- My philosophy was to hire and train employees. My job was to bring these people under bread

- After a few years, there were 32 employees (doubling the number of employees every year for 5 years)

Major projects

- In addition to general consulting activities, the management consultancy Dipl.Math. G. Dittrich (the initial company name, from 1992 Dittrich & Partner Consulting GmbH, DPC for short) carried out a large number of projects (here are just a few):

- 1981 Changeover to EDP at Verkehrsverbund Rhein-Ruhr

- 1982 Simulation of a transfer line with 15 sections and a maximum of 250 processing stations for engine blocks (20 simulations, each ran for 70 hours without problems on 5 IBM5110 or IBM5120)

- 1983 Extension of a prototype for active-passive control to "normal users" (major bank in Germany and maintenance for many years)

- 1986 Development of a practice computer software for physicians for PC networks under IBM-APL (PC-DOS) and Novell Netware, first realized data carrier exchange between physicians and the associations of statutory health insurance physicians!!!, quarterly accounts with over 2000 condition checks (if-then rules)

Major projects

- 1988 Expansion of a prototype (optimal utilization of flights and hotels) for a tourism company and maintenance for many years

- 1988 Conversion of 1000 !!! APL workspaces from VSAPL under VSPC to APL2 under MVS/TSO for a large life insurer (over 10 man-years!)

- 1989 Development of consulting software for the building society of a major bank

- From 2000 onwards, many conversions from host APL to PC-based APL (IBM-APL2, APL2000- Dyalog APL) - these conversions are common to almost all industries

Major projects

- 1998 Development of an investment portfolio system, executable on PC and host with transfer option (investment volume several 100 billion DM) for a large property insurer, maintenance work for many years

- 1999 Optimization of runtime behavior and savings of DM 1 million in CPU costs (55% cost savings) for a savings bank in Austria

- 1999 Expansion of production planning for a large cable car manufacturer in Austria

- 2000 Maintenance work for several years on a "Global Risk System" under Sharp-APL for a major Swiss bank

- 2005 Auditable system under APL2 for the management of options and futures for a large life insurer in Germany

- 2006 Development of group insurance tariffs for a large German life insurance company

- From 2000 until now, many conversions from host APL to PC-based APL (IBM-APL2, APL2000- Dyalog APL) - these conversions are common to almost all industries

Success "despite" APL

- 1987: the IBM tries to strangle her child APL, but it is too late, the child has grown too big

- 1987: only lip service at APL/GSE "APL is still a strategic product of IBM" unsettles IT

- CSP (cross system product, from 1981) and AS (from 1988) are praised by IBM as the "egg-laying wool-milk sows" and future-oriented, IBM does too little business with new APL applications, nobody talks about these applications anymore today

- But 150 host APL systems in Germany alone are a great cash cow

- IT departments try to get away from APL (out of control)

- However, the ghosts that the specialist departments have summoned will not be gone so quickly

- The specialist departments had to solve their problems promptly - with APL, before and after 1987

- Expert opinions predict insanely high costs (even embellished?) to switch from APL to a new platform (without extending the functionality), there are many failed projects with costs in the millions that got completely out of hand

The madness project

- Here is the story behind it: (1986-1988)

- A university friend of mine (former chief actuary of a German life insurance company) and I founded a company for financial marketing

- We developed a platform for comparing life insurance policies under APL (which was quite an affront to the established insurance industry)

- I demonstrated the system at IBM in Stuttgart in front of 40 interested participants - I dared to demonstrate the system on a Toshiba notebook on IBM premises - IBM only had "schleppables" at the time (an IBM director considered this quite an "affront" at the time)

still an insane project

- We also demonstrated this system in a meeting with the CEO of a major bank

- During the conversation with the bank's CEO, he was very interested in the portal, but very quickly came to his own problem:

- They always wanted to buy a large life insurer and attract the money flows of bank customers, but the life insurance industry stonewalled and only offered small clunkers

- His idea:

- Setting up your own life insurance - this means that an administration system must first be set up as quickly as possible (in the beginning, new admissions and cancellations are sufficient, disbursements can still be made manually)

- This means hiring more than 50 actuaries in a very short space of time

- Problem: The project was secret - they were not allowed to say who they were working for or where the future life insurance company would be based.

- I was the managing director of this company, the bank took a stake in our company!

Insane project - the GAU

- After a year's work in rented premises with our own IT system (IBM 9370 under VM/CMS) and an almost finished administration system, the project has come to an end:

- The Chairman of the Management Board falls victim to an assassination attempt in November 1989

- His successor is no longer interested in in-house development and stops the project; in the meantime, the insurance industry has relented and offered the bank a heavyweight life insurance company!

End of the madness project

- **Conclusion:**

- The insurance industry felt compelled by its own development to offer the bank a heavyweight in the insurance business

- **The advantage for the bank:** with an established large life insurance company, the bank immediately has a sufficiently large market share; it would have taken a great deal of effort and at least 10 years to get there with its own life insurance company

- The costs of in-house development were manageable and affordable (peanuts?)

- **The advantage for the insurance industry:** the zillmerization of 3.5 % (August Zillmer, allocation of acquisition costs and administrative costs during the term of the policy to a constant annual premium) to 0.5 % was averted (this would have turned the entire insurance industry upside down - since 2015 (Bafin), zillmerization has been at 2.5 %).

- The war between the insurance industry and the bank was averted - everything remains the same

- We earned good money - but somehow you still feel used

Gorbachev

Let me say goodbye with a sentence from Gorbachev

Life punishes those who arrive too late!

- BUT

Life punishes those who come too early! (that's from me!)