DIGITAL TIMES

History of IT at Allianz

Barbara Eggenkämper
Gerd Modert
Stefan Pretzlik

Barbara Eggenkämper, Gerd Modert, Stefan Pretzlik

DIGITAL TIMES

Imprint

Design:
Büro Müller-Rieger

Photography:
Annika Seifert and Son Luu Vu

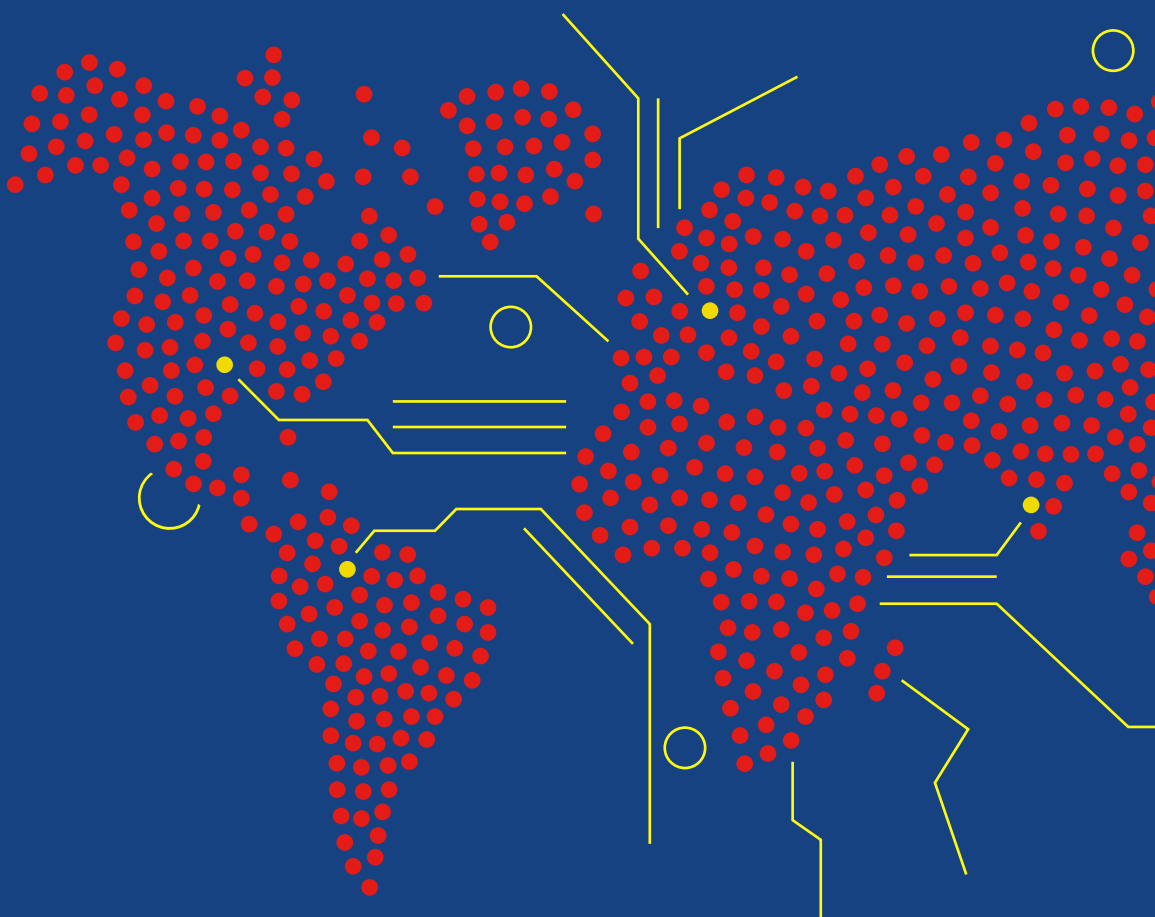
Print:
G. Peschke Druckerei GmbH, Parsdorf / Munich

Munich, 2021

Barbara Eggenkämper, Gerd Modert, Stefan Pretzlik

DIGITAL TIMES

History of IT at Allianz



Content

Dear readers,

Today we live in a completely digital world. For this reason, also the social and economic challenges that Allianz has to face have changed. With a tradition of more than 130 years, Allianz has consistently been a pioneer in the field of information technology. It is the key to further development and future viability in the current transformation process of Allianz towards a digital company.
How can history help us to better understand our present in view of information technology that only ever seems to be advancing?

This book provides a look back that gives us the opportunity to make the past and the development up to the present easier to understand. Everything visionary and every future has a past, because people develop it based on what shapes them and what they know. The presentation goes back to the catalogue for the exhibition "Bits and Bytes for Business, 50 Years of IT at Allianz". The project fulfilled an important task at the time and is now continuing to do so in the current rather different situation, which is determined by the digital spirit of the times: it shows and classifies the great, often breathtaking leaps that made information technology progress in recent decades. It shows the major lines of development into the future, which in the present are sometimes not visible at all or only visible to a few historically well-versed experts.

Could have anyone guessed, when Allianz introduced Europe's first mainframe computer in 1956, which had just 12 kilobytes of RAM that in 2021 almost all of the 147,000 employees would be digitally networked using notebooks, smartphones and notepads to work for Allianz customers from home? It is one of the absurdities of history that this leap in digitalisation was extremely accelerated by the pandemic in 2020. Preceding this was a step-by-step development of IT, especially over the past 10 years, which made this possible in the first place.

In the present, too, one innovation chases the other and poses new challenges to society and the people at Allianz. At first, information technology in the company was more of a kind of secret science, with initiated experts struggling to meet the ever-increasing demand for computing power. Then the more sober-minded phase of industrialization followed, in which IT, as a service provider, increasingly standardized its services and made them available to the company at a lower cost.

A look at the organization of IT at Allianz makes this clear: at first it was directly linked to the areas of property, life and health insurance. Then the IT was organized in two tiers: the employees of one area (IS) developed and supervised insurance-specific applications. Their colleagues in the other area (AGIS) operated the data centers for Allianz, which developed into "IT factories" for IT infrastructure services.

Today, IT in general and Allianz Technology and its partners in particular are a core component of Allianz's DNA and business. A secure, modern and dynamic IT is what enables Allianz to provide its customers with insurance and financial offers and services in the first place. Any form of customer and user interaction is inextricably interwoven with IT, which is clearly expressed in the term and meaning of UX (user experience). The future of IT determines the future of the business and the work of people at Allianz.

Allow yourself to look from the past into the future, into a world of punch cards, embossing machines, mainframes, PCs, data centers, Internet applications, cloud solutions and your own home office.

We hope you will find interesting insights and enjoy this journey through time.

Barbara Karuth-Zelle
COO Allianz SE

Daniel Besendorfer
CEO Allianz Technology

Introduction

to the 2nd completely revised and expanded edition

Allianz recognized the importance of IT for its work very early on and introduced punch card technology in the 1920s and the first mainframe computer in the 1950s. Since then, this has provided the company with considerable advantages in the implementation of its corporate goals. In our networked world, IT has become a central component of Allianz, and its importance will continue to grow. IT is currently experiencing a global development boost due to the accelerated digitalisation in the company. Today, IT is both a seismograph for change and a carrier of technical progress for the company.

In the book we show that the digital networking and processing of information (from the data) are becoming increasingly important and extensive. This has an impact on all work areas in the insurance and financial services sector right through to corporate culture – from customer service to the ever-improving networking of employees with the option of working from anywhere at any time.

In this book, we describe both the milestones of technical progress at Allianz and the strategies, backgrounds and intentions of the developments in digitalisation.

Against the background of the history of the computer and the development of computing technology, the first chapter examines technical innovations at Allianz.

The second chapter describes the beginnings of electromechanical data processing, now almost 100 years ago, with the introduction of Hollerith technology at Allianz Lebensversicherung. Mechanization as part of the first wave of rationalization in the 1920s significantly changed the world of work and also the competitiveness of Allianz.

In 1956, Allianz was the first insurer to introduce electronic data processing in Europe using the IBM 650 mainframe computer. Based on this, the third chapter outlines the milestones in IT history from 1956 to the present day over four sections. The effects on work can already be felt in the 1970s in the context of ever newer generations of mainframes: new working methods and job profiles emerge, costs can be effectively reduced. Since the 1970s, an increasing number of employees and the field service have benefited from access to the data on the mainframe, initially via terminals and, since the late 1980s, also via PCs. Finally, work at Allianz has been revolutionized by the use of the Internet since the end of the 1990s and this marked the beginning of global networking in the 2000s. All four sections feature an introduction to objects and key components of IT.

In summary, this development can be understood as a sequence of innovations on the way to becoming a global digital company. This emerges in Chapter 4 in the interview with Barbara Karuth-Zelle (CEO of Allianz Technology until 2020), who emphasizes the growing importance of IT due to its closer integration with the business. And this is also discussed in the outlook into the future of Chapter 5, where the new strategy of digitalisation is presented. Its aim is to make the data in the company globally available, which will only be possible on the basis of a closer cooperation between the various company departments. As with the previous developments, it becomes clear here that digitalisation has greatly accelerated the transformation in the world of work and will also have an impact on it in the future. Hybrid work will become the norm for people at Allianz.

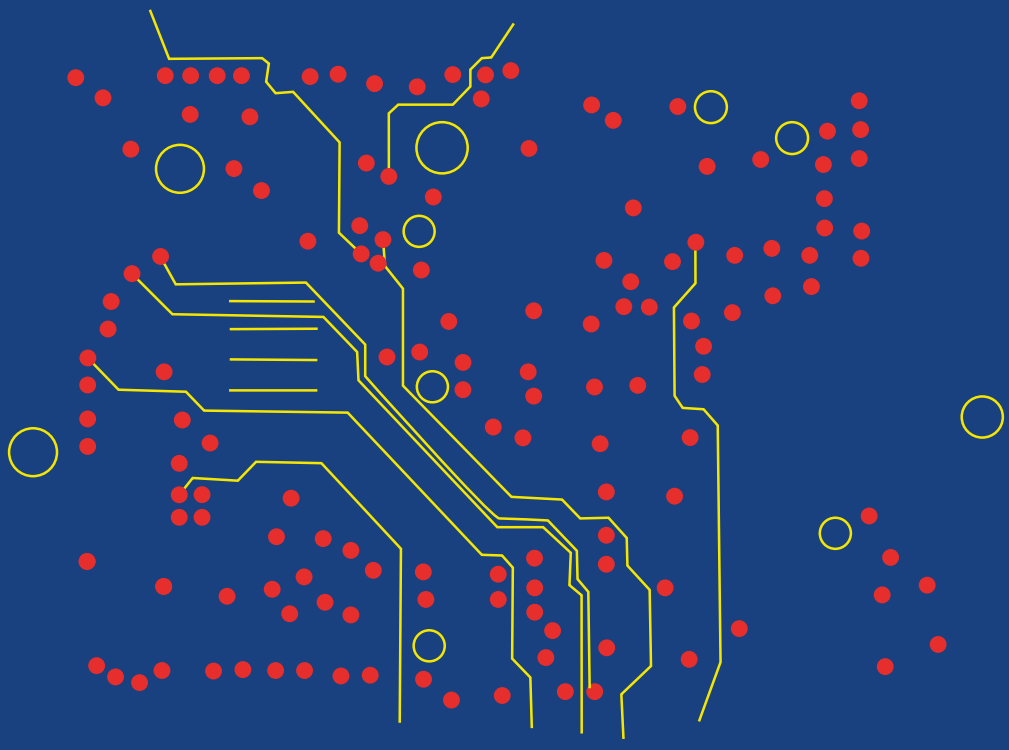
Acknowledgements

Richard Manson, Head of Communications at Allianz Technology, is the initiator of the book which aims to capture the rapid transformation of data processing at Allianz and strengthen the identification with the new role of IT as a pioneer for the digital future of Allianz. Our special thanks go to him and his team, in particular to Heike Hartenfeller and Christine Altmann.

We would also like to thank the interview partners Barbara Karuth-Zelle, Konrad Schachtner, Ralf Schneider and Veit Stutz, who made the background of the future strategy transparent. Ralf Schneider and Alexander Metz, who provided a chronicle of data processing and a collection of historical materials covering 30 years of IT history, were also crucial in providing advice on both editions. Finally, we also want to thank Daniel Besendorfer, current CEO of Allianz Technology, for his essential impulses for the future.

On behalf of our many supporters, we would like to thank our colleagues from the IBM corporate archives and museums, the Heinz Nixdorf MuseumsForum and the former historical archive of Dresdner Bank for background information.

The authors



1

A brief history of the computer

Computers were once considered a miracle of technology for a few initiates, but today they determine most facets of our lives. People have been using them for many years for writing, calculating, playing games, drawing, illustrating, presenting, archiving, telephoning, watching television, filming, listening to music and radio or surfing the Internet. But there is much more to it. Some people already foresaw this when this book was first published in 2006. At the time, we deliberately wrote vaguely: "We may soon even be able to – as the PC utopians associated with Neil Gershenfeld of the Center for Bits and Atoms at Boston's Massachusetts Institute of Technology hope – produce individually objects of everyday use with the help of new types of computers.[1] The personal computer would then be joined by the personal fabricator, which everyone could use to turn their ideas into finished products under computer control. So the wonderful replicator from the Starship Enterprise could become a reality after all". It

may be a while before the replicator is ready, but researchers are advancing 3D manufacturing techniques at breakneck speed. The most powerful "printers" already produce end products for medical technology (prostheses), for optical devices, for machine tools and aircraft construction, which are made up of many components and a wide variety of materials.[2] The future can be speculated about, the past can be researched. Just a look back at the world around 1900 shows that for people back then, the computer – an electronic calculator – seemed about as utopian as the aforementioned fabricator does for people today. Back then, people dreamed of constructing machines that could take over, simplify or at least speed up computing. At the end of the century of the Industrial Revolution in the Western world, the limited computational capacities increasingly proved to be a stumbling block to progress. In the new engineering sciences that emerged at that time, in the booming industry, the modernised public bureaucracy and, last but not least, in the expanding banking and insurance sectors, more and more calculations had to be made. This was mostly done by means of mental arithmetic, with pencil and paper or with the help of mechanical calculators, as it had been the case from time immemorial.

Early sources

How did it all begin? From the very moment man tried to orient himself in time and space and began to manage systematically, he had to calculate. The ability to do so is seen as an indicator of a society's level of civilisational development. All the early advanced civilisations, whose members formed states, lived in cities, and worked for public institutions and private businesses, have left behind sources that prove that people in Egypt, India, Greece, Mesopotamia, South America and China invented methods of calculating, keeping records and drawing up balance sheets. Herodotus, a Greek historian of the 5th century BC from Halicarnas (today Bodrum in Turkey), who provides a description of his experiences on a journey

Detail from the most famous mathematical papyrus named after the British Egyptologist Alexander Henry Rhind. The document is a copy from around 1650 BC.

through Egypt in the second volume of the Histories, reports: "The Hellenes write letters and calculate with small stones by moving their hands from left to right, the Egyptians from right to left". A source like this provides a fairly reliable indication that Greeks and Egyptians were able to calculate two and a half thousand years ago, but it only allows to have a vague idea of the actual possibilities that existed at the time. However, individual sources are gaining more and more significance when they are placed in the context of the written and material remains of the ancient world of the

Mediterranean. Probably the most famous arithmetic find of the period was made by the Scottish Egyptologist Alexander Henry Rhind in 1858. At that time, archaeology was already booming, so that a flourishing trade in antiquities developed at the excavation sites. Thus, the collector Rhind was able to acquire a papyrus created by a copyist named Ahmes around 1650 BC. The 5.5-metre-long and 32-centimetre-wide document is entitled "Exact Arithmetic. Introduction to the Knowledge of all Existing Objects and all Dark Secrets" and includes a collection of 84 mathematical tasks and a board with fractions. All algebraic, geometric and trigonometric problems described therein have a concrete application reference: it is about how bread can be distributed, area calculations of triangles, circles, rectangles and construction calculations for pyramids.

First numbers

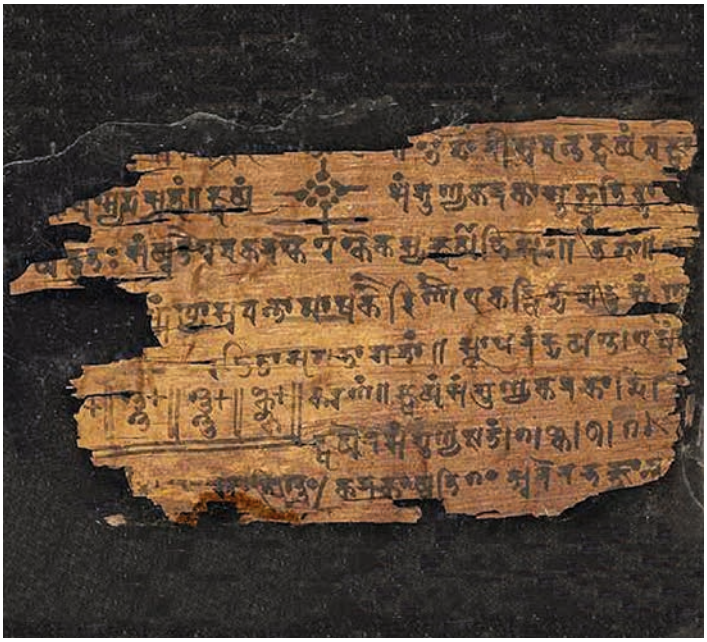
The first number signs were derived from pictorial representations of what was meant in the same way as the early written signs. Their simplest form was tally marks, which were carved into bone, wood, stone or clay discs according to the number to be depicted. Around 3,500 BC, the Sumerians developed cuneiform writing, which was also used to store numerical information. At the turn of the third millennium BC, the first abstract number signs had already been formed, which in the course of the following 1,000 years became the basis for the sexagesimal system that was generally used in the Babylonian empire. The Egyptians had a decadal number system and wrote the seven number symbols from 1 to 1,000,000 using hieroglyphics. One was represented by a line, ten by a horse's hoof, 100 by the stylised measuring line of a surveyor, 1,000 by a lotus blossom, 10,000 by a finger pointing to the starry sky, 100,000 by a tadpole and the million by the sign for the god Heh. The Egyptians maintained this numerical system over a period of almost 3,000 years, increasingly simplifying the number signs and using more abstract forms in the course of their writing history.

The painting shows the polymath Gottfried Wilhelm Leibniz (1646–1714). He recognised the rules of infinitesimal arithmetic and constructed a calculating machine that mastered all basic arithmetic operations.

Portrait of the mathematician, physicist and philosopher Blaise Pascal (1623–1662), who designed the calculating machine "Pascaline".

India: The ingenious number system

"The ingenious method of expressing every possible number using a set of ten symbols (each symbol having a place value and an absolute value) emerged in India. The idea seems so simple nowadays that its significance and profound importance is no longer appreciated."[3] (Pierre-Simon Laplace (1749–1827)) The so-called Arabic numerals commonly used today have developed from the numerals of the ancient Indian Brahmi script. In fact, the Indians achieved a quantum leap in civilisation with their



Left: Part of one of the Bakhshali manuscripts written in Sanskrit on birch bark. The document discovered near Peshhawar in 1881 contains the oldest evidence of the use of the Indian numeral sign of zero.

Right: Arithmetic book by Adam Ries, edition of the work from 1574

new payment system, which was probably established in the 6th century AD. They thus created the core of modern mathematics and the basis for empirical natural science as well as the digital computing technology of the present day. The revolutionary thing about their decimal place value system was that they added to the fixed set of nine number signs an element that itself has no value but has the potential to change the value of all other numbers: zero. Now it was possible to represent all integers by means of a small number of ten characters. The value of such number symbols results not only from the individual meaning of their elements, but also from the order in which they are arranged. This innovative system spread rapidly throughout China and the Islamic world. The Arabs eventually transmitted this knowledge to Muslim-ruled Spain. The first written evidence of "Arabic" numerals in Europe is found in a Spanish monastic manuscript from 976 AD. It took until the 14th century, however, for Arabic numerals, which in the form we know are Western Arabic neologisms, to be popularised in Christian Europe.

Adam Riesen

Rechenbuch/ auff Linien vnd Ziphren/ in allerley Handthierung/ Geschäfften vnnd Kauffmanschafft. Mit neuwen künstlichen Regeln vnd Exempeln gemehret/ Innhalt fürgestellten Registers.

Visier vnd Wechselruthen künstlich vnd gerecht zumachen/ auß dem Quadrat/ Durch die Arithmetic vnnd Geometri/ von Erhart Helm/ Mathematico zu Franckfurt/ beschrieben.

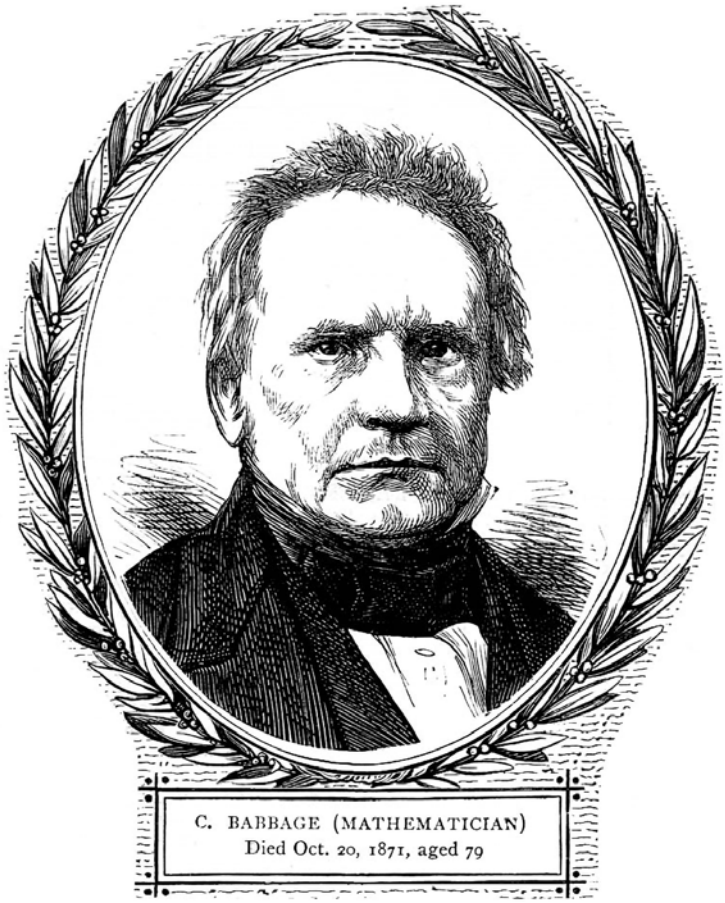
Alles von neuwem jetzunder widerumb ersehen vnd Corrigirt.

Franck. Bey. Chr. Egen. Erben. 1574.

Calculation and storage

"Subtrahirn means to subtract, teaches how to take one number from another. Whether it is right, put the removed number together with the remaining number, and if the first number put on comes back, it is right."

The writer of these lines liked it descriptive, because he always had the readers in mind. They thanked him with unwavering loyalty and made him a wealthy man. His second arithmetic book "Rechenung auff der linihen und federn in zal, Maß und gewicht", first published in 1522, went through at least 110 editions, and his later work "Rechenung nach der lenge / auf den Linihen und Feder" (1550), the sum of decades of experience as an arithmetic teacher, made him a celebrity and an expert in the art of teaching arithmetic. We are talking about Adam Ries from Staffelstein in Franconia. Adam Ries wrote an independent German-language treatise on the theory of equations, but mainly collected already known knowledge: he taught arithmetic on lines using arithmetic pennies, which had been developed in the European Middle Ages, and the four basic arithmetic operations in written arithmetic with numbers, through which he played a decisive role in popularising the Indo-Arabic number signs. Adam Ries's most important places of activity were the merchant city of Erfurt and Annaberg in Saxony, a center of silver mining. Arithmetic skills were in demand here. Trade and mining were flourishing, the cities were booming, and anyone who wanted to become something at the beginning of the modern era had to master the merchant's arts. At the same time, advances in the natural sciences, which were disseminated thanks to the newly developed mechanical printing, increased the need for computing experts, computing capacity and mathematical knowledge. From then on, newly established arithmetic schools trained such experts, and the information was made available in textbooks and manuals.

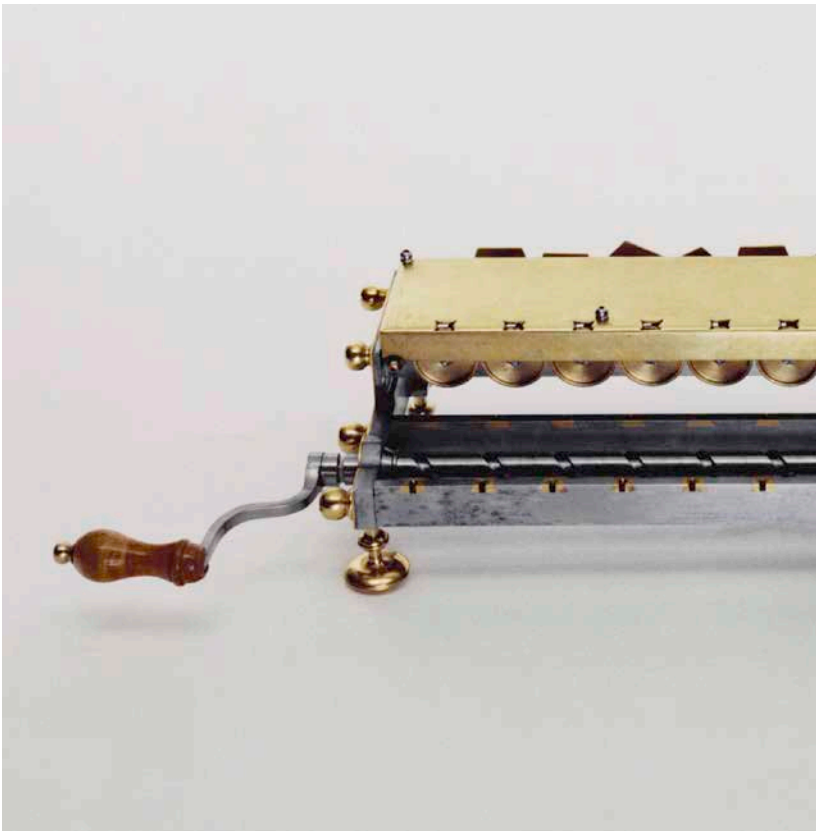


The English mathematician Charles Babbage (1791–1871) is considered the intellectual father of the modern computer.

Computational tools

In the everyday life of the merchant, the astronomer, the surveyor and the ship's helmsman, the focus was usually on application-oriented calculation. And it should be simple, fast and reliable. Until the end of the 19th century, when electrically operated punched card machines were successfully used for the first time in the US, people processed data by mental arithmetic, memorisation and with paper and pencil manually or with mechanical tools such as slide rules, typewriters or calculators.

Replica of the calculating machine designed by Leibniz, which was driven by a stepped drum (Deutsches Museum, Munich)

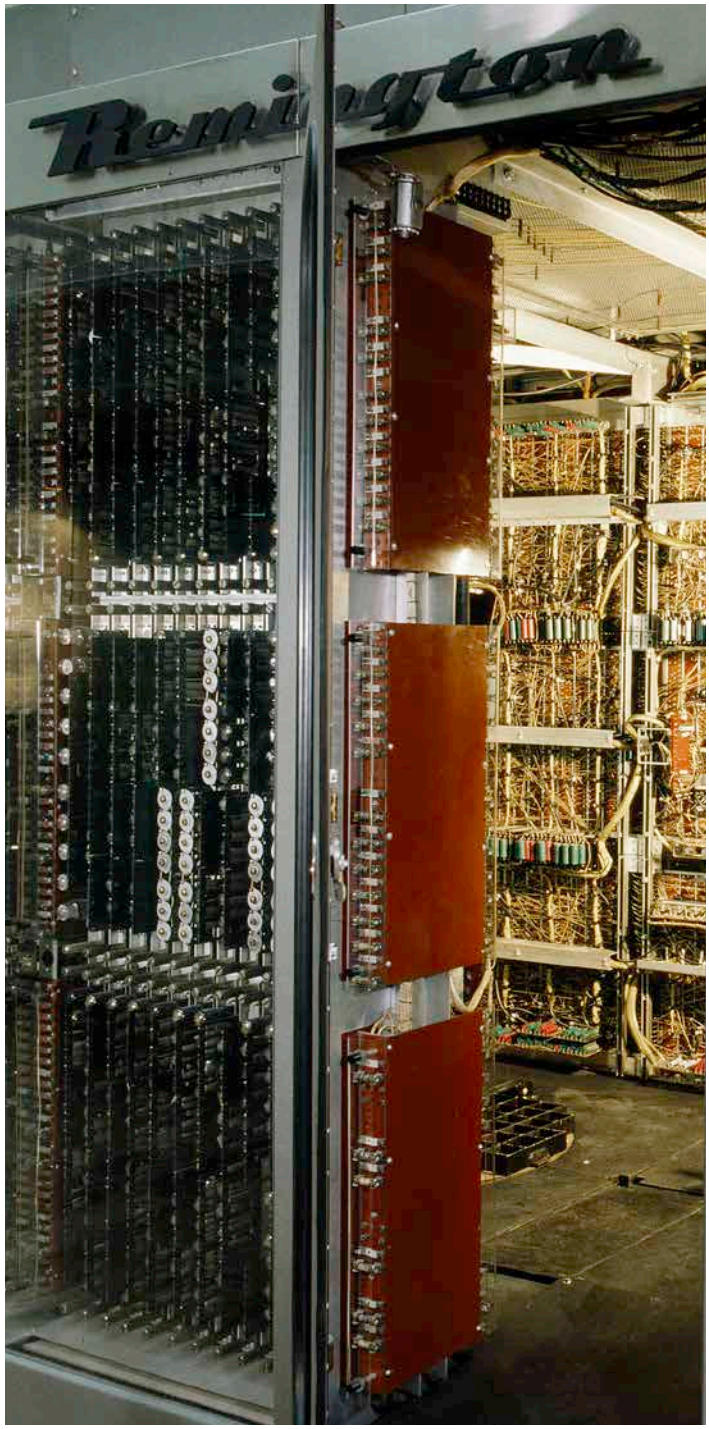


The gallery of pioneers in data processing is long. The (popular) scholarly descriptions of the subject often, depending on the national or political standpoints or the research preferences of the authors, set specific emphases and draw lines of tradition that run in different directions. From a contemporary point of view, the synopsis of these stories shows that the development of data processing was a major international project spanning centuries, whose main actors from Great Britain, France, North America and the countries of the German Empire and the Danube Monarchy sometimes cooperated, but sometimes produced innovations independently of each other.

"Mr. Babbage, if you put into the machine wrong figures, will the right answers come out?" There were many questions like these, asked by an honourable member of the English House of Lords that plunged Charles

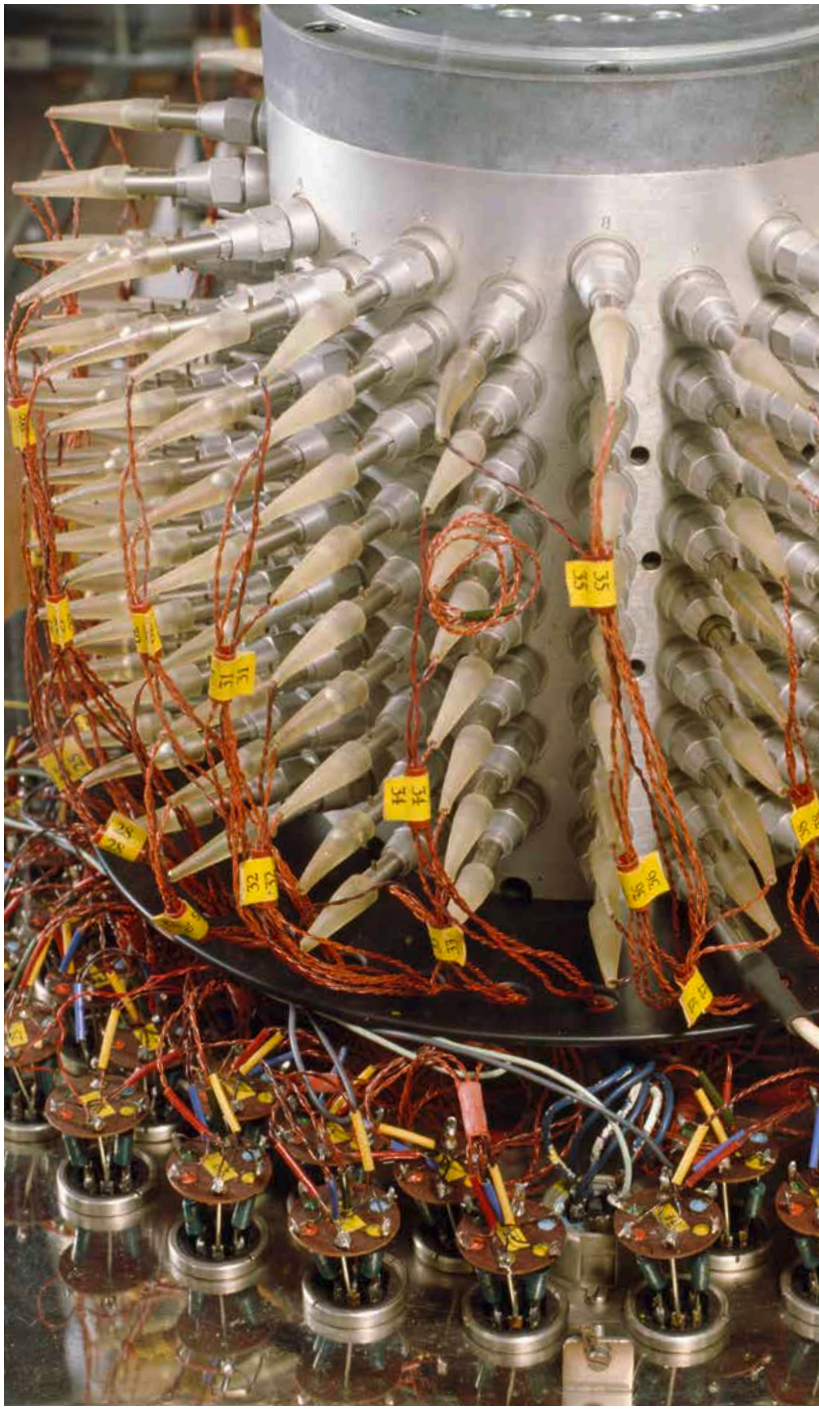
Babbage (1791–1871) into perplexity. For the work of the masterminds of the computer such as Babbage, Blaise Pascal (1623–1662) and Gottfried Wilhelm Leibniz (1646–1716), who saw themselves as philosophers and exact scientists, was repeatedly associated with sorcery, charlatanry and alchemy by their contemporaries out of a mixture of varying proportions of incomprehension, suspicion and fascination. Blaise Pascal, son of a tax inspector to the French king, constructed a calculating machine for his father at the age of 19, which became known as the "Pascaline". Similar to the calculating clock of Wilhelm Schickard from 1623, who is considered the inventor of the mechanical calculating machine, Pascal's calculating wheel was used to add and subtract six-digit numbers. The mechanism consisted of a ten-step gear wheel and a roller on which the numbers to be read were plotted in two rows. The Pascaline – like all similarly constructed calculating devices – suffered from the fact that the precision mechanics

of the time could not produce the gears with sufficient accuracy: Therefore, the mechanism often got stuck or moved on skipped, so that the apparatus worked inaccurately. Nevertheless, Pascal's invention attracted a lot of attention. The Enlightenment philosopher Denis Diderot ennobled it as part of the world's store of knowledge by having it described in the "Encyclopédie" and Pascal's sister Gilberte explained it precisely – albeit in an exuberance of pride in her brother – the nature of innovation and the public reaction to it: "this work was regarded as a natural miracle because a science which resides entirely in the spirit was thereby captured in a machine, and because the means were thus found to carry out all the operations of this science with absolute certainty, without using reason."[4]



Right: UNIVAC I was the first commercial computer. (Exterior shot of the facility).

Left: Konrad Zuse's Z3 is considered to be the first freely programmed computer, although it did not work with electronic tubes but with relay circuits.



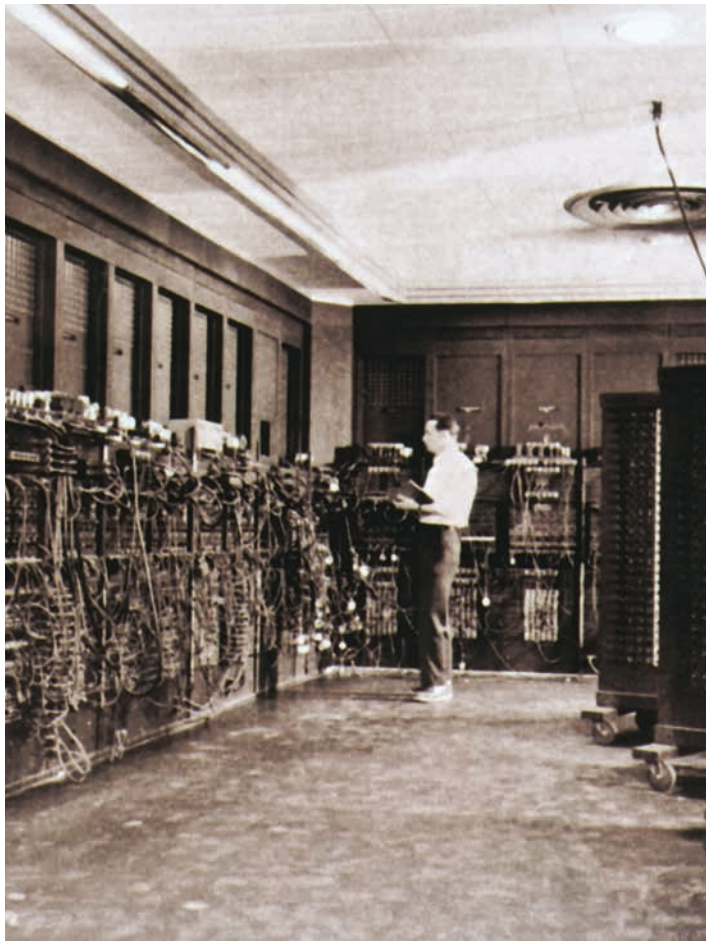
UNIVAC I was marketed by Remington Rand in 1951. It was developed by ENIAC pioneers Eckert and Mauchly. (detailed parts from the computer inside)

The calculating machine presented by the philosopher, lawyer and mathematician Gottfried Wilhelm Leibniz to the Royal Society in London in 1673 brought decisive progress. With the help of his stepped drum machine, all four basic arithmetic operations could be performed mechanically. The apparatus was driven by the stepped drum, a cylinder with toothed bars of different or staggered lengths, which was connected to a setting mechanism and the input keyboard via a mobile gear wheel. It was not until the 19th century that calculating machines of this type went into mass production in Great Britain.

The English economist and (insurance) mathematician Charles Babbage is considered by many to be the intellectual inventor of the computer, although his project failed in 1833 and the pioneers of electronic data processing in the 20th century did not directly follow up on his work. At great expense of public research funds, he attempted to build a so-called Analytical Engine. Having realised the project, it would have had all the essential components of the modern universal computer. The precursor to this was his difference engine, which could solve polynomial functions. The analytical engine, however, should do much more: Driven by a steam engine, data entry was done via punched cards, which Babbage was familiar with as a component of mechanical looms. The output unit was a printer and a bell. In addition, the machine should be able to punch cards and die-cut plates. Further central units were a calculator with a precision of up to 50 decimal places and a memory for up to 1,000 words. Babbage's visionary project failed due to internal squabbles, the barely calculable expenditure of time and money, and the insufficient accuracy of fit to fit the mechanical components produced by English industry around the middle of the 19th century.

The modern computer

Alan Turing could have done it: his biographer Andrew Hodges puts forward the thesis that he, the mathematician, cryptanalyst and logician, considered to be the inventor of the (stored-program) computer. Other names cited by Hodges are Konrad Zuse, Howard Aiken, John Vincent Atanasoff and John von Neumann.[5] Other authors are convinced that there is no single inventor of the computer.[6] Different strands of development in research, consistently linked to the people and projects mentioned, would eventually have led – sometimes



Right: ENIAC (1946) was an electronic computer built under contract to the American armed forces.

Left: Alan Turing (1912–1954), mathematician and cryptanalyst, invented the model of the machine and developed the foundations of computer technology. In the picture on the far left next to friends of his running club boarding the bus.

even without the researchers knowing about each other – to build a functioning computer. What is obvious, however, is that the invention was in the air in the 1930s, blowing over Britain, the US and Germany. The Second World War then accelerated the research because it gained political importance for the Allies' fight against National Socialist Germany. In 1938, in his parents' Berlin flat, the civil engineer Konrad Zuse constructed Z1, an electrically driven mechanical computer with punched tape input. Isolated and financed by his own funds, he continued his research and thus built Z3 in 1941, which is considered a milestone in the computer history and the first freely programmable, program-controlled computer. However, it was not an electronic digital

The EDVAC (ca. 1949) was capable of treating programme instructions as data to be processed, encoding them in binary and storing them in memory.

computer, but a relay-controlled calculating machine. Alan Turing also initially worked at Princeton and Cambridge as an individual researcher. Against the background of the Munich Agreement in 1938, which drastically demonstrated Nazi Germany's aggressiveness to the world, Turing agreed to work on a government project to decode German messages. During the war, he was part of the group of scientists working at Bletchley Park in Great Britain to decipher the codes of the German Lorenz SZ42 encryption machines and the legendary Enigma. To do this, they needed a computer with special capabilities. Inspired by Turing's models, the mathematician Max Neuman succeeded in designing a technical solution that enabled the Colossus to be built. Colossus was the first stored-program electronic tube computer. It consisted of 2,500 electron tubes and processed 5,000 characters per second. Until 1979, however, the world learned nothing about Colossus, as the entire project was to be kept secret. Thus, in 1946, the clients had all copies built in Great Britain destroyed and forced all those involved in the project to maintain secrecy. At the same time, they made any commercial use impossible.

At the same time, a research team led by John Eckert and John Mauchly was working at the University of Pennsylvania on behalf of the American armed forces on a technique to calculate the trajectories of projectiles. The group was only able to complete the project after the end of the Second World War in 1946. Nevertheless, the computer they constructed made history: The Electronical Numerical Intergrator and Computer, abbreviated ENIAC, was the first digital general-purpose computer that, like Colossus, worked with tube technology. It mastered the four basic arithmetic operations and could determine square roots. For an addition or substraction it needed 0.2 milliseconds, and it could calculate a square root in 0.3 seconds. Although ENIAC proved notoriously error-prone, the army adopted the computer for ballistic calculations.

In the final phase of the work, the Hungarian mathematician John von Neumann had joined the ENIAC project and had immediately begun to conceive new designs. He dealt theoretically with the logical structure of the computer, and in the process wrote his book "The Computer and the Brain" and organised a discussion group which prepared a review of problems and deficiencies of ENIAC. From this he derived the plans for his new computer projects EDVAC (Electronic Discrete Variable Automatic Computer) and IAS, which were designed as universal computers according to the "von Neumann architecture". Consisting of the elements memory – on which both data and

programmes are stored – arithmetic unit, control unit, data input and output, computers were created that could solve the most diverse tasks. A universal computer constructed in this way turned into a special computer as soon as a programme was loaded that provided the path to solving a special task. The structure of the computer was thus finally decoupled from the task to be solved; only the programme stored on the memory specified the task currently to be executed. Neumann's circuit concept, which he described in the unpublished "First Draft of a Report on the EDVAC" proved a revolutionary invention and formed the basis for the structure of most computers in use today.[7]

Commercial use of the computer

Unlike the British government, which had all documents and all copies of the Colossus built in Great Britain destroyed, the US authorities allowed the commercial exploitation of the publicly funded technology. The two inventors, Eckert and Mauchly, founded a computer company that was commissioned by the top American calibration authority to build a version of the computer that could be used for civilian purposes. However, the Eckert-Mauchly Computer Corporation soon ran into financial difficulties, so Remington Rand took over the company and was thus able to market the first commercial computer. UNIVAC became synonymous with computers and passed its first test in 1951: like Herman Hollerith's punch card machine once did, the US Census Bureau now used the computer for the nationwide census. In the following year, the broadcaster CBS succeeded in predicting the results of the presidential election accurately with the help of UNIVAC I. Computers had thus become a commercial product – albeit an expensive one – that only a few institutions could afford. With a unit price of 1.5 million US dollars, even universities were reluctant to buy the mainframe, so that Remington Rand sold a total of only 46 UNIVAC I units.[8] Especially in the competition for customers in public

The "Von Neumann architecture" was named after the Hungarian-American mathematician John von Neumann (1903–1957).

administration and in companies, Remington Rand had difficulty competing with IBM's electronic data processing systems. Banks and insurance companies or corporations such as General Electric, which was one of the first UNIVAC buyers, managed their huge stocks of customer and employee data on punch cards and were hesitant to respond to Remington's offers because UNIVAC could not yet process punch cards at first.

Until the late 1960s, computer companies produced for a limited clientele limited to research institutions, universities, public authorities and well-funded companies. The market was shared by a few American companies, and some European electrical companies such as Siemens, Telefunken, ICT and Bull also tried to get in on the act. Ultimately, however, IBM set the technical standard and had a dominant economic position through generations of computers with names that sounded good to experts, such as IBM 701, 704, 650, 7090, 1401, 1620, System /360. The following decade, however, marked

Design model for the CAL TEC calculator from Texas Instruments from 1966/67. The calculator was never marketed.

the first turning point before the triumph of the PC in the 1980s made mass computerisation the object of everyday use in the workplace and in private life. The market expanded after 1970, when gradually the work processes in large parts of the economy, even in medium-sized companies, were changed in such a way that office work could be done with IT to a rapidly growing extent. Companies such as Philips, Siemens, Olivetti, Nixdorf or Digital brought smaller and thus affordable office computers and terminals onto the market and developed new user-friendly software solutions that also allowed small companies that could neither maintain computer centers nor more expensive technical staff to mechanise their operating processes. Now the use of data processing developed into a political issue. A wide-ranging discussion ensued about the extent to which the computer would change the world of work and society as a whole, and what social changes it would bring about. Problems such as unemployment, skills shortages, data protection, alienation from work and illness could arise.

Since 1970, computers have gradually entered the homes, pockets and everyday lives of private users. If you wanted to own and operate a Canon, Sanyo or Sharp portable calculator, you had to pay around 400 dollars in the beginning. All of these devices were built in Japan. They contained microchips from Texas Instruments and Intel. With the pocket calculator, computer manufacturers cleared not only the commercial but also the psychological hurdle on the way to private consumers, especially the youthful group of buyers. Generations of students worked with classics like the TI 30 and its relatives, as well as calculators from HP or the Casio fx series.

At the turn of the year 1974/1975, the magazine "Popular Electronics" announced in an article on microcomputers the birth of the Altair 8800, which can be considered the first personal computer, and offered it for sale for 397 dollars. The author enthused that the Altair was not a "souped-up pocket calculator", but a "full-fledged computer whose performance could compete with commercial minicomputers". The computer, which the manufacturer IMTS supplied as a kit, lacked essential elements that are indispensable today, such as a screen, keyboard and fixed memory. Nevertheless, the idea of the personal computer called tinkerers and entrepreneurs to the scene and the breakthrough was not long in coming. With the slogan „Byte into the Apple", the electronics retail chain Byte Shop advertised the Apple I in 1976, which contained a circuit board built by Steve Jobs, Steve Wozniak and Ronald Wayne. The first Apple computer costed 666 dollars and proved to be a slow seller. Nevertheless, the Apple II followed in 1977 and brought the turning point. With this model series, which was produced until 1993, Apple rose to become the dominant manufacturer of personal computers in the following years. The Apple Macintosh, the first – albeit initially very expensive – popular PC with a graphical user interface and mouse, and its operating system Mac OS, developed into a cult object, – especially in the 1990s, when Apple was in crisis and the market was increasingly dominated by Microsoft. The home computers from Commodore and Sinclair from the 1980s and the PCs, which in the following decade also entered offices, universities, schools and private households in portable versions as laptops and displaced most other office machines, finally turned the "small" descendants of the ENIAC into a mass product. All PCs, servers and mainframes are becoming more powerful every year. Computers now influence almost every area of human life and work. There is no end on the horizon for this development.

The top-speed computer Cray I from 1983 was mainly used for scientific purposes and cryptanalysis because of its special performance.

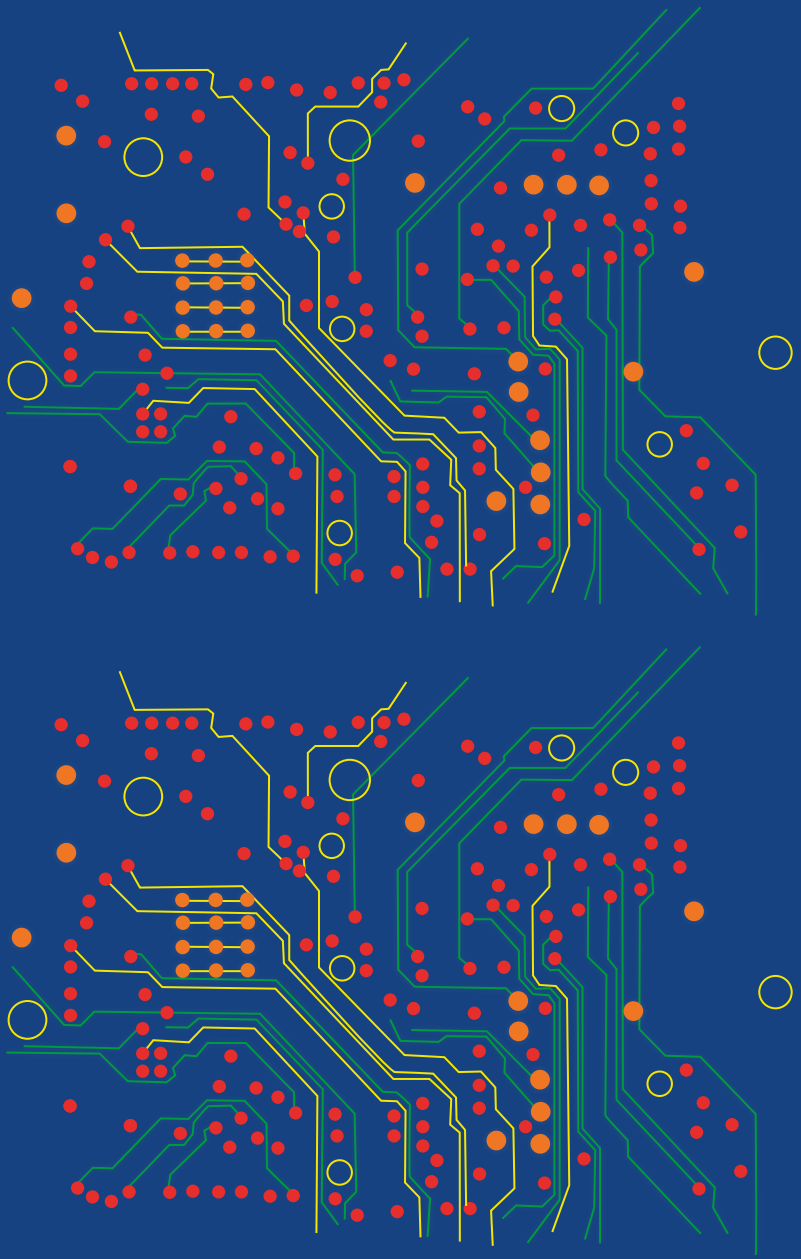
Networking

In the beginning there was the Sputnik shock. In order not to fall further behind in the competition between East and West, the US government founded ARPA three months after the successful launch of the Soviet satellite Sputnik in October 1957. This agency, which was under the Ministry of Defence, was to coordinate and promote research in the fields of weapons and space. Reforms in education, national research programmes and the founding of NASA followed. In the summer of 1969, the US scored a spectacular victory in the race of the systems when the manned space shuttle Apollo landed on the moon and television broadcast the event live. Less than three months later, on 10 October 1969, Leonard Kleinrock made the first ARPA-Net connection. He logged on to a computer at Stanford from a computer at the University of California at Los Angelos, or at least he tried to: The letters "L" and "O" of the word login were transmitted, at "G" the connection broke down.[9] The transmission of the two letters from host to host marks an epochal turning point in communication technology. The ARPA-Net grew in the following years and connected universities and research institutions. From a system that was created to guarantee a functioning communication network in the event of a nuclear war, a worldwide civilian network for the exchange of data developed under the new name of Internet.

The 1990s were marked by economic and cultural globalisation, for which the Internet, especially in the form of the hypertext system World Wide Web, became symbolic. Within a few years, the number of connected computers and users grew at a rapid pace. For example, the number of internet users in Germany rose from 6.5 % in 1997 to currently around 86 % (2019). Around four billion people worldwide currently use the internet, around 2.3 billion of them live in Asia. The spectrum of possible uses extends far beyond popular applications such as e-mail, private and commercial Internet trading, information research, games, chat programmes, conference techniques, television, picture, film and music exchanges and telephony and has long since become unmanageable.

But like all technologies, the internet is not a sphere of endless growth and freedom from danger. When the so-called dotcom bubble burst in 2000, the internet-based industry received a painful economic downturn. The explosion of unwanted spam and the problems with computer viruses and Trojans are putting a strain on Internet communication and reducing its efficiency. Finally, the Internet has also become a political space where political information, discussion and debate take place, but where disinformation, espionage, ideological propaganda and censorship are also carried out and war is waged.[10] (GM)

All on the web: Close-up of a data distribution system for Allianz networks.



2

Mechanisation at Allianz: Typewriter, Adrema and punch card

The insurance office from 1900

Around 1900, the insurance office was a place of manual labour. The insurance officers stood at standing desks and their most important task was to write out the policies in beautiful handwriting. The work involved in creating the policy, such as calculating new insurance rates, writing premium invoices and debiting deposits, was largely technology-free and extremely time-consuming. They thus did not differ significantly from the way they worked in the mid-19th century. Little is known about the equipment and working conditions in the Allianz offices. One exception is the description by Rudolf Hensel, a member of the Allianz Board of Management, from 1930. It describes the practice of administration and organisation until the beginning of the 1920s: Although Allianz's business had grown year after year and was financially first-class, the company appeared to him to be administratively and organisationally retarded. The administration was tailored to the small circumstances of the beginnings and there were no uniform processes in the organisation.[1]

As a result, the record keeping worked with cumbersome register system consisting of main registers, supplementary and cancellation registers, monthly registers, etc. "No one knew what for, because this thick weave, dating from the 18th century, was only there, it was not needed" Policy issuance was also a highly complicated business. The policy had to go through many steps, from application to concept to fair copy, and had to be laboriously revised, munged (matched) and collated (checked) before it was assigned a number and sent to the accounts department. From there it was then delivered to the agents. The policy forms and especially the documents were handwritten, which required the hiring of more and more new employees as the volume of

In the 19th century, writing was still mainly done by hand in the typing pools. The typewriter only became established in the 20th century.

business grew. An example may illustrate this: "(...) thirty to forty employees in the house have nothing to do but issue premium receipts. Machines were only available at Allianz for correspondence."

Filing was also relatively cumbersome: The papers were filed horizontally in iron filing cabinets that could hold files in a wide range of formats from octavo to folio. Since the beginning of the 20th century, the work in the insurance office had gradually changed. However, there were major differences between the various insurers. Some of the later Allianz Group companies used the new office technology much earlier than Allianz itself. While work at Allianz was still

carried out according to the traditional pattern until the 1920s, the upheaval in the offices had long since begun in other companies at that time: For example, "Providentia, Frankfurter Versicherungsgesellschaft", which was taken over by Allianz in 1926, was already using modern communication technology around 1900. In its new business building on the Taunusanlage in Frankfurt, it had already installed in-house telegraphy, telephones and a clearly arranged registry.[2]

The Allgemeine Deutsche Versicherungsverein (ADVV), which merged with Allianz in 1927 as the Stuttgarter Verein, was particularly progressive. In 1892, the Board of Directors was already discussing the purchase of the fourth typewriter. At that time, the purchase cost of a machine was 427 marks, which was as much as the annual salary of a female typist.[3] In the 19th century, acceptance problems and costs still meant that employers were initially

The Central Register of the Allgemeine Deutsche Versicherungsverein in Stuttgart (ADVV) with wall-high filing cabinets

reluctant to start buying the new machines. But progress could not be stopped. With the typewriter, the women came to the insurance offices. Here, too, the ADVV was a pioneer: As early as 1890, 40 out of 100 office staff were female, and by 1900 the number of women had increased considerably: Besides 400 employees, 200 women worked. For the company, they had a decisive advantage: they were inexpensive workers with monthly salaries of 35 to 55 marks, in contrast to the men with an average of 160 marks.[4]

Since 1909, all employees were allowed to work in a seated position, which had been prohibited until then, with a few exceptions. In the typing rooms, on the other hand, the chair had already moved in with the typewriter.[5]

Based on a collection of photos from the ADVV dating from 1900 to 1920, the working conditions and technical equipment can be reconstructed relatively well. They show, for example, that typing groups were already working in machine rooms here before 1914, that there was a telephone exchange and that calculating machines were used in the register department. The social impact of office automation was manifold. Employees were made redundant. Simple tasks could be speeded up with the help of machines, such as the work of copyists and typesetters from the typewriter.[6] In the long term, structures changed: new professions emerged and the age structure of the white-collar workforce changed – younger and female employees were hired who worked more cheaply.[7] The typewriter was the first working tool in the modern office world that made rationalisation possible.[8] The changes in technology, company organisation, working methods and the training system were – even before 1914 and increasingly in the Weimar Republic – perceived as a challenge and a threat by many German white-collar workers.[9]

Modernisation was not an issue at Allianz until 1920. While women had already gained a permanent place in the offices of many insurers before the First World War – in 1907 they accounted for 7 % of the workforce[10] – this development had passed by Allianz. So it is not surprising that the impetus for employing women at Allianz did not come from within. The trigger was the labour shortage during the First World War. Previously, there were no women working at Allianz … : "(…) until then, women's work, which at that time still had the odium of 'cheap labour' attached to it was unknown at Allianz."[11] However, they were needed from 1914 onwards to replace the 326 war veterans.

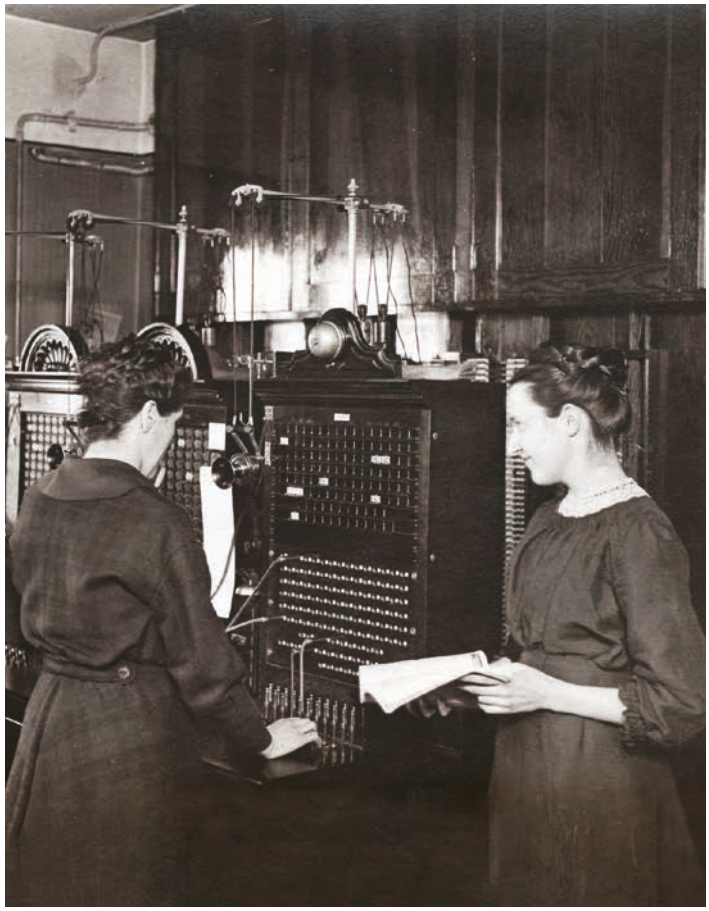
It was not until after the First World War that it became clear, even within the company, that Allianz, which "was in first place in the German insurance industry, had lagged behind administratively and organisationally."[12] – The most important reason for this can certainly be found in the management team and management style. The chairman of the board, Paul von der Nahmer, a banker, and his colleagues had only partially allowed Allianz to participate in the progress of work organisation and administration. Thus, although Allianz

was first-class in 1918 in terms of business volume and financial engineering, the administration was still at the level of the early years. Kurt Schmitt, the new Chairman of the Allianz Board of Management since 1921, initiated the urgently needed changes together with the head of the organisation, Hans Hess. The new team developed a whole bundle of ideas and measures to completely modernise the business in the following years. External influences such as inflation intensified the need for rationalisation.

View of a typewriter room at the ADVV before the First World War: Only a few insurers had already introduced the first typewriters before 1900.

Between 1921 and 1925, a phase of rationalisation of work processes followed. Through organisational measures or mechanisation up to automation. In this way, the saving of human labour in particular was to be achieved. Rationalisation was not understood as a one-off event, but as a process.[13] The first phase of rationalisation was accompanied by decentralisation and the founding of the Allianz Group in 1922, as well as the reorganisation of the sales force.[14]

In the years 1921 to 1925, the old working methods were also replaced by the modern way of operating with office machines. A few examples will illustrate this development: This changed the way insurance policies were drawn up, which eventually consisted only of the printed General Insurance Conditions

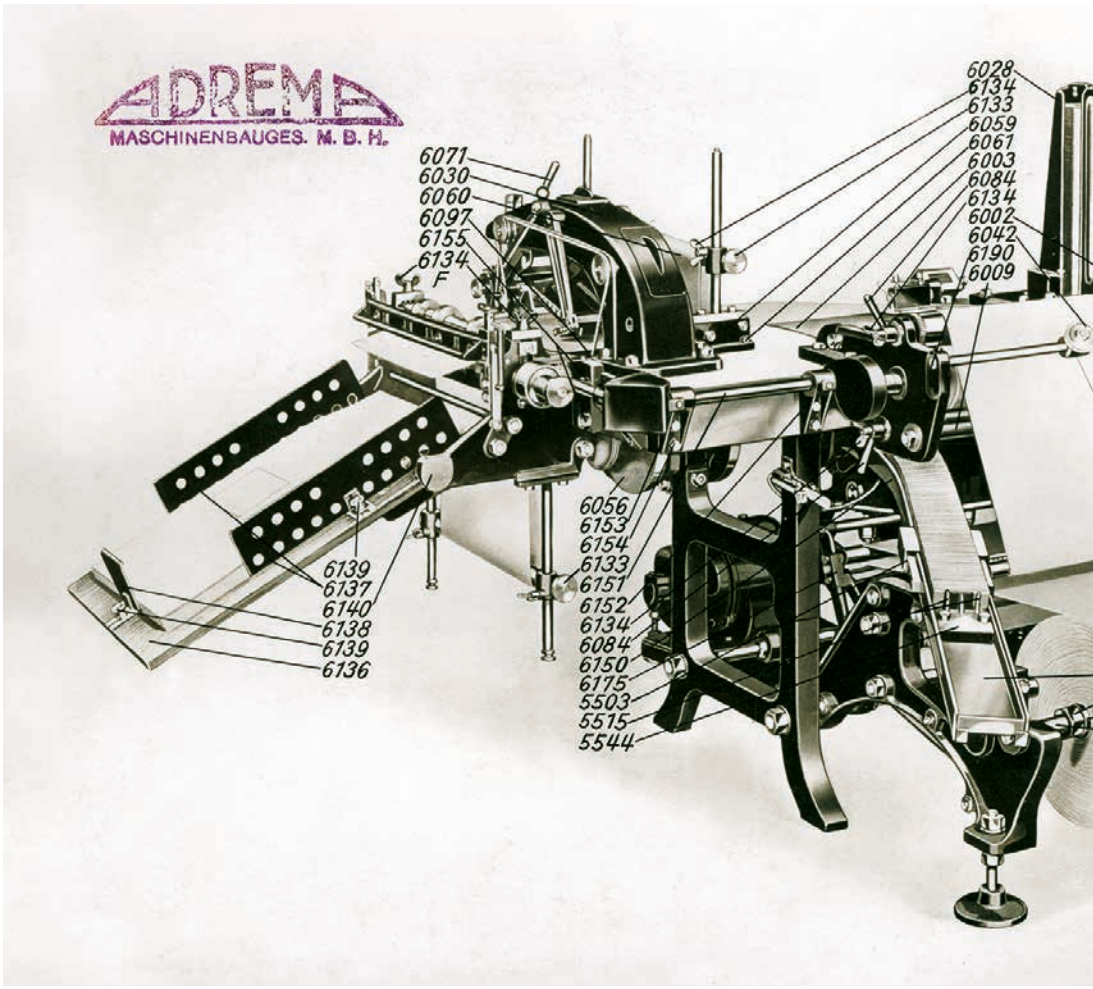


Right: the telephone exchange of the ADVV before 1914.

Left: In the register department, one of the first calculating machines was in use at the ADVV.

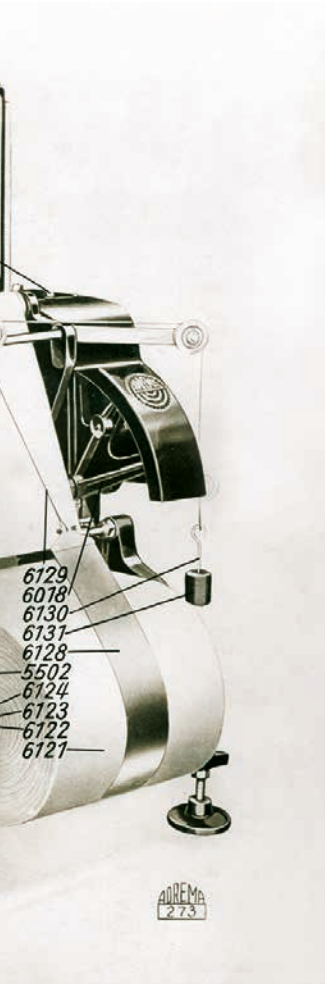
and the insurance application. The policy was now a no-nonsense printed piece, typewritten – not penned as before – and produced in a fifth of the time. The processing was then in the hands of an employee who acted on his own responsibility. The cumbersome revising and collating that involved several people was no longer necessary.

A second major change was made to the old register system. The register books gave way to flexible stock cards created with the help of a matrix. This was minted on an Adrema. Adrema stands for "Automatic Addressing System", consisting of embossing and printing machine, which made the register superfluous and saved considerable time.



A third example is the simplification of bookkeeping through the use of the accounting machines, which were able to produce the register sheets and the correspondence with the change notices to the agents in one operation.

Fourthly, rationalisation changed the production of risk statistics. The previously handwritten counting cards were now replaced by punch cards of the Hollerith system. Counting and tabulating machines were used for this purpose, which brought considerable time savings. Statistical calculations that previously occupied an "entire office" for a year could now be handled by one person in a fortnight.



The printing press from Adrema produced the monthly premium receipts at Allianz from the mid-1920s onwards, replacing the work of the typing pool.

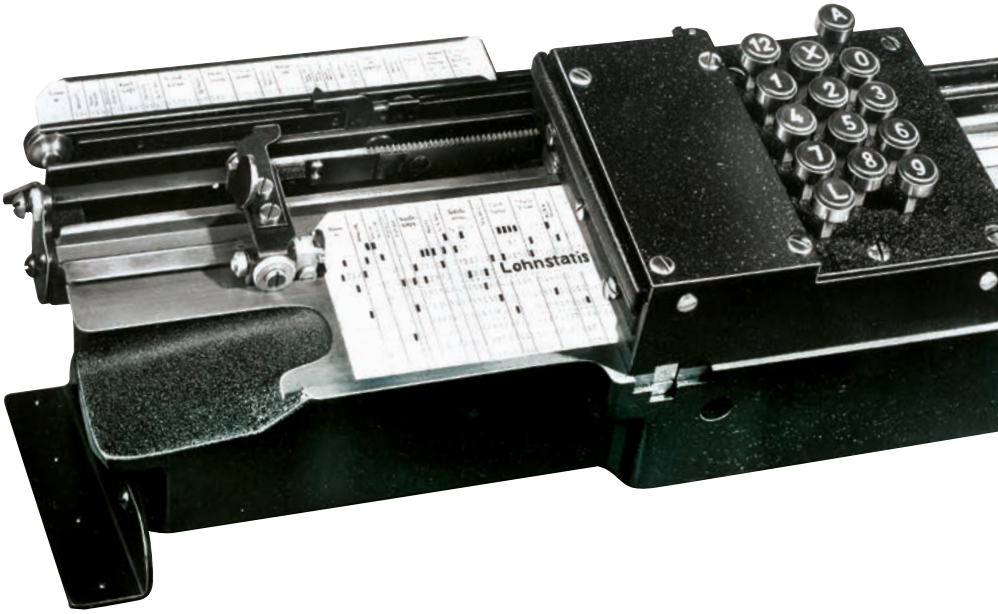
The above-mentioned conversions (decentralisation, simplification and mechanisation of work processes) and the reduced volume of work after the currency changeover and the end of inflation resulted in considerable restrictions on the Allianz's administrative apparatus. In 1923, almost 2,800 employees were laid off, many of whom had to be temporarily supported or provided with pensions due to the difficult economic situation.[15] After reducing the administrative apparatus, which had become bloated during the inflationary period, and the rapidly growing insurance portfolio, as well as standardising the organisation, administrative costs fell noticeably by several million Reichsmarks in the 1926 business year. The positive effects of the conversion to machine operation – i.e. further cost savings through business simplification – were not expected until the 1927 financial year, as the introduction of the machines themselves incurred considerable costs.[16] The contemporary commentary on this was: "At the end of this period, around 1925, Allianz had grown into an American format. American were (...) (both) their scope of business (...) and their working methods."[17]

Hollerith machines at Allianz Leben in the 1920s and 1930s

Machines that can write, count and calculate have existed in Allianz offices since the beginning of the 20th century. The devices were mostly used independently of each other in various parts of the company, were operated manually and worked relatively slowly.[18] The processes in the office were so varied that automation was initially only used in those areas where information of the same type was available in many cases, which could be standardised and processed according to a uniform principle. In addition to the Adrema method, punch cards were used for statistical work at individual offices of Allianz from the beginning of the 1920s and were extended to bookkeeping

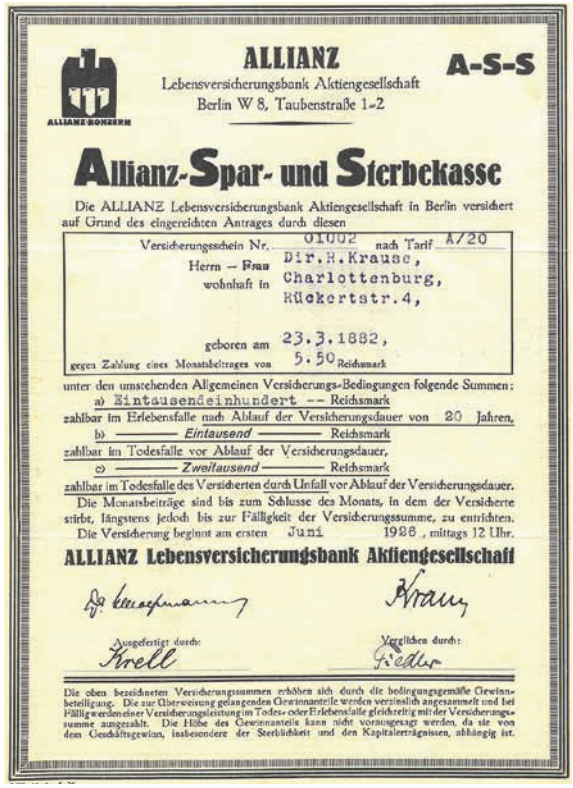
Left: with the help of the hand punch card device, statistical data has been transferred to the punch card since the 1920s.

Right: the second ASS policy from the year 1926.



a few years later. The introduction of punch card technology in Germany was significantly promoted by the rationalisation trend of the 1920s.[19] It was not until 1948 that Allianz succeeded in systematically integrating punch card technology into established work processes.[20]

The areas of application of the punch card were successively expanded: Allianz Lebensversicherungs-AG (Allianz Leben), founded by Allianz in 1922, first used punch cards to process policies in 1926. The punch card machines of Deutsche Hollerith Maschinen-Gesellschaft mbH (Dehomag), a subsidiary of IBM, were set up in the Berlin headquarters. With the introduction of the small life insurance policy on 1 June 1926, punch card machines were also purchased for policy processing. The Allianz Spar- und Sterbekasse – ASS for short – was introduced alongside the large-scale life insurance in order to now also be able to serve the mass business. The idea was to be able to offer life insurance for funeral expenses to a wider range of customers. Due to the



ALLIANZ
Lebensversicherungsbank Aktiengesellschaft
Berlin W 8, Taubenstraße 1-2
A-S-S

Allianz-Spar- und Sterbekasse

Die ALLIANZ Lebensversicherungsbank Aktiengesellschaft in Berlin versichert auf Grund des eingereichten Antrages durch diesen

Versicherungsschein Nr. 01002 nach Tarif A/20
Herrn – Frau Dir.R.Krause,
wohnhaft in Charlottenburg,
Rückertstr.4,

geboren am 23.3.1882,
gegen Zahlung eines Monatsbeitrages von 5.50 Reichsmark

unter den umstehenden Allgemeinen Versicherungs-Bedingungen folgende Summen:
a) Eintausendeinhundert -- Reichsmark
zahlbar im Erlebensfalle nach Ablauf der Versicherungsdauer von 20 Jahren,
b) ——— Eintausend ——— Reichsmark
zahlbar im Todesfalle vor Ablauf der Versicherungsdauer,
c) ——— Zweitausend ——— Reichsmark
zahlbar im Todesfalle des Versicherten durch Unfall vor Ablauf der Versicherungsdauer.

Die Monatsbeiträge sind bis zum Schlusse des Monats, in dem der Versicherte stirbt, längstens jedoch bis zur Fälligkeit der Versicherungssumme, zu entrichten.
Die Versicherung beginnt am ersten Juni 1926, mittags 12 Uhr.

ALLIANZ Lebensversicherungsbank Aktiengesellschaft

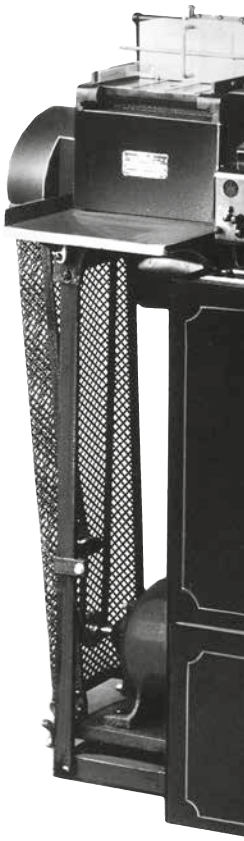
Ausgefertigt durch: Krell
Verglichen durch: Fiedler

Die oben bezeichneten Versicherungssummen erhöhen sich durch die bedingungsgemäße Gewinnbeteiligung. Die zur Überweisung gelangenden Gewinnanteile werden verzinslich angesammelt und bei Fälligwerden einer Versicherungsleistung im Todes- oder Erlebensfalle gleichzeitig mit der Versicherungssumme ausgezahlt. Die Höhe des Gewinnanteils kann nicht vorausgesagt werden, da sie von dem Geschäftsgewinn, insbesondere der Sterblichkeit und den Kapitalerträgnissen, abhängig ist.

relatively low insurance premiums of two to four marks per month, the policies had to be administered cost-effectively – if they were to remain profitable.[21] Moreover, since the information on the ASS policies was manageable and uniform, it made sense to use the punch card to simplify work processes. In the period from 1926 to 1930, all the ASS insurance policies were centrally administered. After the establishment of a punch card department at Allianz Leben in Stuttgart, the southern German stock could be transferred from Berlin to Stuttgart. As early as the beginning of 1930, preparations began in the mathematical department to set up a punch card department for the small grocery business based on the Berlin model. For this purpose, a staff member of the mathematical department in Berlin was trained to operate the new machines. He was then one of six employees in the new punch card department. It was set up in the same way as the Berlin main office to enable the close interlocking of the work, as well as the further processing of the mathematical maps in Berlin. The Stuttgart Hollerith Department was

equipped with a tabulating machine type IIIB, a sorting machine, two card punches and a card checker.[22] Along with the Reichsbahn, Allianz was one of the first users of this technology in Germany: type IIIB had first been delivered to Europe by IBM in 1924 and by the end of the year 116 tabulating machines of this type had already been rented out.

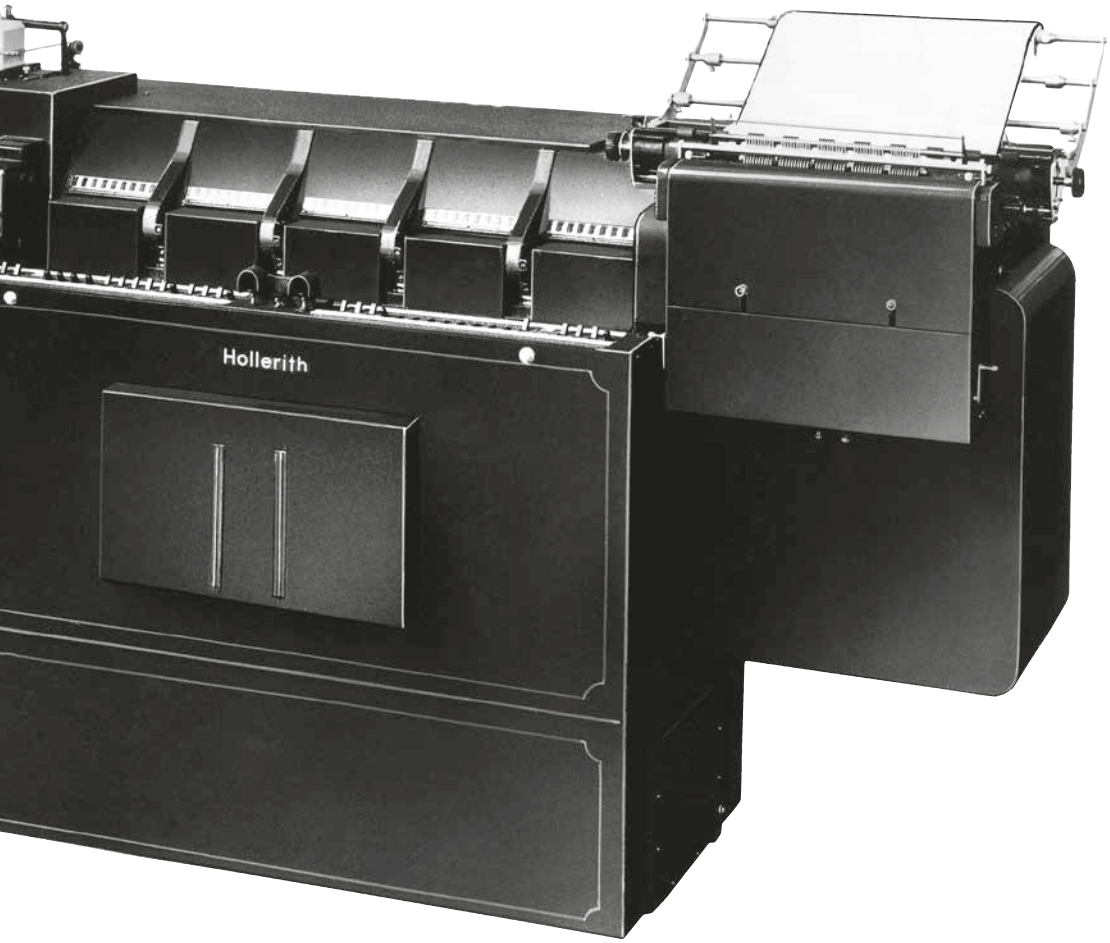
The second model used in Stuttgart a few years later was the tabulating machine type "BK", which came onto the market in 1933. The special machine was given the abbreviation "BK" as an abbreviation for bank because it was developed by Dehomag especially for the needs of banks. For this purpose, the company converted the type IIIB tabulating machine into a bench version. With the new machine, Dehomag offered a solution for many computing operations in the banking business. The first user was the Darmstädter und Nationalbank (Danat), which set up a new accounting organisation in 1924. The BK made work considerably easier, as it could balance automatically whereas the balance signs, which were so important for the calculations, had to be reworked manually beforehand.[23] The BK also had the advantage, thanks to the exchangeable control panels, that the machine's work only had to be interrupted briefly. Flexible control panels could be removed and replaced with ones that were already programmed for other important operations. This meant that the connections did not have to be re-plugged for each operation, as was the case with the integrated control panel. With the predecessor models of the BK, this had led to the machines being at a standstill for up to two hours.



The BK was an in-house development of Dehomag, which had originally only had the task of organising sales for the American parent company. After the First World War, the company's field of activity was limited to Germany, but they worked on the basis of German patents to develop new machines for the German market. Since the mid-1920s, Dehomag was able to develop complete tabulating machines itself. This included e.g. the special model "BKZ" – "Z" stands for interest – which had the possibility to calculate interest. Insurance companies also profited from this and, with the help of the BK, extended the punch card procedure to accounting.

The successor model to the BK – with eight counters working in parallel – was the D9, which, as the name suggests, already had nine-digit counters. At Allianz Leben, it was the forerunner of the "legendary" D11, which was equipped with a further increase in the number of counters and correspondingly larger

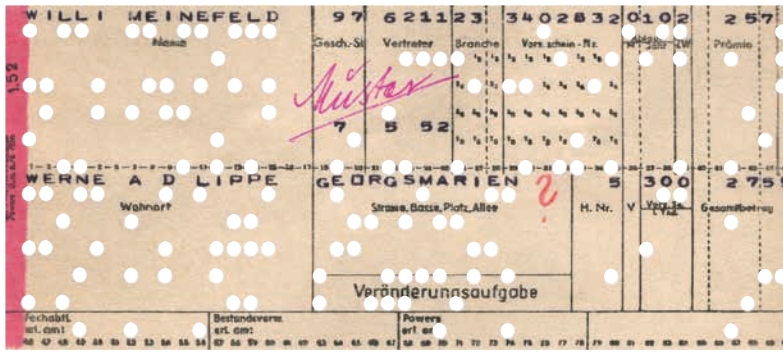
The tabulating machine BK, developed for banks, was used in accounting at Allianz.



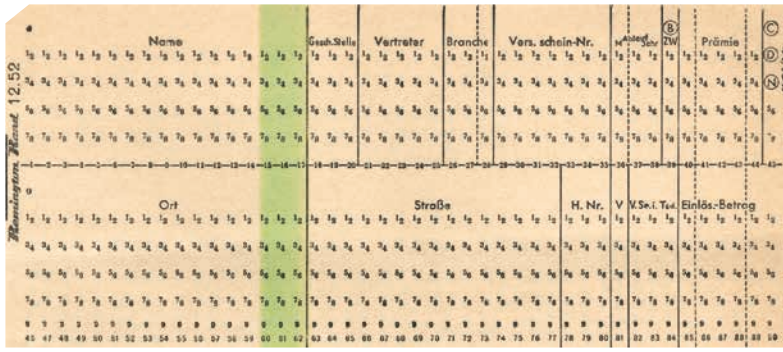
The hand punch card device was used to transfer statistical data to the punch card (film print).

capacities for processing the policies. The D11 represented a further and final development of Dehomag. In retrospect, it can be seen as a universal machine of its time, which had a very wide distribution and a long period of use: It became a mass article. The units were on the market in the period from 1935 to the mid-1950s, which was made possible by extensions to the models. It was used at Allianz Leben from around the end of the 1930s and was also used in the other divisions of the Group in the 1940s and 1950s.[24]

Typical of the rapidly developing Allianz Group in the 1930s was the coexistence of technical equipment from competing manufacturers of punch card machines. Depending on the tradition, different technology was used at the locations in Germany: the Hollerith machine D11 at Allianz Leben and the Powers at Frankfurter Versicherungs-AG. Powers GmbH was a German subsidiary of the Powers Accounting Machine Cooperation, which merged with other companies to form Remington Rand in 1927. The two largest suppliers, Dehomag and Powers, shared the market for punch card machines in Germany after the First World War.[25]



45-digit punch card. The conversion from the 45-digit to the 90-digit punch card took place at Frankfurter around 1950.



90-digit punch card from Powers.

A special path: Powers punch card machines at Frankfurt until 1950

In 1926, at the same time as the introduction of Hollerith machines at Allianz, a "Powers Working Group" was founded at Frankfurter, which was initially attached to the accounting department and then expanded to become the Powers Department. For this purpose, two female employees of the Burglary-Theft Department (ED) were trained on the punch card machine to produce premium invoices and follow-up premium lists by machine. Gradually, the stocks of other branches could also be taken over.

After the takeover of Frankfurter Versicherungs-AG by Allianz in 1929, two different systems clashed in the company: Since Allianz worked with the Adrema method, this technology was initially favoured and the Powers machines – with the exception of a tabulating machine and a card punch for statistical work – were largely displaced.

From 1935 onwards, the Frankfurt branch and the Allianz branch worked together in a joint operation, which marked the beginning of a closer interlocking of the two organisations. Nevertheless, after an Intermezzo, the Powers machine was given another chance. The decision for a "Frankfurt special path" in terms of punch card machines, which was to be followed until 1950, was taken in January 1937: The new head of the punch card department in Frankfurt, Otto Tix, obtained the approval of the general management of Allianz to buy the latest Powers model in January 1937.[26] The device manufactured in the 1930s by Powers – together with Siemens since 1934 – was an automatic Powers card puncher that was coupled with the Cordt-Universal calculating machine.[27] Unfortunately, there are no references to the model actually used in Frankfurt, nor the motives for choosing Powers' punch card machines. Presumably, the purchase of the Powers machine in 1937 was possible because it was compatible with a variety of different machines and systems – especially with Adrema.[28]

During the Second World War, when staff shortages arose due to conscription, punch card machines were used in Frankfurt for rationalisation: In the Central Register and the Correspondence Department, work was specifically transferred to the machines in 1940 in order to decrease the staff. 40 employees could thus be deployed elsewhere in the company.[29] Even after the war, the personnel savings were still considered the most convincing proof of the rationalisation effect of the punch card machines. In the course of the bombing war, Allianz relocated the most important departments and files at endangered locations, such as Berlin or Munich, to the surrounding area. From Frankfurt, the punch card machines and the staff were moved to alternative quarters in Bad Nauheim and Friedberg. After the end of the war, the new head of the punch card department, Mr Heyse, continued the cooperation with Powers started by his predecessor.

As early as 1948, a new Remington-Powers tabulating machine was purchased thanks to Marshall Plan funds.[30] It involved a number of changes: for addresses, there was a 3-fold scanning and the previously 45-digit punch cards were extended to 90 digits, a procedure that had already been introduced by Powers in 1931.[31] The contract management data, previously documented by Adrema machines, were now transferred to punch cards. In 1950, Frankfurter then entered into a contract with IBM for the first time, which included the rental of three D11 tabulating machines for the accounting

department.[32] At the same time, Powers GmbH tried to sell its Model III punch card machine system to Frankfurter, consisting of 20 alphabet sight punches type 306-4, three tabulating machines type 3100, three summing punches type 311, six automatic labelling machines type 312-1, three duplicating comparison machines type C315 and three sorting machines.

Powers tabulating machine
from 1928.

The contact person for organisational issues and head of operations inspection, Heinz-Leo Müller-Lutz, favoured the idea of setting up Powers facilities in the Hamburg, Cologne and Stuttgart branches alongside the existing Hollerith departments for register management and later accounting. The Powers system was then to replace the Adrema machine in premium printing. The combination of both systems would have made it possible to re-punch the 80-digit IBM cards into 90-digit Powers cards thanks to the new duplicating punchers.[33]

For a short time, it looked as if Powers would be established alongside Hollerith technology at all locations. This approach was not pursued further after Heinz-Leo Müller-Lutz moved to the General Directorate in 1950. His work in the sales department in Munich and, from 1954, as head of the newly founded Business Administration Department (BWA) was oriented towards the entire group and was characterised by aspects of rationalisation and ideas for standardising technical equipment and locations. For the people of Frankfurt, unification after 1954 meant the end of the "special path": All stocks in Frankfurt were converted to IBM punch card procedures on a branch-by-branch basis[34] as early as the beginning of the 1960s with the respective punch card departments in the Allianz branches. The creation of the so-called punch card communities between Allianz and the Frankfurter initially provoked considerable resistance.[35]

Before the punch cards can be inserted into the D11 and its accessories, they must be carefully checked and aligned.

Hollerith technology at Allianz Versicherungs-AG until 1950

During the 1940s, in addition to the head offices of Allianz and Allianz Leben, Kraft Versicherungs-AG (Kraft) was also equipped with Hollerith machines from Dehomag, as the correspondence on prices and rental contracts at the turn of the year 1944/45 shows. The technical department of the accident insurance in Berlin, for example, had one tabulating machine and two sorting machines.[36] Unfortunately, it is not possible to determine from the surviving sources when Allianz started working with Dehomag to this extent and which machines were in use in the 1940s. However, it stands to reason that during these years Allianz worked with the D11 tabulating machine, the latest model at the time. The D11 was delivered in Germany from 1936. It had greater storage capabilities than its predecessors – though not yet an integrated memory – and was capable of all four basic arithmetic operations. The significantly improved capabilities made them interesting for use in property as well as small and large life business. These features and the wartime shortage of new equipment made it a perennial favourite at Allianz.

The Hollerith machines were only partially available to the company at the end of the war because the Reich Ministry of Armaments and War Production had immediate access to them. At the turn of the year 1944/45, for example, Kraft was asked to hand over its sorting machines to AEG Fernmeldekabelfabrik (AEG's telegraph cable factory). Nevertheless, Allianz and its subsidiaries renewed the rental contracts with Dehomag and continued to pay rent for the requisitioned machines. They were convinced that the rental relationship would only be interrupted and that the machines would be returned after AEG had finished using them – i.e. after the end of the war. This shows how important the plants were for the company's work. During the war, Dehomag, whose business model was based on leasing its equipment, found itself caught between the interests of the Nazi state, which needed the machines to support its war economy, and those of its customers. In 1943, Armaments Minister Albert Speer had created the possibility for the civilian and military agencies of the Nazi state to commission the Dehomag and Powers companies with the preparation of reports and statistics, and even to carry out requisitions if necessary, with the decree regulating the "organisation of machine reporting".

The tabulating machine IBM 421 was groundbreaking for the work of Allianz's punch card departments because it could write numbers and letters.

As a result, the companies lost high rental income, with the consequence that some of the IBM subsidiaries faced bankruptcy at the end of the war and the collapse of Germany led to a widespread dismantling of the German office machine industry.[37]

As a result of the intensifying antagonisms between East and West, no new devices were initially allowed to be imported into Germany after 1945. IBM president Thomas Watson, who had an interest in a strong German subsidiary, created a basis for Dehomag's business in the western zones with used machines destined for scrapping that he delivered to Germany. In the 1950s, a new multinational manufacturing system for Western Europe emerged from these structures, based on the modernisation and refurbishment of used machines. Without this system, computer technology would not have been conceivable as a mass product after the Second World War.[38] Allianz – unlike Allianz Leben – only began systematically building up a comprehensive punch card system in 1948. It was able to purchase new equipment for various branches in 1949. This included the extended D11d tabulating machine as the heart of the equipment.

The correspondence on the newly negotiated framework agreement with Deutsche Hollerith, now known as IBM, shows that the "complete set of machines" was rented for each of the branch offices (ZN) in Cologne and Hamburg, and individual machines for the ZN Stuttgart and the Bayerische Versicherungsbank. In 1949, for example, the Hollerith department of the ZN Hamburg rented a D11 tabulating machine with eight counting and seven writing units, as well as additional indexing plates, a sorting machine, a motorised repeat punch, two magnetic punchers and three motorised hole checkers, and a folding machine.[39] All branches switched from Adrema to punch cards in 1950. This initially included the areas of address management and premium invoicing. After that, "premium invoice printing, agency accounting, cost and claims accounting, payroll accounting and numerous statistical tasks for the field service as well as portfolio and risk statistics for individual insurance classes were transferred to punch cards."[40]

This had become possible through the acquisition of the first alphanumeric printing punch card machine.[41] This is probably the IBM 404, as the IBM 421 only came onto the market this year. In addition to the four basic arithmetic operations, the IBM 404 was also capable of letter printing. Thus, for the first time, a machine could write and calculate the premium invoice including the address. In 1953, the new IBM 421 tabulating machine finally even made it possible to issue motor vehicle policies. Allianz Leben once again led the way with its own policies. The company had already founded a Hollerith department in 1950 under the leadership of Heinrich Kehren, which included 50 employees.

To expand its machine park, Allianz ordered several IBM 404 special tabling machines in the summer of 1951. Delivery bottlenecks led to the fact that not the new model, but an extension of the previous model D11 was delivered. Although the D11d2 could not write, it had an additional keyword function and offered the possibility of inserting a code number instead of a number, for example, instead of the number "9", the code number "ED" for the burglary-theft branch. Like the previous models, the tabulating machines were supplemented by sorting machines and other additional equipment.[42]

In 1955, the expansion of the punch card apparatus was essentially completed. The punch cards were used decentrally at the six branches in Berlin, Munich, Stuttgart, Cologne, Hamburg and Frankfurt, each of which had

a larger punch card department with three to four tabulating machines and the additional equipment at that time. In the departments, about 400 employees administered 10 million insurance contracts on more than 50 million index cards.[43] The cards prepared by the six regional punch card departments were only statistically evaluated at the General Directorate.

The ever-increasing number of data and policies, the refinement of statistics, the fluctuation of stocks and tariff changes made the continuous expansion of the machine park and staff numbers necessary. The limits of the punch card

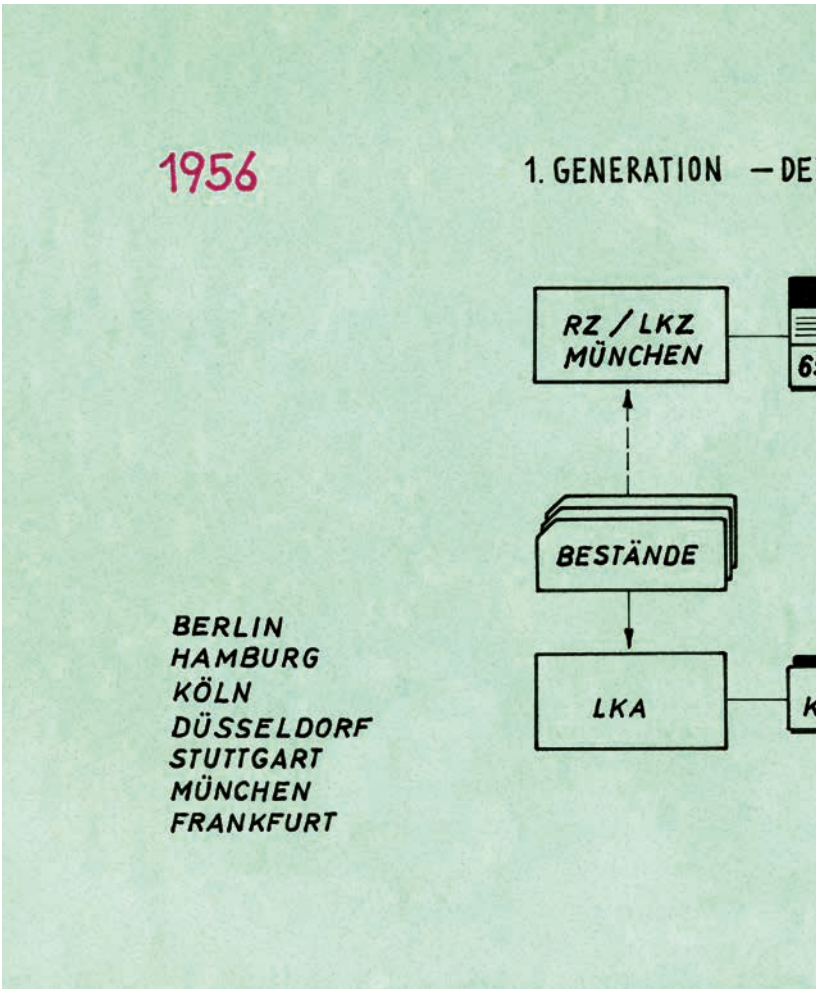
In the punch card departments of the branch offices, the data from the insurance applications were transferred to punch cards.

process were becoming apparent: in the comprehensive statistical surveys, the inadequacy of the system became noticeable in growing processing times. The consequence was that the results were available with such a time delay that they were no longer useful for current use or even for forecasts. In the 1950s, it finally became clear that electronic computers would complement and replace electromechanical equipment in the foreseeable future.[44]

The electronic mainframes offered memory and enabled considerably shorter processing times. This also promised to solve the complex new tasks at

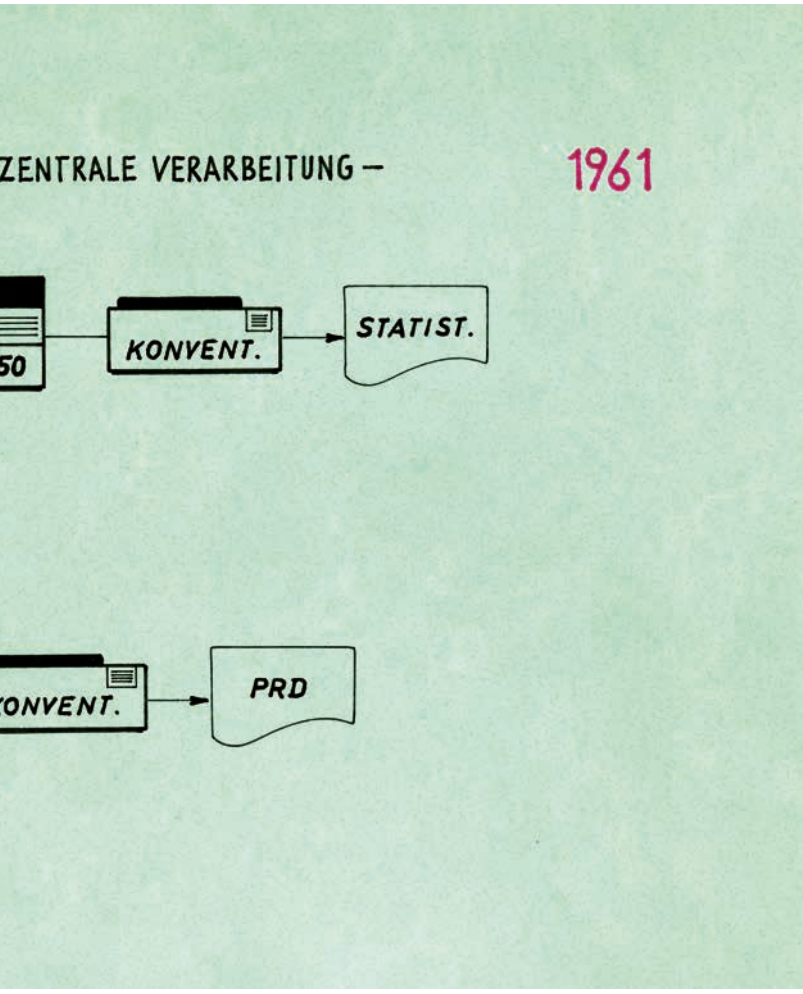
Allianz. In the 1950s, more and more companies in the Federal Republic of Germany used punch card systems. Allianz also had more and more work processes done by machine. The expansion was again carried out – as in the 1920s – from the point of view of business rationalisation. In addition, the findings of the now established scientific business administration were used for a new start.[45]

In retrospect, the years 1926 to 1950 are referred to as the "Adrema era", while after that one can speak of the "age of punch cards", when punched card technology could also be used to print type and thus the work of the Adrema

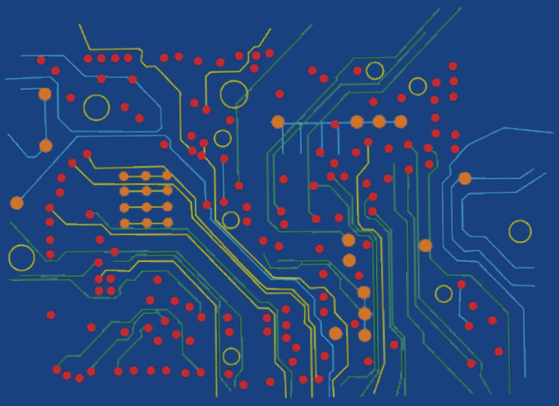


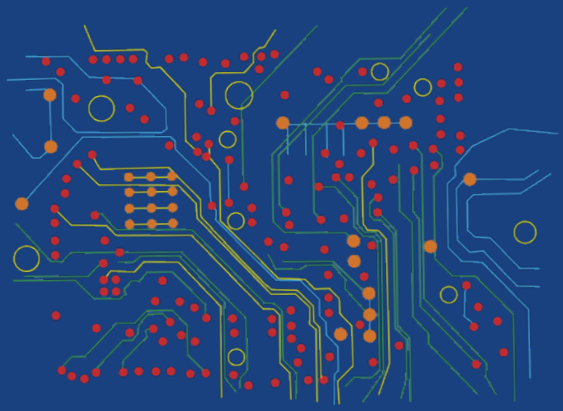
machines could successively be taken over by the tabulating machine. In 1949, the conversion from Adrema to punch card technology began. The complete replacement of the Adrema technique was achieved in May 1959 with the introduction of Central Direct Collection.[46]

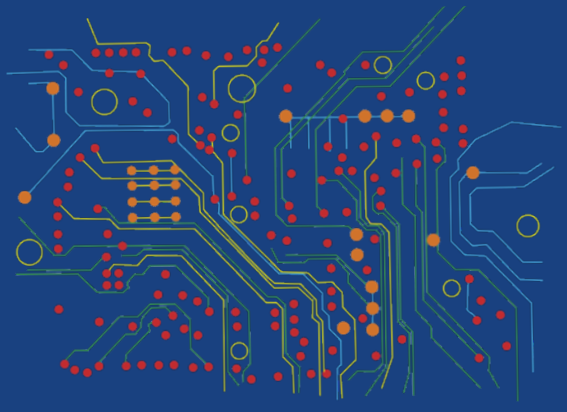
In order to meet the demands of processing ever – increasing amounts of data, storage capacities were finally needed that only electronic data processing could offer it. The age of electronic data processing began at Allianz with the introduction of systems such as the IBM 604 (1955) and especially the IBM 650 (1956). (BE)



The decentralised processing of punch cards was since the first half of the 1950s in the seven branch offices. The punch card center in Munich evaluated the cards statistically, a task that was taken over by the IBM 650.







3

IT at Allianz since 1956

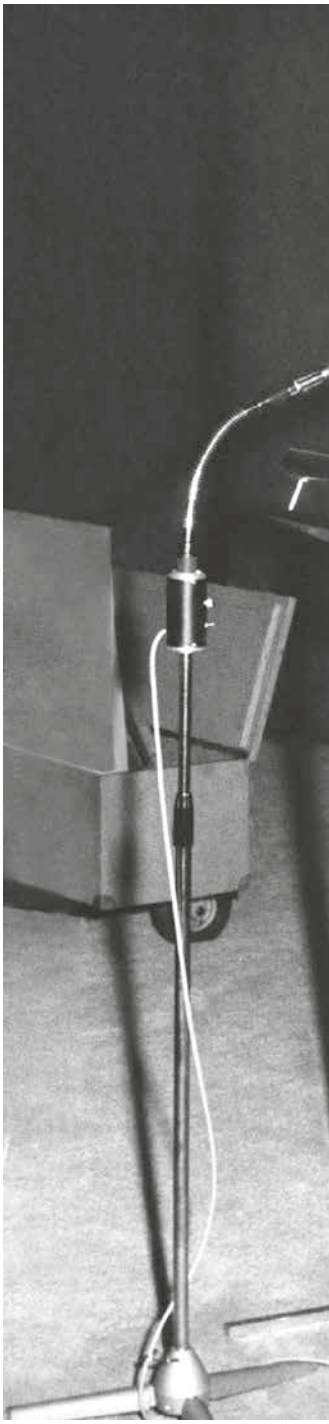
In 1956, Allianz ventured into the age of electronic data processing. This was an important decision for the entire further development of their work organisation. Generations of mainframes and groundbreaking IT solutions have since made Allianz a completely different company. The entire period of over 60 years can be described as a development process consisting of four phases.

The first phase is a time of fundamental reflection on the benefits and possibilities of the new technology in the company and was a time of experimentation. Everything was about a mainframe computer, the IBM 650. A computer center with two programmers was set up for it in Munich.

The second phase, which began in 1961, is characterised by a comprehensive penetration of large parts of the company with the new technology. Mainframes with rapidly increasing computing power and storage capacity gradually enabled the electronic management of all data generated in the company. As a result, job profiles changed, disappeared completely or were newly created. Towards the end of the 1970s, many employees had come to take the use of computers for granted.

The third phase begins at the beginning of the 1980s and is characterised by individualisation. Gradually at first, then very quickly in the 1990s, the employees in the Allianz office and field service took on more and more tasks, which they solved individually on the PC, which became standard equipment.

The fourth phase since 1997 describes the worldwide merging of PC-technology with mainframe technology to form a completely new infrastructure: a group-wide, international network. Using uniform software applications, internet communication and mail systems, Allianz employees, customers and shareholders can go about their business and communicate with each other anywhere in the world.



1956–1960: The first computer of Allianz

"All tasks connected with the punch card procedure and the block policy will be transferred to a new, independent department of the General Directorate with effect from 1 March 1954, which will be called the Business Management Department (BWA). The Business Management Department is also responsible for operational planning and for rationalisation measures of all kinds". With these words, the founding of the BWA was announced in a management circular dated 22 February 1954. It quickly became apparent that the new department was entering uncharted territory with its tasks. All the technical innovations of the post-war years had brought only partial changes, as they were largely introduced single-handedly by individual sectors, departments or branches. What was missing, however, was a fundamental and systematically elaborated solution for the overarching issues, especially as the situation was aggravated by the fact that uniform organisational foundations had been largely destroyed by the war and the post-war period. This was already stated in the BWA's first annual report (1954/55): "At the beginning of the work, therefore, it had to be noted that within the uniform framework there is a variety of different working methods and workflows".[1]

Dr Heinz- Leo Müller-Lutz during his speech at the celebration of the 15th anniversary of IT at Allianz on March 1, 1971.

Heinz-Leo Müller-Lutz, employee of the organisation board (sales) in Munich, became Head of BWA. He could look back on experience from his time as Head of Sales at Frankfurter and shaped the working style of the new department. Project-related teamwork in small working groups and obtaining the necessary know-how outside the company, e.g. through study trips, were completely new approaches at that time for a changed, effective and

Punch card department of Allianz in Munich at Bayerische Versicherungsbank (BVB).

time-saving way of working. As Otto Ladner, one of the four working group leaders, recalls in retrospect, this was probably the formula for the success of the new department, whose effectiveness was already visible in the first few years in the conversion of filing in the registries and the introduction of organisational desks and dictation machines.[2]

Otto Ladner (left) allows himself to be shown the latest IBM tabulating machines at various American companies, including the Allstate Insurance Co., the State Farm Mutual and at the IBM factory in Poughkeepsie in the US state of New York.

The BWA comprised four working groups: Heinz-Leo Müller-Lutz was responsible for fundamental issues and inter-company cooperation, Otto Ladner for the topics of block policies as well as office technology and space issues, and Dr. Schmitz for internal work processes, performance values and dictating machines. Otto Tix was initially in charge of the punch card department in Munich together with Hans-Willy Schäfer, as well as coordinating with the other locations.

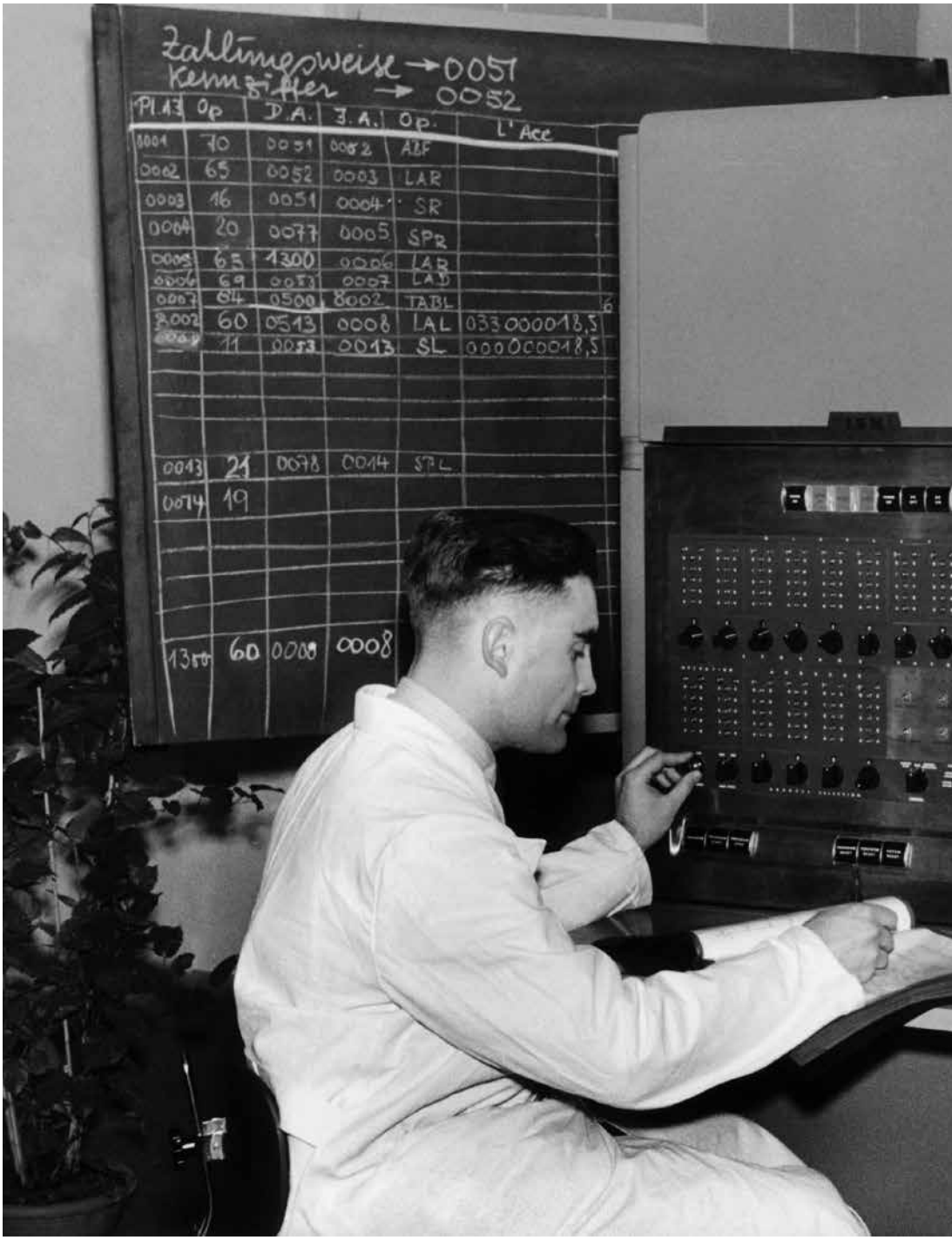
After the department was set up, the first thing to do was to take stock of the work processes in order to achieve simplification, cost reduction and, ultimately, to maintain competitiveness. The result was clear: more efficient policy administration and thus cost-saving work performance would only be achieved with the help of technology, and a standardisation and simplification of processes by means of technology was urgently needed.[3] As early as 1954, a working team of BWA staff and punch card specialists was formed, which later constituted itself as a permanent experimentation and planning group and examined the possibilities of using an electronic data processing system for Allianz. As early as the end of 1954, the working team proposed the purchase of an electronic computer.[4] Since there was little groundbreaking in the field of data processing for the office sector in Germany and there was hardly any

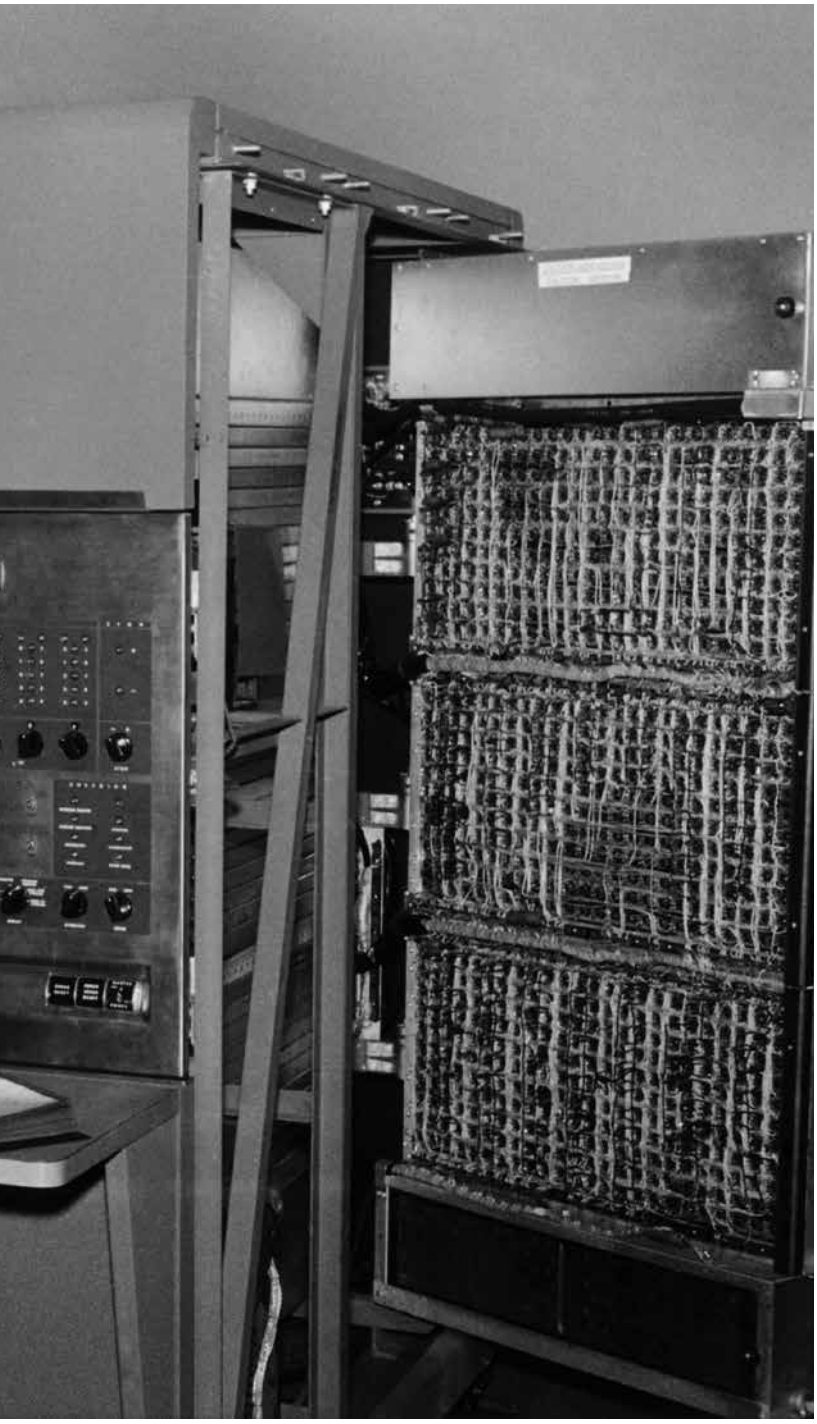
A stop on Heinz-Leo Müller Lutz's (right) and Otto Ladner's (center) study trip to the USA in October 1954: Here at American Casualty with Mr. Schaub (standing) and President Mr. Evens

experience with office and administrative rationalisation, attempts were made to learn from others instead of carrying out time-consuming experiments and tests.[5]

In order to get to know the computers already in use in administrations and companies in the US, the BWA leaders undertook study trips, a classic case of "best practice sharing". Several study trips in 1952, 1954 and 1959 led to the US, Sweden and Switzerland, the latter in order to complete the findings in European companies and to be able to better transfer them to German conditions.[6]

"In 1954, while searching for particularly powerful punch card machines, I (Heinz-Leo Müller-Lutz) saw the first electronic mainframe computers used for office work in the USA and heard about the term 'automation', which had just come into being at that time."[7] During this two-month trip to the US, Heinz-Leo Müller-Lutz and Otto Ladner visited 26 insurance companies as well as manufacturers of punch card and IT equipment. The result was a heavy box of information material, various individual reports and a 120-page final report. As a result, BWA staff felt able to assess trends in the development of the punch card sector in the medium term.


Zahlumspeise → 0051
Kennziffer → 0052
Pl.13 Op D.A. J.A. Op. L'Acc
0001 70 0051 0052 ABF
0002 65 0052 0003 LAR
0003 16 0051 0004 SR
0004 20 0077 0005 SPR
0005 65 1300 0006 LAR
0006 69 0053 0007 LAD
0007 84 0500 8002 TABL
8002 60 0513 0008 LAL 033000018,5
11 0053 0013 SL 000C0018,5
0013 21 0078 0014 STL
0014 19
1300 60 0000 0008



Hans-Willy Schäfer, the head of the Allianz data center in Munich, demonstrates the possibilities of the IBM 650.

The punch card sorter IBM 082 was used together with tabulating machines at Allianz until the end of the 1960s.

The decision for the IBM 650 was intensively prepared. One of the driving forces besides Heinz-Leo Müller-Lutz was the Chairman of the Board of Allianz, Hans Goudefroy. He was interested in mainframe computers as early as 1953 and obtained information from Prof. Dr. Alwin Walther of the Institute for Practical Mathematics at the TH Darmstadt about calculating machines with particularly large storage capacity. Walther was building a magnetic drum computer for scientific purposes. Based on these suggestions and the study journey, Allianz ordered one of the first IBM 650 magnetic drum computers from series production on May 6, 1955. On the same day, the decision was made to establish a computer center to prepare for the use of the new computer. Like the punch card department, the center was attached to the BWA as an independent unit. Hans-Willy Schäfer became the first director, a specialist in the field of data processing who also programmed the IBM 650 himself. Together with the planning group, he developed an operating system for the computer and carried out trial runs of the programmes.[8]

The IBM 650, built from 1953 onwards, became a great commercial success for the manufacturer. IBM sold about 1,800 units at prices ranging from US $200,000 to US $500,000 or leased the computers at a cost of about US $3,200 per month. The IBM 650 had a magnetic drum memory designed for 2,000 storage locations and performed arithmetic operations in the four basic arithmetic operations in milliseconds. Depending on the equipment of the computer, data could be entered either via magnetic tape or punch card. The system included other equipment such as punch card readers, punches and printers.[9]

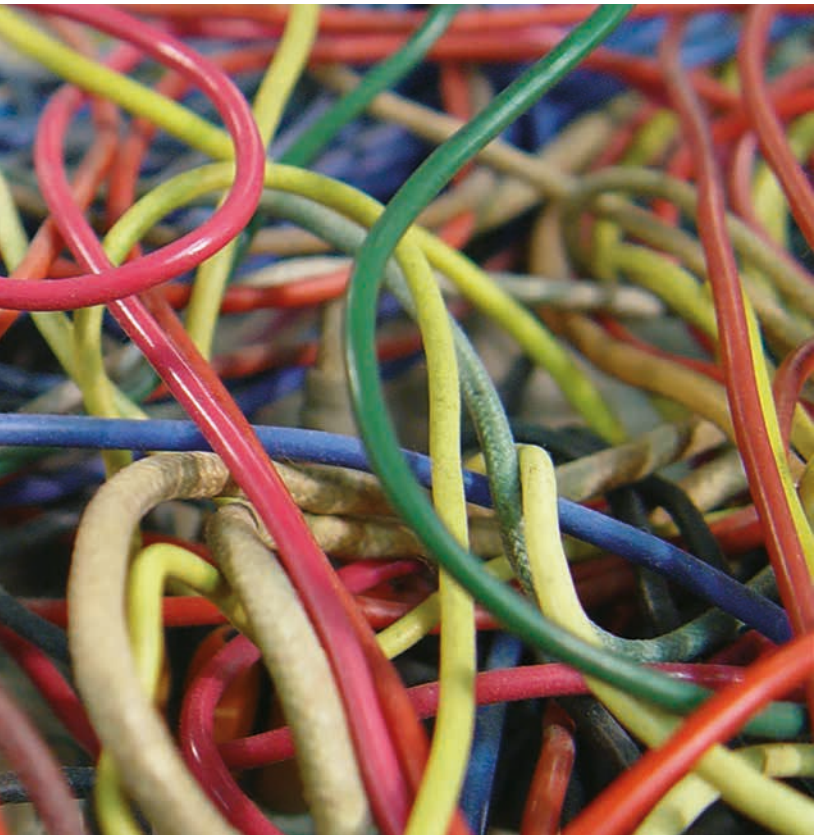
The age of electronic data processing began at Allianz on 20 January 1956. The IBM 650, which had just flown in from the US, was presented at a press conference. It was the first mainframe computer used by an insurance company in Europe. The device used in the Allianz data center was a magnetic drum computer that worked without magnetic tapes.[10] Punch cards were used for data input and output.

Eight days after the installation of the computer, work could begin thanks to the thorough preparations. Initially, the staff of the data center consisted of two, later four employees. By 1961, it had increased to six employees. Besides the director Hans-Willy Schäfer, programmers and operators worked on the machine. Almost 100 programmes were written for the computer, which

processed 80 million punch cards. The programmers took over the analyses and evaluations.

Compared to the earlier electromechanical punch card machines, the new computer was able to perform various tasks, which had previously been carried out as individual operations by several punch card machines, in one operation.

After 18 months, Hans-Willy Schäfer reported on his experience in compiling statistics in an essay entitled "Peculiarities of the use of electronic[11] computer systems in property insurance." It was already apparent at this stage that the IBM 650's 2,000-word memory was too small for individual applications, as they required more than ten times the memory. The capacities of the arithmetic-logic unit on the other hand, were not fully utilised. This complicated

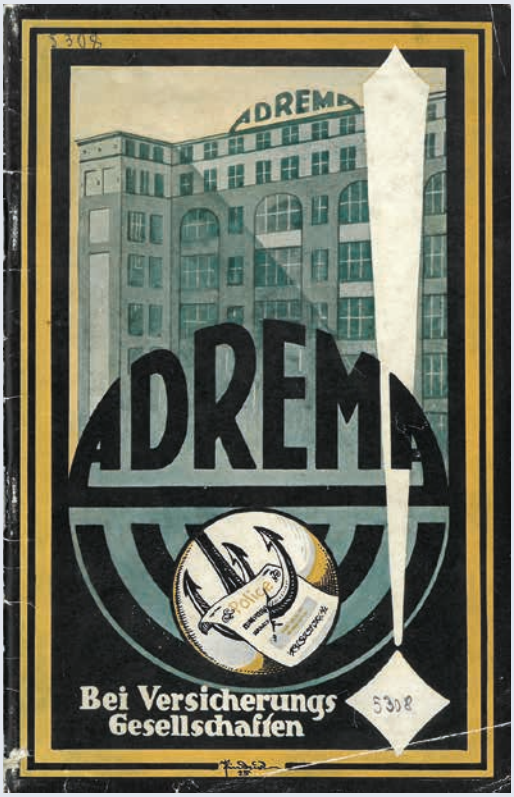


Detail of a control panel: Thanks to flexible control panels, tabulating machines could work uninterruptedly.

the programming and workflows and led to long evaluation times. At the beginning of the mainframe's work, the preparation of premium invoices was not yet a priority. This required only a small amount of storage space, but a large printing capacity.

Before the IBM 650 was finally "decommissioned" in 1961, it achieved one more special feat. Thanks to its capabilities, the automotive pricing changes of 1960 could be implemented with one tenth of the effort that conventional punch card devices would have caused.[1 2]

The use of electronic data processing fundamentally changed working-methods in the office and administration, especially in the area of registries, stock and file management, record keeping and data backup. Later, this also had an impact on workplace design. (BE)



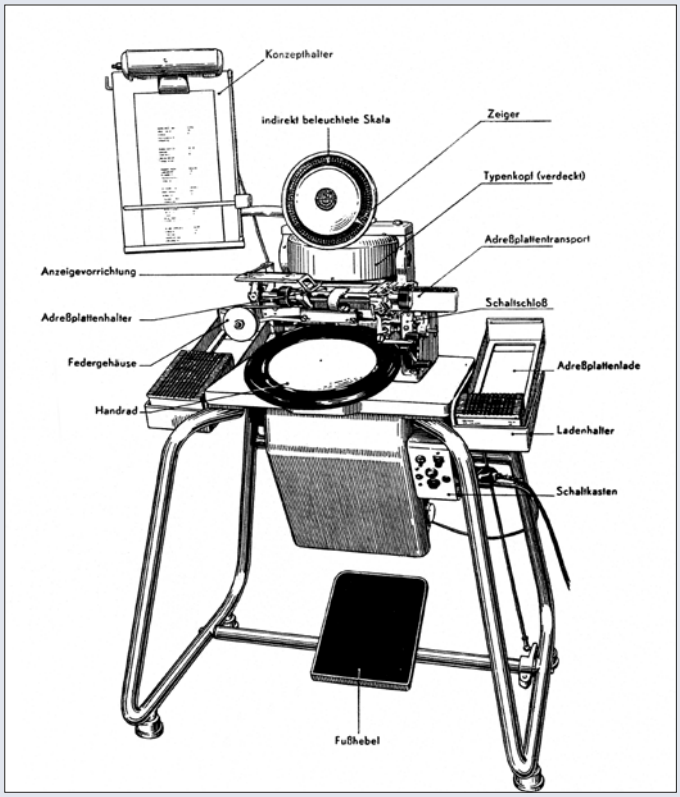
Adrema Maschinenbau GmbH advertising brochure with references for use by insurance companies, including Allianz and Allianz Leben.

Adrema

Before Allianz Versicherungs-AG introduced the Adrema technique at the beginning of the 1920s in the course of internal rationalisation (typing) machines were only permitted for a few jobs, such as correspondence.

Adrema made the long customary bound register books superfluous and replaced them with index cards. In addition, premium invoices and receipts could now be produced using the Adrema printing machine. This brought visible savings in working time: Initially, matrices were produced on embossing machines, which served as printing templates. After that, the premium receipts that used to be written by hand and due every month could be printed in a few days, whereas before a "whole office" had been busy for a month. Addresses and premium contributions no longer had to be laboriously transferred from the register book to paper. The next step in automation came in 1926 with the introduction of punch card machines at Allianz Leben. The new small life insurance policies (ASS) could only be administered cost-effectively using Adrema and Hollerith procedures.

How does Adrema work? The system consisted of an embossing machine and a printing machine. For each new ASS insurance application received, an Adrema plate was first created. To do this, the



The detailed operating instructions for the electric embossing machine type AVA from 1937.

embossing machine punched the desired combination of letters and numbers onto a metal plate, e.g. for the address. With the help of this Adrema plate, various pre-printed forms for punch cards, policies, name index cards could then be inscribed in the printing press. The stock card created according to this principle was in turn the basis for printing the punch cards, which were punched using magnetic punches and contained insured person data as well as information on premium due dates and account numbers. For example, since the 1930s, the collection agency has been able to determine payment arrears with the help of a control card (basic card), which was created by Adrema.

After 1950, the Adrema system lost importance in favour of the Hollerith method, as the alphanumeric tabulating machine now combined calculating and writing functions. The new machines could create contribution invoices and enter addresses.

Finally, in 1959, the Adrema was handed over to the administrative departments, where it was then only used in the mailroom to speed up dispatch. In particular, the addressing of agent mail, with largely constant addresses, was partly carried out using the printing plates until the introduction of Central Direct Collection (ZDI) around 1970.

The hand punch card device allowed the data from the insurance application to be entered onto the punch card.

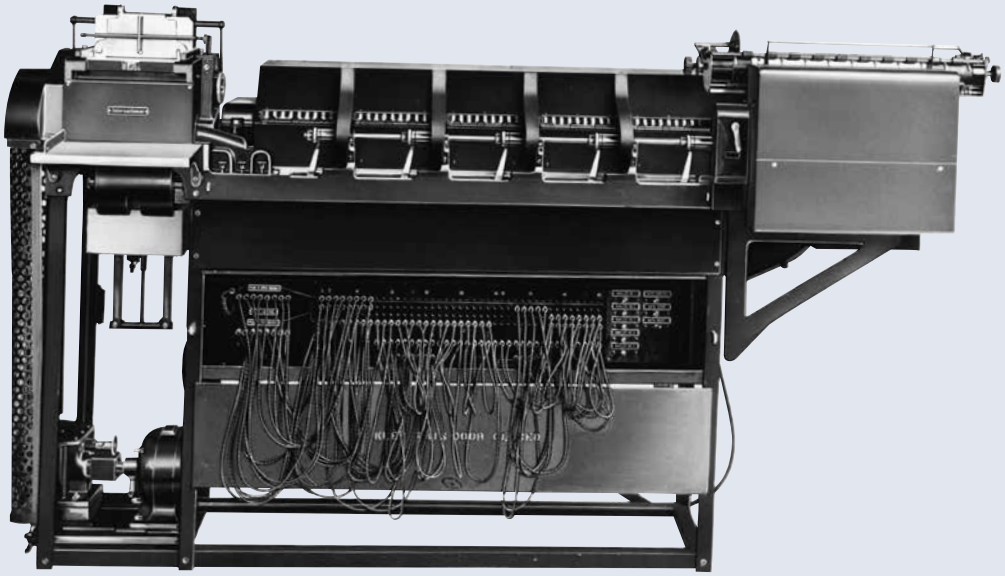
The IBM type IIIB tabulating machine

One of the first punch card machines at Allianz was the tabulating machine type IIIB. It was produced by IBM (International Business Machines) and marks the beginning of a long-standing cooperation between Allianz and IBM. Type IIIB was used from the second half of the 1920s at Allianz Leben's head office to process the small life insurance business (ASS) and was purchased in 1930 for the new punch card department in Stuttgart, which was modelled on the Berlin head office.

The tabulating machine type IIIB of Allianz Leben in Stuttgart was the heart of the system, which was equipped with various additional devices: a sorting machine with a capacity of 20,000 cards per hour, two calculating punchers and a punch checker.

How did the machine work? Type IIIB could only do one of the four basic arithmetic operations – addition – and could only write numbers, but no letters.

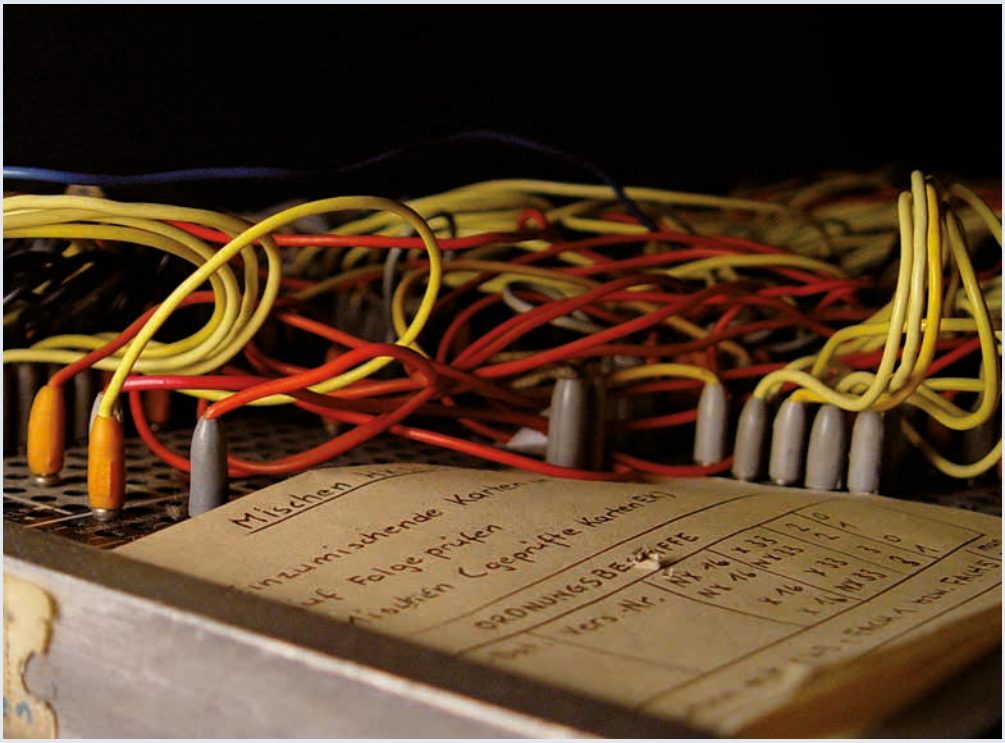
The tabulating machine was switched by means of a control panel that was permanently installed in the machine. Connections were made on the board with the help of cables, or "plugged in" as it is called in technical jargon. For the different operations, the



The type IIIB tabulating machine had already been used by Allianz Leben for processing small life insurance policies since the mid-1920s.

board had to be re-set in each case. This was very time-consuming, as there were up to 400 different plug-in connection options. The successor models had interchangeable control panels that were already plugged in for the most important operations, which sped up the work considerably. With the initially very limited capabilities, the tabulating machines could only perform individual steps to speed up policy processing. They mainly worked on stock maps. The stock card was the basis for the production of punch cards, which enabled machine stock management and contained information on the sum insured, number of units and premium.

With the electric magnetic punch - one of the additional devices of the tabulating machine IIIB – the 45-digit punch card was then first punched, which was then duplicated with the card doubler. In this way, three punch cards were obtained: the so-called mathematical card, which was sent as a duplicate to the head office of Allianz Leben in Berlin for statistical evaluation, a maturity card, which was filed at the branch office by month of maturity, and an agency card, which was stored at the ASS offices by agency number. In this way, the offices involved in the processing of the policies were able to determine the status of the work based on the card.



The Dehomag tabulating machine D11

Type IIIB was replaced after a few years by more powerful devices, such as the tabulating machine type "BK" and the tabulating machine D11. In the 1930s, Allianz was in need of technology with faster and greater data throughput due to the ever-increasing number of policies to be processed. During this time, various models of Hollerith machines, the tabulating machines type "BK"and the D9 were acquired in quick succession. Then came the D11, called the IBM 450 from 1949. It was used by various Allianz companies in the 1940s and remained in use for two decades. The long duration is due in particular to historical conditions, as the development of new models or their importation into Germany was not possible during the Second World War and also in the first ten years afterwards. What distinguished the D11? It was an in-house development of the Deutsche Hollerith Maschinen Gesellschaft (Dehomag) and was delivered from 1936. Even before 1945, more than 1,000 machines of this type were rented out in Germany.

Compared to its predecessors, the D11 had considerable technical improvements which, among other things, made it possible to process ever larger quantities of punch cards in ever shorter time. Their performance was based on the installation of parallel computers with four pairs of arithmetic units. This allowed several different computing operations to run simultaneously. The naming refers to the increased

Right: Allianz worked for more than two decades with the D11 tabulating machine, here in combination with the 560 cumulative puncher.

Left: Tabulating machines were programmed using control panels.

capacities of the 11-digit counter compared to the 9-digit counter of the predecessor model. As with the older units, programming was panel-controlled; here, the quickly exchangeable plug-in panels brought advantages. Like all other tabulating machines, the D11 was basically an adding machine. Nevertheless, it mastered all four basic arithmetic operations. Multiplication and division were done by continued addition and subtraction, and it could also do cross calculations. Due to the considerably improved performance of the D11, punch card technology could now also be used in the large-scale life business.

An alphabet printer was added to the D11 so that it could also do typing. Other additional devices could be added to the system, such as the calculating punch (automatic cumulative punch type 516), the cumulative punches (type 560 and 513), and the card doubler and card checker.

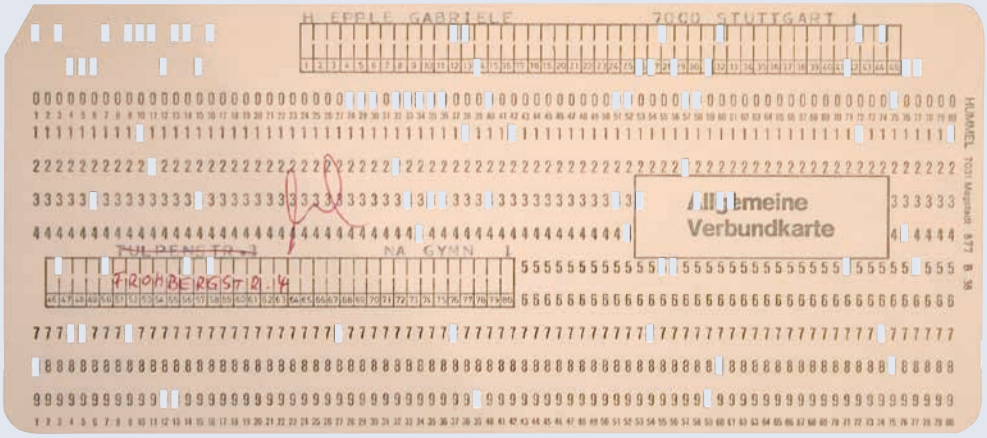
The second phase of the D11's use began in the 1950s: in the summer of 1951, Allianz ordered three units of the extended D11 d2 to bridge the gap for the special tabling machine type 404, which was not yet available. The new alphanumeric tabulating machines type 404 and IBM 421 used at Allianz since the first half of the 1950s brought revolutionary innovations. For the first time, they were able to combine arithmetic and writing functions and thus finally displaced the D11.

The punch card

Punch card technology was developed in 1888 by the American engineer Hermann Hollerith and was used as early as 1890 to conduct the census. Allianz introduced the first punch card machines in the early 1920s. At first, they were only used there for statistical work. The introduction of this technology at Allianz ran parallel to the trend of mechanisation in Germany at the time, which was characterised by the first wave of rationalisation in the 1920s.

The punch card replaced the handwritten count card of the risk statistics. The statistical work was now carried out with mechanically punch cards on the Hollerith counting and tabulating machines. This brought considerable savings effects.

In 1926 punch cards were used for the first time at Allianz Leben in Berlin for policy processing, i.e. for calculating and issuing policies and supplements. The first maps of the Hollerith system still had 45 columns and round holes. In 1928, Deutsche Hollerith issued a punch card with 80 columns and square holes with correspondingly larger capacities. In each of the 80 vertical columns with 12 perforations each, a number could be expressed by single perforation or a letter by double perforation. No standard had yet been established for punch cards. Powers GmbH, a subsidiary of Remington Rand, had been manufacturing punch card machines in Germany in cooperation with Siemens since 1934. Powers had developed the 90-digit punch card in 1929, which was introduced at Frankfurter Versicherungs-AG in 1948. Special machines by Powers, already introduced in the early 1930s, were able to sort cards of different capacities and thus achieved compatibility of the systems. Finally, in 1950, Allianz decided to use



Right: the punch card is a storage medium that initially had 45 columns, and from the 1930s onwards, 80 columns for entering data.

Left: the first alphanumeric tabulating machine – the IBM 421 – was purchased by Allianz Leben in the early 1950s.

IBM technology exclusively. This was in line with the trend, as IBM's punch card technology became the global standard in the 1950s and 1960s.

The great era of the punch card began in the post-war years. From 1948 onwards, premium invoice printing, agency accounting, bookkeeping, payroll accounting, risk and claims statistics for the insurance branches as well as profit and production statistics for the field service were converted to punch cards. The machinery for punch card processing in the 1950s and 1960s was immense, as the various machines could each perform only one function of the elementary operations of sorting, shuffling, duplicating, calculating and writing. Accordingly, in the mid-1950s, 400 employees worked in the punch card departments that were set up at the locations of the six branches. Punch card technology has fundamentally changed office work: It has created new jobs and professions in the office, such as punchers and tabulators. The punch card acted as a control element and information carrier for punch card machines and mainframe computers and thus managed to network different machines with each other. Thus, a higher level of mechanisation was achieved in the office. The punch card remained the most important external data storage medium until it was replaced by magnetic media. The last cards were in use at Allianz until the end of the 1980s. In the 1950s, new developments in computer technology from the US also became available in Germany. Allianz searched intensively for new opportunities.

The IBM 604 computing punch, equipped with tube technology, arrived at Allianz in 1955 and opened the phase of electronic data processing.

The first mainframes at Allianz: The IBM 604 and the IBM 650

At the beginning of the 1950s, it had already purchased the IBM 404 and IBM 421 alphanumeric tabulating machines, but even these could not hide the fact that punch card technology had reached its limits, despite the additional write function. New perspectives were only opened up by electronic data processing, which began in West Germany in 1954 with the IBM 604 calculating punch. The computer was purchased by Allianz Leben as early as 1955.

What was special about the IBM 604? The storage technology made of miniature tubes was revolutionary, saving space and energy and enabling more efficient work. The computer could calculate about a thousand times faster than the conventional punch card machines and could also represent all four basic arithmetic operations in decimal form. The programme control worked with quick-change plug-in boards and had a 16-digit main memory. The IBM 521 card

The IBM 604 was used at various Allianz locations, such as here in the punch card department in Berlin.

reader and puncher, which processed 100 cards per minute, could be connected to the computer. Within a few years, more than 1,500 of these plants were built in the US and Europe, including Sindelfingen, Germany.

In January 1956, Allianz acquired Europe's first IBM 650 mainframe computer. It had stored-program computer systems and represented a milestone in computer development.

The special expectations associated with this mainframe also became apparent during installation and start-up: The IBM 650 received a leather-bound diary in which all work was recorded from 20 January 1956 until its dismantling at the end of October 1961. These included set-up and connection by IBM, but also everyday operations such as statistical applications and those relating to inventory processing. Its working hours, the Saturdays and Sundays off and also the

necessary repairs were recorded. And finally, the data center staff gave the device almost human traits when they set up its own guest book. The advantages of the electronic mainframe compared to the punch card method were the fundamentally different and considerably extended storage possibilities and the short processing times. Nevertheless, even the IBM 650 very quickly reached its limits with the available storage space for extensive statistical surveys. Only the second generation of mainframes was also able to comprehensively take over the routine processes of stock processing, change service and premium invoice printing.

The IBM 650 magnetic drum computer from 1953 with the corresponding punch card devices.

1961–1980: Mainframe computers revolutionise insurance operations

"A more or less independent development of operations and IT is (...) no longer possible. ...) For the first time, (...) the historically grown, factually and personnel-wise inconsistently structured company, characterised by numerous, not infrequently person-related special regulations and exceptions, is confronted in its entire breadth with the logical-abstract system of IT."[13]

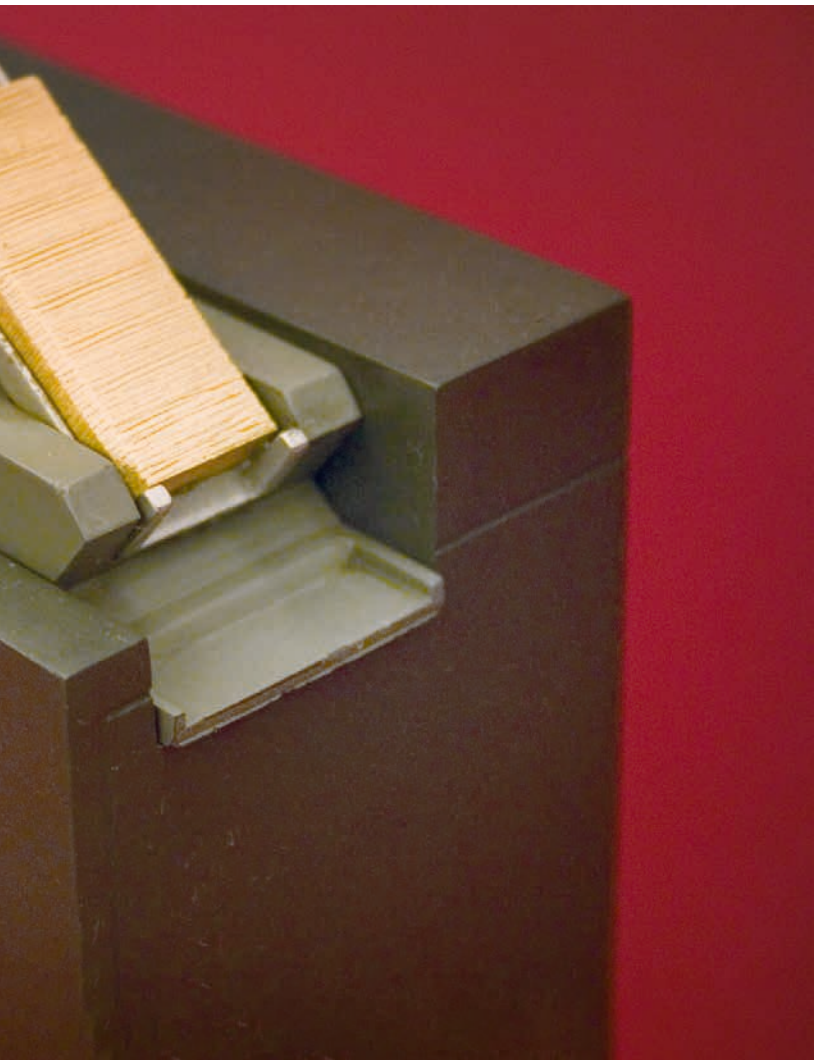
The introduction of the first electronic data processing machines at both Allianz Leben in Stuttgart and Allianz in Munich in 1955 and 1956 could only be a first step on the way to faster and more effective data management, as the key players very quickly realised at the time. In 1956, for example, Heinz-Leo Müller-Lutz, head of BWA at Allianz, founded the "electronic experimentation

Right: brochure of Allianz from 1961 for its employees: It explained the working and benefits of modern data management.

Left: in 1961 the Allianz data center moved to the E Building at Königinstraße 95 in Munich. In the foreground you can see the control console for operating the IBM 7070. The courtyard between E and D Building served as a car park at that time.

and planning group" in Munich to examine whether other work, such as premium invoice printing, could be produced electronically in the future. Another trip to America by Müller-Lutz in 1957, which took him all the way to the then head of IBM, Thomas Watson Jr, strengthened his conviction that the conditions should be created. Finally, when he visited American insurance companies, he was shown how they had completely computerised their portfolios. Extensive studies were carried out which led to the conclusion that IBM systems were superior to all other mainframes. The management of Allianz, which had recommended Siemens computers out of concern for good business relations with an important customer, finally had to accept the factual argument of the best price-performance ratio.

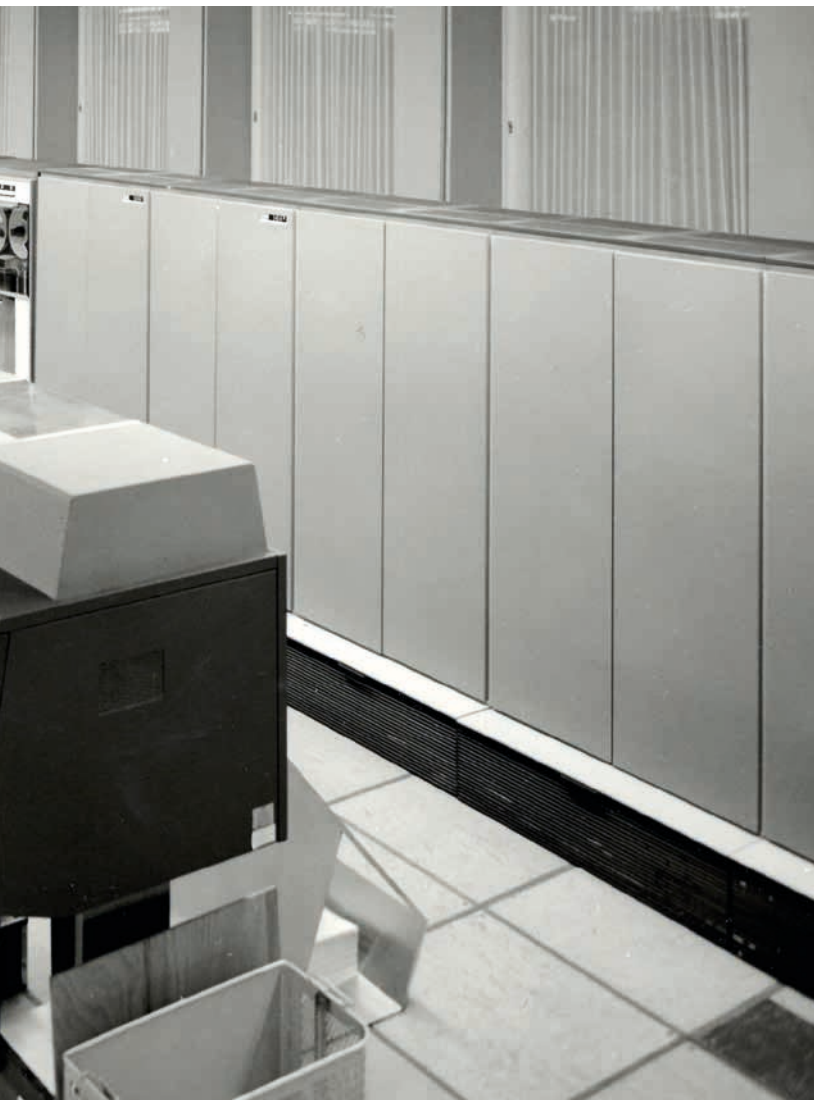
Finally, in the autumn of 1961, IBM delivered second-generation mainframes to both Allianz Leben and Allianz. A new building was erected for this purpose in Munich, where Müller-Lutz was able to realise his ideas of a modern open-plan office on the first floor. The ground floor of the E Building at Königinstraße 95 housed the computer center and punch card department, while the basement contained storage space for the millions upon millions of punch cards that would continue to shape data processing at Allianz in the years to come. In Stuttgart, the new equipment found a place in the previous computer center



The IBM 1402 card unit (shown here as a model) was used by the IBM 1401 mainframe to input and output data on punch cards.

at Reinsburgstraße 19 in Building B. At that time, seven people worked in the Allianz data center, 26 people were employed in the punch card department of the general management, and another 287 employees worked in the punch card departments of the branch offices. If you add the almost 100 people in the punch card department of Allianz Leben, the total number of employees is about 420, who handled the entire data processing of the group with the help of four mainframe computers and a whole battery of rattling and clattering punch card machines.

More and more new applications ran on the new devices and required an ever-increasing number of programmers. Finding them on the scale needed was difficult. There was still no training that one could have completed as a programmer. So the eager-to-learn junior staff, who had to demonstrate logical thinking skills in addition to a good school education, sat down with Hans-Willy Schäfer, then head of the computer center in Munich, and watched him write programmes for the IBM 7070. When this was no longer possible



The Allianz Leben data center in Stuttgart around the mid-1960s.

due to the number of new programmers to be hired, IBM employees initially took over their training before it was realised that company-specific content could best be taught by in-house training staff. As a result, Allianz developed its own qualification programme in the 1970s. Programmers were newly recruited. On the other hand, it was possible to reduce the personnel entrusted with the operation of the conventional punch card machines. A punch card now only had to be picked up once: to feed the device that passed the data on to the

computers. However, the cards still had to be punched, and to an ever greater extent, by the almost exclusively female skilled staff. And so, surprisingly, the total number of employees dedicated to data processing did not change all that much in the aftermath.

In the mid-1960s, a phase of consolidation set in. The new technology was up and running and the costs went down. In 1966, for example, the entire data processing area of property insurance caused costs of around DM 10 million. This meant costs of just under 70 pfennigs per policy.

The retirement of Otto Tix, the long-serving head of the punch card center (LKZ) in Munich, prompted Allianz to merge the data center and LKZ on January 1, 1967 and rename them the Data Processing Center (DVZ). At Allianz Leben,

Magnetic tape replaced the punch card as a storage medium and was itself displaced by magnetic disk storage.

there had never been a separation of the data center and conventional data processing. It was enough to change the name of the punch card department (LKA) of Allianz Leben, which continued to be headed by Heinrich Kehren until 1976, to DVZ. Thus, an analogous organisational structure of data processing had been achieved at Allianz and Allianz Leben.

The phase of consolidation was quickly over. Another revolution was on the horizon. Allianz Leben had already ordered an IBM/360 in 1965 and received it in 1966. IBM also made an offer to Allianz for equipment of this type. However, Müller-Lutz decided to wait and see what experience other companies had with the third generation of mainframes. In 1968, the time had also come for Allianz: Technicians installed two IBM/360 Model 50 mainframe computers in Munich. Integrated stock management with a proprietary database system,

ELIAS (Elektronisches Integriertes Allianz System), was to completely shake up the world of Allianz in the following years, just as Müller-Lutz had predicted. First, the branches of Allianz and Frankfurter were merged into administrative communities. This was also necessary because it made it possible to work more economically with the new IT. Then workers laid more and more thick cables from the data centers to the specialist departments. Connected to it were grey boxes that seemed to blink excitedly at the staff. For the first time, a large number of Allianz employees were concerned about their own jobs and sceptical about the innovations in their own working environment. For example, as soon as the insurance portfolios were transferred from magnetic tapes to magnetic disks, the employees in the specialist departments could no longer find missing information on individual policies via the central file,

Right: At a meeting in Nuremberg in 1973, the branch office managers learned about IBM's new data entry device.

Left: Alfred Haase, Chairman of the Board of Management of Allianz from 1962 to 1971, has a computer explained to him by Johannes H. Borsdorf, head of IBM Germany, after the contract for the delivery of IBM/360 mainframes was signed in 1967.

but had to use the terminal set up in their department. Within a very short time, the central files, which were located at the branch offices, were only necessary for documentation purposes and were dissolved completely a short time later.

The Computer Report, a supplement of the staff magazine in which employees were regularly informed about innovations in data processing, reported that after the conversion of payroll to the new technology, up to 1,500 hours of manual work could be replaced by one hour of work on the computer. And thanks to new data entry systems, the punchers became data typists, who no longer punched the information from the data templates into punch cards, but entered it via a keyboard and saved it on a diskette.

Since 1969, Allianz has mainly used IBM, ITT and and Nixdorf terminals.

These examples illustrate the adjustment that had to be made. However, they also show the savings opportunities created by modern data processing. "Without the use of all rationalisation measures", Müller-Lutz said at a workshop of the factory inspectors on July 25, 1973, "the old way of working in 1972 would have employed 30,000 instead of 11,000 workers."[14] And this was only the beginning. Since a hiring freeze, staff numbers actually began to decline.

For example, the number of employees in property insurance decreased by 325 to 9,879 from 1975 to 1976, with special emphasis on the fact that this was "the first time in the history of the G(eneral) D(irectorate) that its staffing level has declined."[15] . By the mid-1970s, more than 700 terminals were already working in Allianz, which seems very modest from today's perspective. However, when one considers that a screen initially cost the equivalent of one employee's annual personnel costs, it becomes understandable that careful consideration was given to where a terminal had to be used and where it could be abandoned.

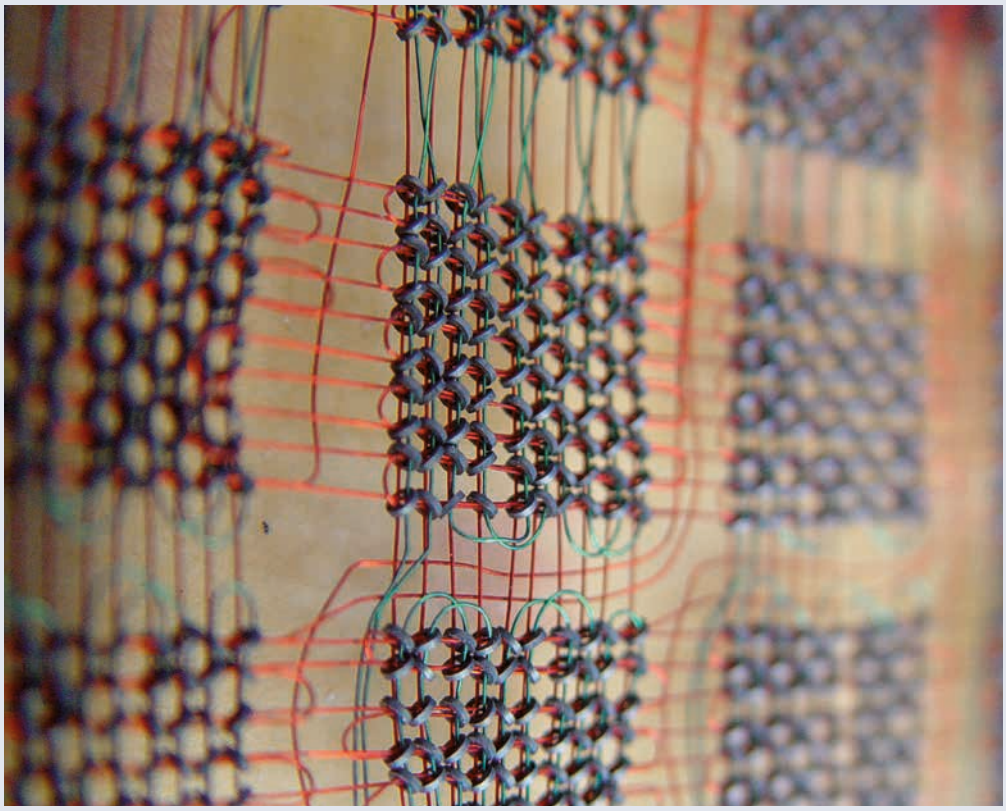
Until the end of the 1970s, the use of IT at Allianz was limited to the office. It is true that the representatives of Allianz benefited from the acceleration of stock management through modern data processing or from the fact that they were relieved of the time-consuming collection of premiums through the introduction of central collection. On their own desks, however, it was not until 1981 that the sales representatives experienced how much Allianz had invested in the development of modern data processing in the last decade. With the help of a terminal and the Agent Information System (VIS), Allianz agents could now access their own customers' data from the Allianz database in a matter of seconds.

However, old and new coexisted for a long time. Because just as there was a "paper version" of the VIS - without a terminal at all - where all forms and information materials were sent to the agencies by post, punch cards were still in use in the company for a long time alongside magnetic tapes and disks. It was not until September 1986 that the last punch card machines were dismantled at Allianz Leben. At Allianz it took even a little longer. Here, a last legacy application was operated with punch cards until 1988. (SP)

Models of the IBM 1401 and 7070 computer systems used at Allianz between 1961 and 1971.

The 2nd generation of mainframe computers

The IBM 7070 and IBM 1401 mainframe computers had been in use at Allianz since 1961. These were second-generation computers that had a magnetic core memory and were already equipped with transistors. In the Allianz data center in Munich, there had been an IBM 7070 with a storage capacity of 5,000 to 10,000 words since 1961, which was expanded to a 7074 in 1964. Input and output was only via magnetic tape. No punch card machines were connected. The link to the punch card was created by the IBM 1401 mainframe computers, initially with 8,000 and from 1965 with 16,000. Several of these plants operated at the head office and at the branch offices. Punch card machines, magnetic tape units and so-called high-speed printers were connected to them, which could print 20,000 lines per hour at first and 66,000 lines per hour from 1965 onwards. The insurance portfolios were stored centrally in Munich on magnetic tapes. The IBM 7070 was used for central stock management and statistical work after the start-up phase. All other work, such as premium invoice printing or other printing



Second-generation mainframes were equipped with magnetic core memories.

work was done by the branch offices with their "fast" printers. Likewise, changes to individual policies were entered here via punch cards and stored on magnetic tapes (daily suspension). Once a month, this data was then incorporated into the total stock in the DVZ (monthly suspension).

Allianz Leben had switched to second-generation devices almost simultaneously. However, the punch card department in Stuttgart decided on the combination of IBM 1620 with punch tape input and output and IBM 1410 with 80,000-digit core memory including printer, card and magnetic tape units.

In mid-1971, after all the work of the IBM 7074 had been taken over by the IBM/360, entirely as envisaged in the 1965 network plan, Allianz donated the second-generation computer to the Deutsches Museum in Munich.

The Hamburg branch received a new
autumn 1970 a new IBM/360 computer.

The 3rd generation of mainframe computers

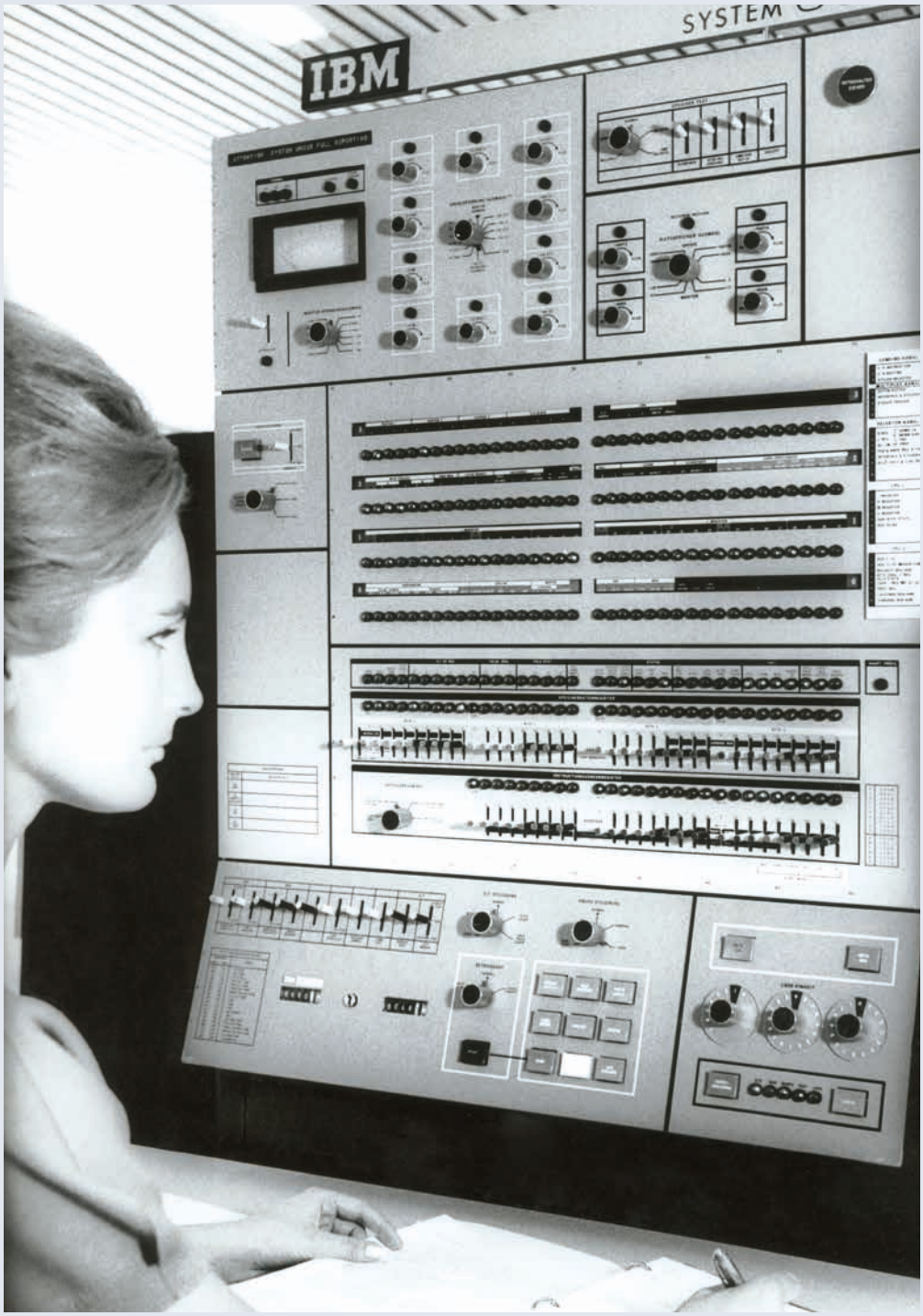
On 7 April 1964, IBM announced the IBM/360 system worldwide. Up until that time, the company distributed a wide variety of product families side by side. IBM now wanted to change this. The new generation of computers should meet a wide range of requirements: Therefore, it had been designed in a modular way and customers could choose processors with different performance. Although IBM was not able to keep its promise, it nevertheless established a standard with the new mainframe that almost all other manufacturers followed.

Two and a half years later, in November 1966, Allianz Leben received the first third-generation computer. Initially, only adapted applications of the previous generation ran on the IBM/360, presumably because IBM could not deliver the long overdue operating system until 1967. This changed with the use of the IBM 1130, a so-called small computer that was not officially part of the IBM/360 series but was based on the same technology. This device, which had been in the data center in Stuttgart since February 1967, made it possible to process personnel and property administration data electronically.

In the following months and years, numerous other devices were added, so that by the end of the 1960s, seven computers of various sizes were working in the Allianz Leben DVZ. By this time, tabulating machines had finally had their day. They had been displaced by the smallest member of the IBM/360 family, the Model 20.

It worked with a magnetic core memory that had a capacity of 16 kilobytes and had eight registers and eight connections for peripheral devices such as printers, hole punchers, punches and tape units. The computer was used at Allianz Leben between 1967 and 1985.

Allianz only switched to the third generation in 1969. The head office and the branch offices each had an IBM/360-50. They enabled decentralised stock management because they were fast, had a large storage capacity and could run multiple programmes on them simultaneously. Only the Berlin location was connected to the DVZ computer in Munich via a dedicated postal line. The stocks there were too small to utilise a mainframe.



The IBM/360 was advertised with a close-up of the operator console.

The ITT screen 3287
with light pen from 1984.

The screen

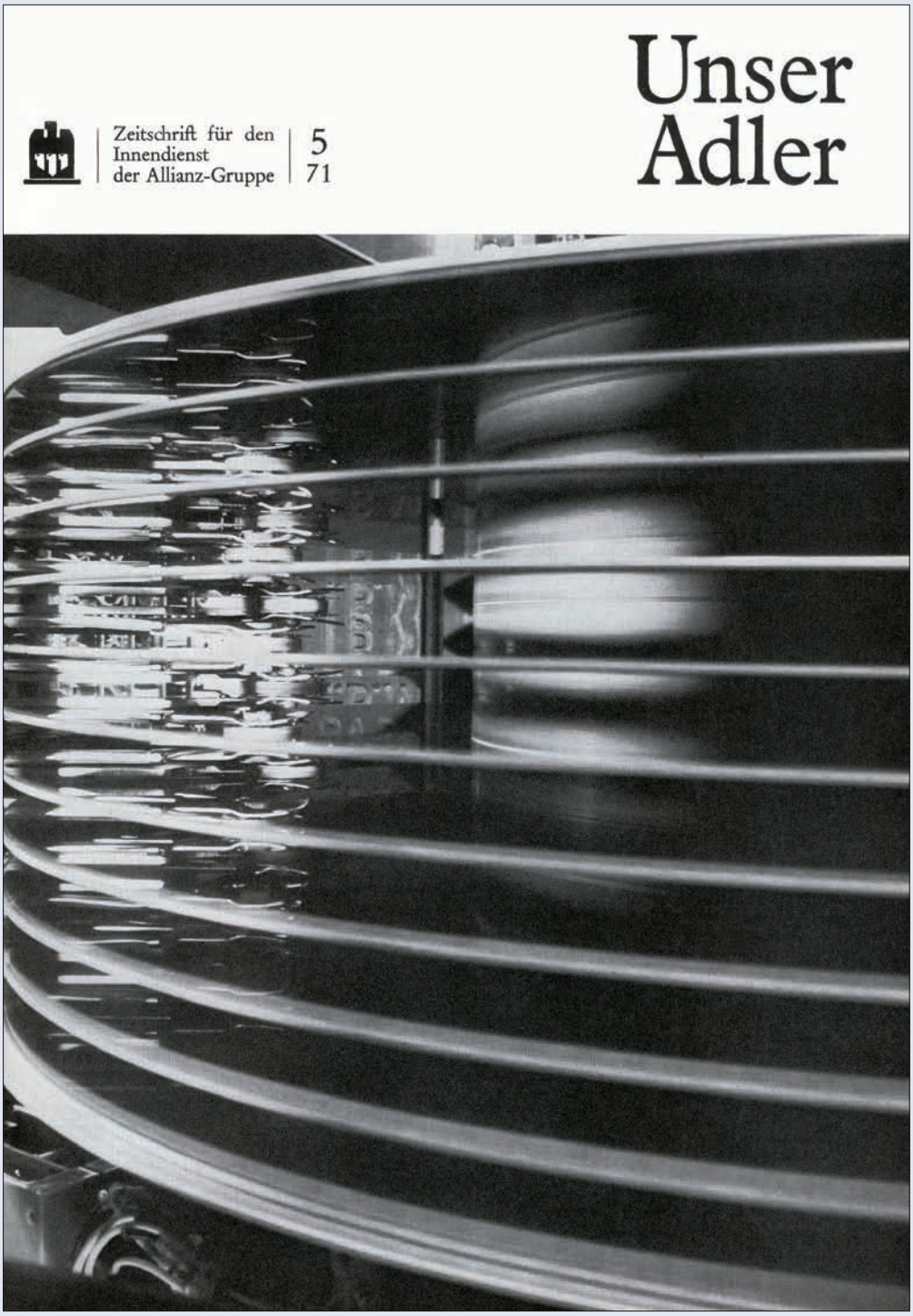
The ITT 3287 terminal with light pen was in use at Allianz from 1976 to about 1984 and wrote 24 lines of 80 characters each. With the light pen, the user could directly select the displayed data on the screen and thus save himself the input via the keyboard. In the transition to a new generation of screens in 1984, Allianz abandoned the light pen because it had not proven itself for standard office applications.

The storage of the insurance portfolio on disk stacks made it possible to access the contract data of each individual insurance policy within seconds or – in the words of the time - the data could be processed in real time. However, this required input and output units, so-called terminals, i.e. screens that were connected to the mainframe computer with a cable or via lines from the post office. The first DVZ screen in Munich was hidden behind a door that could only be opened by a hidden mechanism. Full of awe, visitors were led to this screen tabernacle, as it was soon respectfully-ironically called among programmers. The wonder machine that emerged from behind the door, the IBM 2260, could display just under 500 characters in twelve lines. In order to be able to meet the high demands of "real-time processing", a large number of "tabernacles" had to be erected as quickly as possible. In a first interim report from January 1969, Allianz's staff magazine announced

Allianz employee
in dealing with the new
technology.

the installation of the first six screens at Bayerische Versicherungsbank and Frankfurter Versicherungs-AG in Munich. Within the next few years, hundreds of terminals were installed all over Germany. Then, however, the pace of dissemination faltered. What had happened? It was found that too many monitors were driving up material costs too much. This becomes immediately understandable when one considers the transfer price of a terminal: It was up to 6,000 DM per month!

It was only when another terminal supplier, ITT, entered the market that the price began to drop significantly. With competitive offers that were 20 to 25 per cent below IBM's prices, ITT, whose German subsidiary SEL took over sales, succeeded in cracking the IBM monopoly. In August 1976, out of a total of 750 terminals, only 150 were still from IBM, the rest were supplied by ITT. In 1983, ITT introduced the so-called 3187 compact screen, which was not particularly popular because it had a smaller screen than its predecessor. Nevertheless, it finally heralded the phase of equipping all office workplaces with monitors at Allianz.



In the May 1971 issue, Allianz's employee magazine published a picture of a removable disk storage device on its front page.

In a disk storage unit, up to eight magnetic disk storage units could be used simultaneously. In the picture: Johann Knöferl.

Disk storage

The third generation of Allianz mainframes was a major advance in the ability to use magnetic disk units. The disks had a disproportionately larger storage capacity than the previously used magnetic tapes. While several thousand tapes were previously needed to store Allianz's insurance portfolio, eight stacks of removable disks were now sufficient to store BVB's portfolio, for example. A disk storage unit consisted of eight drives and one spare drive. All eight disk stacks on which the stock was recorded could therefore remain in the disk storage. This meant – as a second great advantage of the magnetic disk besides the smaller space requirement – that one could constantly access all the data in the collection. If the amount of data to be stored could no longer be accommodated on eight stacks, another disk unit was added, thus expanding the capacity to double.

This offered previously unimagined opportunities to simplify operations. For it was only the opportunity to directly access entire stocks and at the same time run several processes in parallel on one mainframe computer that made it possible for many employees to work simultaneously on one computer. Now it was finally possible to begin to save the many intermediate steps between the person in charge in the specialist department and stock management.


Daten
Frei–
gabe
=

Right: Ernst Hick (left) presents the first VIS terminal in his agency (1978).

Left: The Nixdorf 8860 Micro A control unit was used in agencies from 1984 to 1996 and simulated a more expensive IBM 3274.

Agent connection

On 5 May 1975, the Allianz board discussed the use of screens at agencies for the first time on record. This was done in connection with cost increases in internal sales. According to the credo of Allianz, data should be recorded as far as possible at the point of origin, as it is uneconomical "(...) to have a process run through and processed by several offices."[16] At the same time, representatives should be relieved of administrative work and possibilities for systematising advertising should be developed. At a meeting of company inspectors, Joachim-Bernhard Bielicki, who was in charge of the issue on the sales side, explicitly warned against ignoring the problem. "Since a possible realisation requires a lot of preparation time, corresponding considerations would have to be made all the sooner."[17] In fact, it happened quite quickly. In the spring of 1976, Dr Ernst Hick received a visit from the head of BVB, Ottmar Schleich. The latter congratulated the representative on the start-up of the first terminal. However, it then took many years of further testing and programming before the Agent Information System (VIS) was officially launched in July 1981. The agencies' technology and management cost 800 Marks per month, which is why it is not surprising that in mid-1984, although more than 10,000 sales representatives participated in the VIS, only a small group of about 200 were equipped with a screen. Since 1986, these agents were also able to electronically retrieve the data of their life insurance customers thanks to Agent Service Life. The overwhelming majority, on the other hand, was content for a while with the paper version without a direct connection to the Allianz IT system.

1981–1996: IT-Strategy, the PC, IT with DVAG and the central data center

Some things just take an incredibly long time: The planning for the new building of the Data Processing Center (DVZ) in Munich-Schwabing dragged on for far too long, so that Allianz's boss Wolfgang Schieren – as the minutes record – became noticeably impatient at the board meeting in October 1975.[18] The story began in 1969. It ended after 15 years of planning and building on February 2,1984, when Jan Boetius, the board

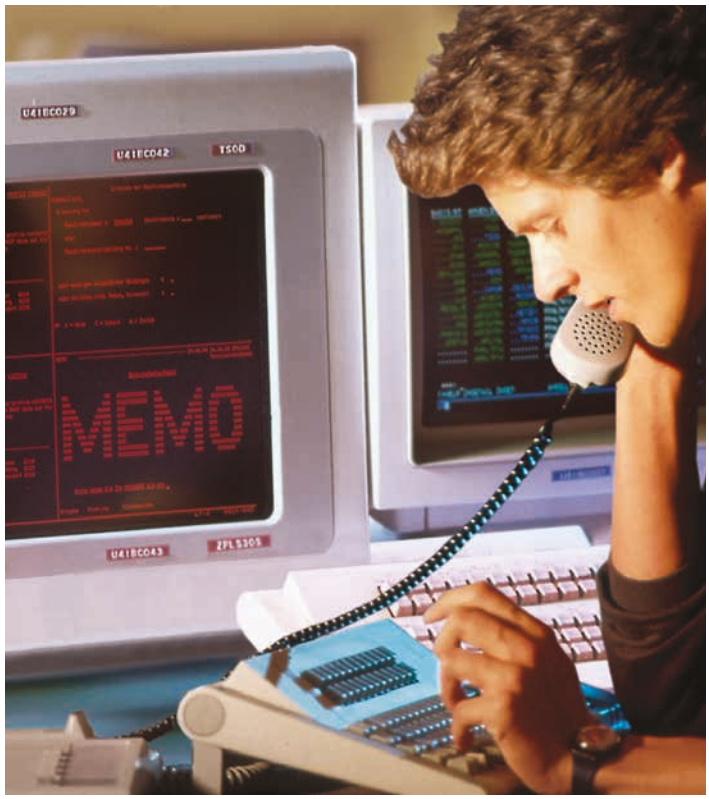
Construction of the Betriebs- und Sozialgebäude (BuS) in Munich-Schwabing, which housed the new Data Processing Center (DVZ) and the canteen of the head office.

member responsible for business administration, handed over the new computer center to Reinhold Hendricks, Head of the DVZ.

Reinhold Hendricks, who was appointed to the Management Board of Allianz Leben in 1986, stands for a programme that set the long-term development priorities for data processing in the company. He drafted the "Blue Book", as famous as it was feared, in which the ELIAS II conception was published. This concept defined the framework for future development activities in the areas of application and operating system technology.

By this time, data processing had long since become the central factor in changing work processes, a prerequisite for growth and an indispensable precondition for efficient economic activity. Group-wide, this technology was worth DM 150 million to Allianz in 1984. Because the challenges facing the Data Processing Centers (DVZ) in Munich and Stuttgart were growing at a breathtaking pace.

The office staff, but especially the sales staff: They all managed more and more work via terminals, PCs and new communication channels. In 1985, 70 % of all full-time representatives were already connected to the Agent Information System (VIS). In the two years of work, the possibilities of using the dialogue between VIS and the Allianz Leben Representative Service (VSL) were opened up and new applications were expanded. Also in 1985, Allianz Leben initially introduced MEMO, the electronic mail system. In the following year, MEMO was installed at the other Allianz



Right: employee of the Allianz Leben data center in Stuttgart in the MEMO dialogue (1990).

Left: building shell of the Unterföhring operations building (BGU) in 1991. From 1992, new location of the Munich Data Processing Center (DVZ) and the Allianz printing center.

companies. In 1988, more than 2,500 employees at Allianz Leben alone were already using the system.

In this way, the spectrum and volume of operations steadily broadened: Staff had to develop ideas, cooperate with IT industry partners, customise applications and train and support users. The employees had to create ideas, cooperate with partners in the IT secor, adjust applications and tutor and support users. In 1987, almost 420 people worked at DVZ Stuttgart, and in 1990, a total of 605 people worked in Munich and the data processing departments of the branch offices.

So much dynamism quickly burst the limited possibilities at the DVZ location in Munich-Schwabing. The district is characterised by the closely parcelled, in many cases listed buildings from the Regent Prince Era, which proved to be a stumbling block for the data processing needs of Allianz.

Now, however, what the Management Board had vehemently rejected just a few years earlier became possible. In the Munich suburb Unterföhring, "on the green meadow", Allianz acquired a plot of land in 1988 and built a large data center there until 1991, which for security reasons had to make do with the inconspicuous abbreviation BGU (Betriebsgebäude Unterföhring).

In 1989, the course of world history accelerated at a pace that at times left humanity breathless. The communist regimes of Central and Eastern Europe were tottering and being replaced; the economic systems based on central planning are proving unsustainable. Even before German unity is restored, on June 26, 1990 the East German Ministry of Finance, the Treuhandanstalt and Allianz signed the contract establishing Deutsche Versicherungs-AG (DVAG), which came into force on July 1, the day of economic, monetary and social union. The portfolios of the state monopoly insurance company of East Germany are thus merged into DVAG and Deutsche Lebensversicherungs-AG (DLVAG).[19]

In data processing, everything had to happen very quickly: project group, feasibility study, information event, decision. Within a few months, hundreds of employees converted the business operations of the two new companies from manual to electronic data processing. Under great time pressure, the experts designed technical solutions for all new work processes, procured and installed the new computer technology and ensure that all elements of the IT for policy and claims processing, accounting, sales and personnel data administration function and harmonise with each other. In November 1990, the expanded data centers in Munich and Stuttgart began operations for DVAG and DLVAG. Within one year, the Allianz data processing system was first transferred to the new companies. Linked to this was the "Terminalisation of DVAG" project. A data system of terrestrial lines, including 600,000 metres of newly laid coaxial cable, and connections via the telecommunications satellite Copernicus was created by December 1991. Employees now worked in the Allianz IT world on 5,500 newly installed screens at over 200 locations in eastern Germany. Thus, they could switch from the provisional "paper communication" to the ELIAS dialogue. DVAG was integrated into the Allianz IT system.

18 September 1992, 10 a.m: some Allianz employees were only able to access the data from the mainframe at this time again, i.e. slightly delayed,

Signing of the contract to take over DVAG in East Berlin in June 1990.

DVAG locations were quickly equipped with computers and integrated into the Allianz IT system, here the Chemnitz district office in 1991.

from their workplace. What had happened? The new Allianz data center has been operating in the BGU since this hour and would subsequently take over other data centers and the data processing departments of the branch offices. It is also a backup data center and the location of Allianz's printing and inserting center.

The data processing staff manage a number of major projects during the 1990s: The abbreviation AAA stands for "Allianz Application Architecture". The AAA's own design principles and tools, developed in advance, are intended to guarantee that application programmes become efficiently maintainable, reusable and combinable. Ultimately, the AAA serves to save costs in development and maintenance for the future and to maximise the options for flexible further development of software.

An initial testing ground was provided by the large-scale project "IGP", in which Allianz in 1994/95 no longer divided its insurance portfolios by line of business, but according to the target groups of industrial, commercial and private customers. This resulted in new work processes for which the

Right: The comprehensive equipment with computer technology began in the 1990s in the new federal states: Hans-Peter Martykan (Head of Computer Centre), Hajo Fritz (Head of Data Processing) and Board Member Heinz Prokop present the new computers.

Left: IT expert Erika Remmele in the circle of her colleagues at DVZ Munich in 1970. DVZ boss Hans Willy Schäfer in the center of the picture in a suit.

software experts created suitable application programmes in accordance with the principles of the AAA.

From 1995 onwards, DVZ converted the computers for the field service from the DOS operating system to the multitasking OS/2 operating system from IBM. It was intended to enable representatives to make new and simple applications. By March 1996, some 20,000 PCs and notebooks at 7,000 locations were to be replaced or upgraded and the operating system prepared for automatic installation on these computers as part of this project, which was to cost DM 165 million. IT is now omnipresent in people's everyday work, both in the office and in the field service. (GM)

The Columbia 1600-4 and the IBM Personal Computer XT were the first PCs to be used at Allianz and Allianz Leben.

Personal Computer: Columbia 1600-4 and IBM Personal Computer XT

"Personal computing – that sounds understandable, but what does it actually mean?" The English term "personal" translates as "personal" or "individual". So personal computing means individual data processing, and that at one's own workplace. "Is this an issue for Allianz at all?"

It is an issue. In 1983, however, when Dietrich Janz from the DVZ User Service answered these questions in an interview with the staff magazine, only a few people at Allianz suspected that PCs would soon be indispensable for most employees at work and at home. It was initially a time of experimentation when the first personal computers were purchased at the DVZs in Stuttgart and Munich. Do individual employees need a computer that only they use, operate and control? At first slowly, but then rapidly, the number of devices increased. After ten years, in August 1993, the technicians at Allianz Leben installed the one thousandth PC. In 2005, 100,000 workstations were available to the employees of Allianz and Dresdner Bank. The first PCs were launched by Xerox and Apple in 1974 to 1977, IBM followed – spurred on by Apple's sales success – in 1981 with the IBM PC (IBM 5150), which established the abbreviation PC as a product name and set the standards for further development. However, Allianz initially decided against IBM. In 1983,

for example, the Columbia 1600-4 with a 10 MB hard disk, which was quite something, arrived in Munich. The computer, manufactured by the American company Columbia Data Products, cost 50 DM less to buy than the rival product from IBM, but quickly proved to be a flop because the hard disk caused never-ending trouble. Instead, the DVZ then decided in favour of the IBM PC successor: the IBM XT (IBM 5160), a 16-bit computer with a 10 MB hard disk promised Extended Technology, for which the end customer then had to pay a handsome sum of 6,000 to 8,000 US dollars. The computer had an Intel 8088 processor clocked at 4.77 megahertz and ran the PC-DOS operating system, which was largely identical to MS-DOS.

These first PCs were initially used in the office, mainly for applications such as statistics, data analyses and calculations that could be converted into graphics and printed out. However, it soon became clear that the individual computer is also of great use for everyday work in field service. Its triumph was now assured.

Left: Case for claims settlement with one of the first laptops in use at Allianz. The "lug-top" weighed 13.5 kilograms (1989).

Right: Herrmann Schneider, Allianz claims assessor, with mobile computer workstation entering data at the terminal (1995).

Mobile computers in the field service: The Suitcase-PC

It weighed 13.5 kilos and cost 9,100 DM. The way to the mobile computer at Allianz was paved with frighteningly large figures. At the very beginning, the sales department and the motor vehicle division wanted a portable PC that would help field service to settle claims and advise customers on the spot.

The idea of the mobile computer was put into practice by the DVZ in the autumn of 1987. It should be able to communicate with the Allianz mainframe in every flat, in every repair workshop and in every telephone booth via modem.

But how could a hacker be prevented from gaining unauthorised access to data in the data center via such a field service computer, or at least from penetrating as far as the programming interface of the IBM system at Allianz? DVZ solved the security problem by interposing a pre-computer to which the user had to identify himself with an individual ID card.

The first mobile computer was carried by Allianz employees into the living rooms of customers in the form of a heavy black suitcase. Inside was a hinged Nixdorf 8810 M15 computer with a 20 MB hard drive, a built-in battery, an inkjet printer and the modem. The first five laptop pioneers at Allianz were able to set all this up in front of the amazed eyes of the policy-holders during the experimental phase from summer 1989 and then get to work. The trial was not without difficulties: The data transfer to Allianz often got stuck, there was no suitable word processing software, the

templates for printable forms lacked the appropriate layout, and the sweaty use of the "lug-top" was made even more difficult because the LCD monitor installed was low in contrast. But it was precisely this that made the press department, which reported on the adventures of laptop pioneer Bertram Peter from Aschaffenburg in the Allianz Journal, particularly reverent: "But if you are a real computer freak, and you have to be a pioneer in the use of laptops in the field, these shortcomings will not deter you. Bertram Peter, at least, is enthusiastic and hopes that this will have a contagious effect on his colleagues."
This ushered in a new era of work in the field service: Further, more user-friendly suitcase PC stations followed, such as the MoCoS with SNI computer (PCD 3Nsx/20) from 1991 and finally, from 1996 onwards, notebooks as part of the representative information system (VIS). These were equipped as standard with the programme "Beratungs-Service Allianz" (Consultancy Service at Allianz), which helped the agent to determine the insurance needs of his client, calculated tariffs and social pension entitlements and provided a collection of information data. In the course of the 1990s, mobile computer systems soon became standard equipment for the field service.

Bill Gates on a flying visit to Allianz.
In the picture together with Allianz IT board member Friedrich Wöbking in the reception hall of the head office (1998).

Software

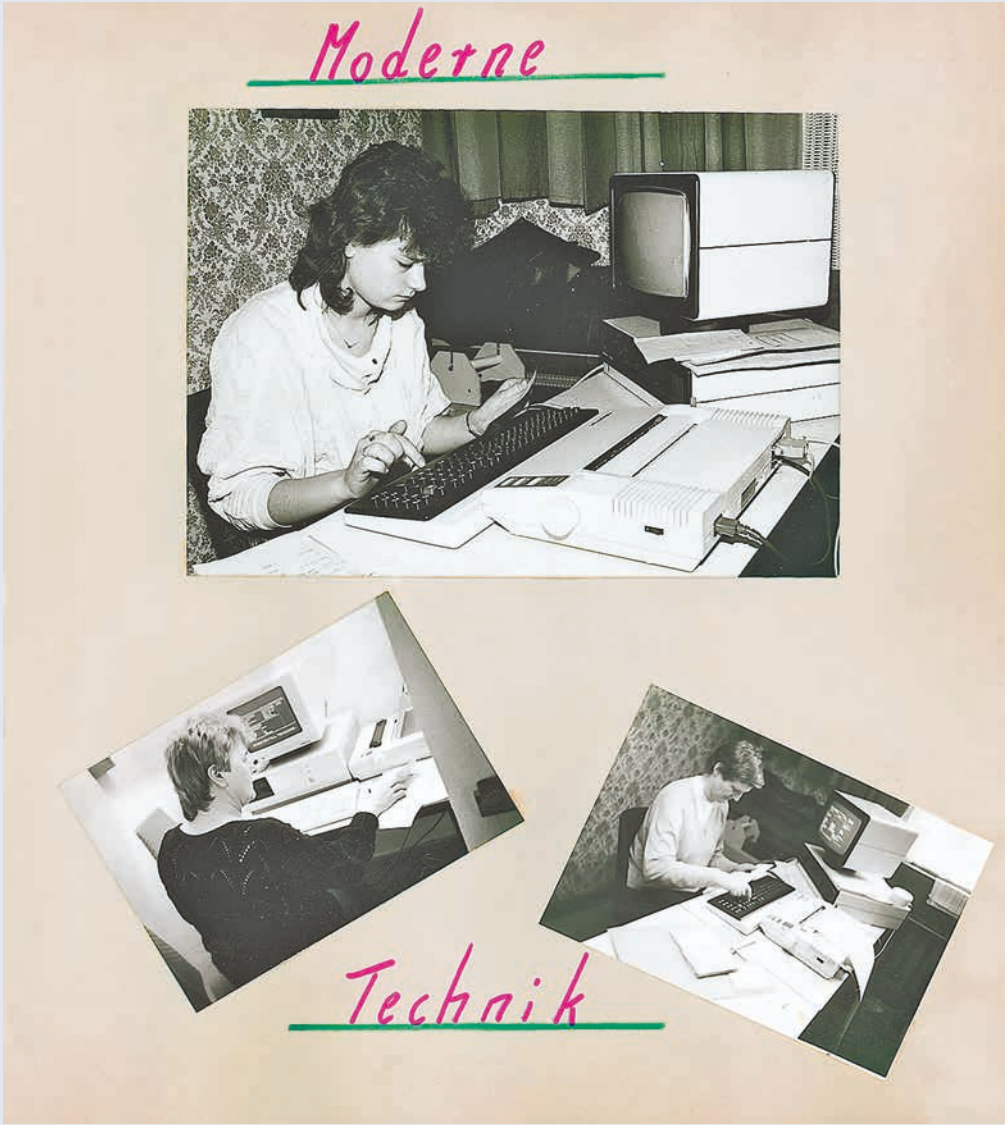
The round glasses, the boyish grin, the simple haircut parted on the right – there could be no doubt. The man in his best age, posing for the photographer next to Friedrich Wöbking in the A Building hall of Allianz in Königinstraße, was Bill Gates "himself". He was on a visit to Munich and briefly dropped in on a good customer where Microsoft had just been defined as the standard. That was in February 1998.

In the same year, AGIS handled a major project that changed the daily working lives of most members of the Allianz office staff. Within the larger and increasingly international Allianz Group, the lack of binding software standards made communication between the individual divisions increasingly difficult, and technical service for the many different programme systems had become more and more costly. The Group IT strategy now envisaged, among other things, ending the coexistence of different operating systems in Allianz Group: In the office, there was to be a uniform changeover to Windows NT – which was already in use in some places; OS/2 and Windows 3.1 were discontinued.

In the field service, Allianz was to rely entirely on Windows 98. At the same time, the 97 version of

Microsoft Office (Office 8) became the standard office application software. Here, too, a colourful variety of programmes had prevailed for a long time. The computers ran numerous proprietary products and programmes with names that no one knows anymore, such as Lotus 1-2-3 (spreadsheet), dBase (database system), Nixdorf 8840, StarWriter and IBM PCText4 (the entire word processing).

With this changeover, Excel, Word, Access, PowerPoint and Outlook became uniformly available to employees. The images, signs, colours and structural principles, the logic of the MS Office world, thus took on an essential role in the perception and organisation of people's everyday work at Allianz. Finally, the Central Software Dispatch (ZSV) ensured that new programme generations and updated versions of the software used were distributed throughout the company largely at the same time.



IT at the State Insurance of East Germany

Actually, the Robotron 300 mainframe computer should have paved the way for the East German state insurance company into the age of IT at the end of the 1960s. But things turned out differently. In 1979, the work processes and technical installations of all district directorates of the state were finally so modernised that the technical stations could take their Adrema installations, tabulating machines and sorters out of service. However, punch cards remained indispensable for a transitional period until the mid-1980s, when data systems became the standard that enabled data to be transferred to magnetic storage or online.

Right: Robotron A 5120, introduced in 1982, was the first office PC in East Germany. Employees of the state insurance company could work with it from 1987.

Left: female employees of the Erfurt district administration were able to work computerised from the second half of the 1980s.

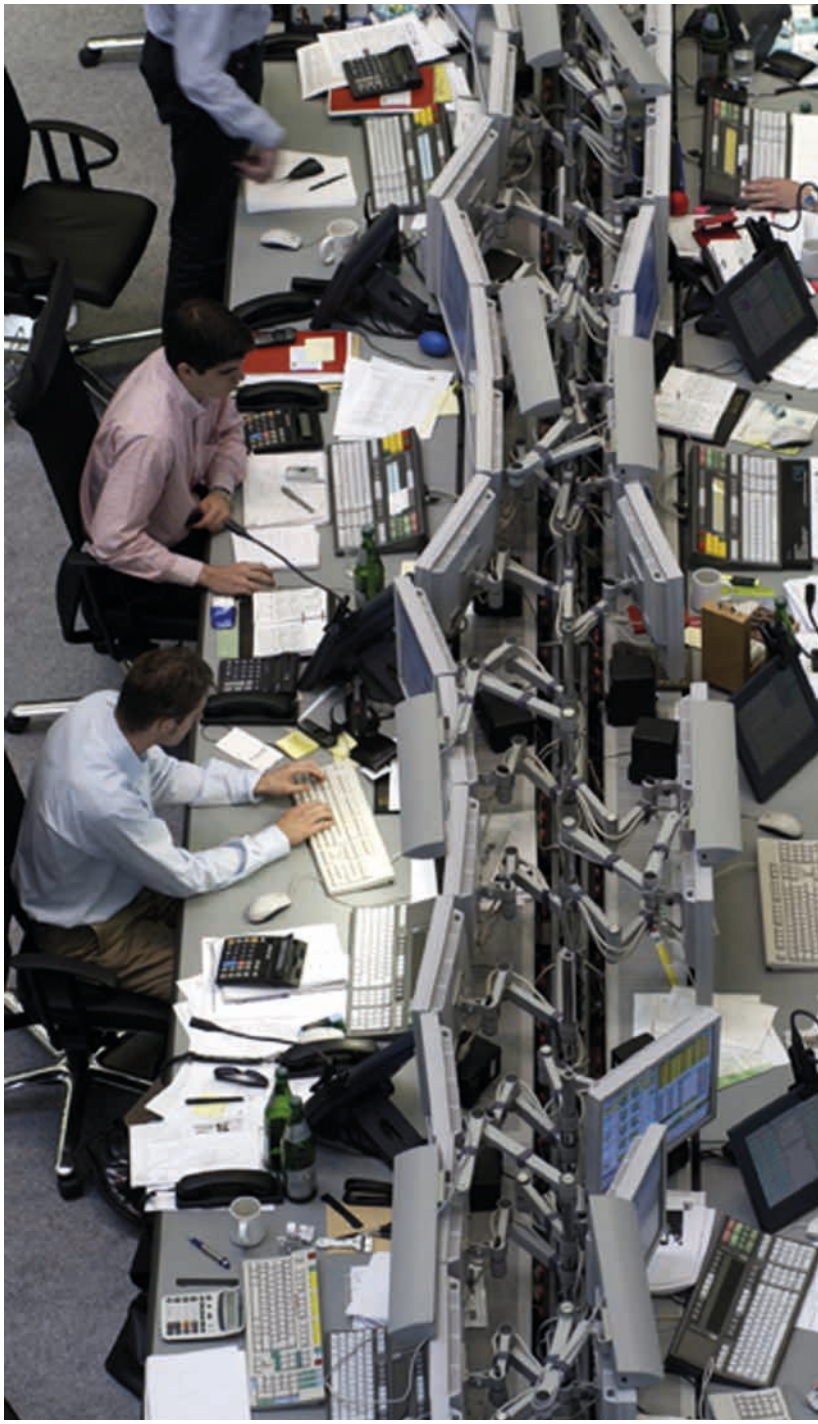
Employees impatiently hoped to be able to process contracts by computer, but the technology was a long time coming, as was the necessary training. In 1984, the state got its first own (small) computers. 17 copies of the K 1003 model were allocated, which helped the people in charge to calculate faster. In 1986, Robotron delivered the first four PC 1715s to the head office and two directorates of the state in Berlin, several hundred units followed until 1990, including the A 5120 as the standard PC. However, they were not networked and could not be used to their full potential because printers or printer cables were missing. 1990 finally became the year of change in IT.

1997–2020:
Steps towards global IT for Allianz

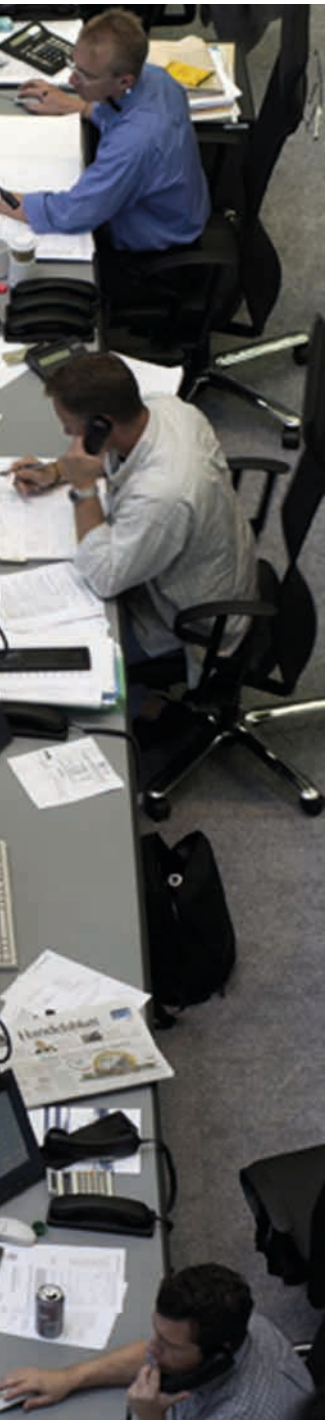
On 7 July 1997, the Management Board of Allianz AG passed a resolution that marked the end of the previous DVZ organisation. For the first time, the operation of the data center and network infrastructure of Allianz was to be consolidated under the umbrella of an independent company. Allianz Gesellschaft für Informatik Service mbh – AGIS for short – was born on 14 October of the same year. From now on, DVZ was divided into AGIS and the divisions IS (= Information Systems) Property, IS Life and IS-A (Sales). AGIS united in its organisation the decentralised data processing departments,

Interior view of a so-called robot silo. An AGIS employee labels cassettes that, among other data storage devices, are used to back up workplace and business data.

the computer centers and the systems technology of Allianz Sachgruppe, Vereinigte Versicherung and Allianz Leben. The result was a powerful IT service company that enabled more efficient operating processes and, due to its size, was able to negotiate more favourable conditions when doing business with hardware and software suppliers. The IS division took over responsibility for IT strategies, controlling, data protection, application development and support for the office and field staff. Hajo Fritz took over the chairmanship of the Executive Board and the management of the Munich data center.



Open-plan office of the securities traders of Dresdner Kleinwort in Frankfurt (Theodor-Heuss-Allee 44).



There is never a standstill in information technology. This is just as true for the companies in this sector. The history of AGIS, as well as its successor companies, bore eloquent witness to this: Its employees mastered a multitude of feats of strength and structural upheavals. In its founding year, the young company and IS-Vertrieb launched one of the largest IT projects in the history of Allianz. Its name was AMIS (Agency Management Information System) and its aim was to sustainably improve IT support for the field service. By the year 2000, Ralf Schneider (AGIS) and Hans-Christoph Dölle (IS-Vertrieb), supported by Günter Popp (Group-IT), managed to connect 8514 agencies to the system. They were given access to the ISDN network and new computers. A total of 12,000 laptops and 10,000 PCs were replaced, which were then equipped with the new Windows NT operating system in the course of the second project stage. From then on, the possibilities for using AMIS online were continuously developed and refined. [20]

The work of the IS divisions of the property, health and life insurance companies – which were combined in the IT department (D7) of Allianz Deutschland AG at the end of 2005 – and of AGIS remained consistently characterised by such major projects. These were projects such as the "Year 2000 changeover", which seems strange to us today but was controversially discussed at the time, the development of Internet and Intranet communication, the euro changeover, the introduction of the Windows NT operating system and the Lotus and Outlook mailing systems, and the establishment of a platform for eBusiness and its further development.

As for Allianz as a whole, the takeover of Dresdner Bank in 2001 was a turning point for AGIS. By spring 2003, AGIS and DREGIS, the IT service provider of Dresdner Bank, had adapted their structures and work processes to such an extent that the two companies were able to merge. This new AGIS (Allianz Dresdner Informationssysteme GmbH) employed 2,500 internal and up to 900 external specialists for IT infrastructure and service as well as in the printing center. Despite these seemingly proud figures, the works council's sceptical forecast for the company's development in 2003 came true: "The next two years," said Rainer Eigenbrod at the time, "should be a tough test for AGIS."[21] The employees had to pass this test in the form of a comprehensive restructuring programme. From then on, AGIS concentrated on the German core market of

Allianz and Dresdner Bank. The management aligned the reorganisation with the maxim of largely industrialising IT operations by means of centralisation, standardisation and automation. As a result, almost 600 jobs were cut, the company's organisational structures were reorganised and numerous functions were centralised in Munich. In the process, over 400 jobs were also relocated to Munich. In Unterföhring, the computer and printing centers of the branches of Allianz, Allianz Leben, Allianz Private Kranken and Dresdner Bank in Frankfurt, Hamburg, Cologne, Stuttgart, Berlin, Hanover, Offenbach and Munich and finally also the mainframe systems of Euler Hermes and Allianz in Austria and Switzerland were successively brought together. In addition, AGIS outsourced work areas that were no longer defined as core activities to external companies. For example, external service providers took over the operation of the AMIS network in the field service, the support and maintenance of terminals and parts of the software development.

The work of the following years was geared towards the goal of establishing a uniform IT system for the newly created Allianz Deutschland AG. Until now, a multitude of different applications had existed side by side in the different companies, and IT systems that spanned the entire

Right: employee in the central control area (Operation Center) of AGIS in Unterföhring (2006).

Left: Claus Trautmann at work in the incoming mail center (PEZ) of the Allianz in Berlin. It was a central component of the new operating model of Allianz since the reorganisation of Allianz in 2006. Here all correspondence was controlled, scanned and distributed.

company were the exception. This changed: The number of components was reduced and the entire application landscape became more manageable and homogeneous. Allianz Deutschland adopted for the first time the IT system Allianz Business System (ABS). It became a turning point in the history of the company. Allianz first implemented the model in Austria and then, in the course of a lengthy and complex process, transferred it to the business territory of Allianz Germany. The model comprised three elements: Firstly, all customer correspondence is scanned so that the person in charge can process the documents digitally. Secondly, central call centers with a single telephone number take over customers' calls. The employees trained for this activity are to conclusively clarify as many enquiries as possible. Only if this is not possible will the request be forwarded to the person in charge. Thirdly, target operating model means that for the first time a system is created that includes all customers and all offers, so that the person in charge can see the customer in all his contractual relationships and with all available information.

The global trends in IT of the 2000s and the strategy of the Allianz Group are now changing the work processes and work organisation of Allianz IT within a few years. The main buzzwords describing how management is

strengthening and developing the technical backbone of the financial services provider were centralisation of the infrastructure and the massive expansion of web-based applications in administration, qualification and sales. Many of the impulses for this came from the international companies of Allianz, which had been developing globally since the 1990s:

IT began shaping more and more areas of the company's everyday life and business operations, and the corporate culture was being noticeably more technologically changed. In Australia, for example, Allianz converted central parts of its continuing education programme for its more than 3,000 employees and product training for 9,000 representatives to computer-based programmes under the title "eCampus".[22] In addition to the classic courses on offer, these new educational formats for training claims handlers, further training in regulatory and legal issues and training in software use were being added throughout Allianz.

In the "young" insurance markets of Central and Eastern Europe, Allianz encountered particularly technology-savvy customers, to whom it offered a uniform life insurance product (Best Invest) across all countries in 2007, based on a uniform IT platform for sales. This meant that online distribution was being promoted here, whereby the technical possibilities came up against the interests of the agencies, which had yet to be made compatible.[23] This was a difficult task especially in markets with an

The managers of Allianz Cornhill Information Services, founded in 2003 with 20 employees, Rakesh Gupta, Amit Passi, Jison John, Rob Bisset, Adrian Biggs and Umesh Kamath celebrate the 5th anniversary of their company in Trivandrum in the Indian state of Kerala.

established and strong agency distribution like in Germany. The internet with its new services and possibilities also facilitated work at AGCS: Google Earth, for example, offered additional easily accessible information through the quality of its maps and images in order to assess and visualise the risks involved in insuring industrial plants, infrastructures and technical facilities worldwide even before a contract is concluded.

In 2008, Jürgen Gabor described an experiment in the Allianz Journal that showed the people of the year 2021 how quickly visions have become everyday life: "Thanks to modern computer and broadband technology, Allianz staff will one day be able to visit each other by computer. It's not quite there yet, but colleagues are already 'travelling' to online meetings on the Group Intranet." [24] The first "network conferences" on the intranet took place in 2005. The benefits and opportunities were already evident at the time: fewer flights, less time wasted, less CO2 emissions, cost savings and easier exchanges across local, national and corporate borders. The less advantageous aspects are also already being discussed: the impersonal nature of the exchange, the lack of emotional closeness, technical uncertainties and data protection.

Information security was recognised early on as a challenge for IT systems in the internet age: as early as 2002, Allianz adopted uniform security guidelines across the Group. It is about protecting the hardware, the

software against damage, the stability of communication, the data as a particularly sensitive and valuable asset. Last but not least, it is their task to strengthen the risk awareness of the employees so that they do not become the weakest link in the safety chain. IT security is constantly performing the balancing act between maintaining the greatest possible security and at the same time leaving employees adequate freedom to work effectively.

2008 marked the 5th anniversary of a project that started at Allianz Cornhill, the Group company in the UK, and would later become significant for Allianz as a whole: Allianz Cornhill Information Services (ACIS) was founded in 2003 as a software developer in Trivandrum, India. Here, labour costs were significantly lower than in the UK and there were many highly qualified young IT professionals. ACIS was quickly given additional tasks in IT service and support, payment processing and claims processing and policy administration. At the time of the anniversary, 600 employees were already working there.

In 2007 and 2008, Allianz set the course towards more uniform, international and cost-efficient information technology. It founded a new company, ASIC, to combine the IT infrastructures, mainframes and servers, of initially 15 European subsidiaries, which had 26 IT units, each with different processes, products and technologies. ASIC (Allianz Shared Infrastructure Services) was initially established as a limited liability company and was incorporated as a European Company in 2008. Markus T. Müller took over as Chairman of the Management Board, while Oliver Bäte chaired the Supervisory Board.

ASIC was given an ambitious programme that would soon also meet the requirement of a real Europeanisation of IT when, as early as 2008, its field of work was extended to include the information technology of the Allianz companies in Central and Eastern Europe. ASIC took an alternative route in its cooperation with the French Allianz subsidiary AGF: Parts of AGF Informatique and the data center there were integrated as a second production site. With the objective of bringing the cost and quality of its services to a generally competitive level by 2010, ASIC focused on the following areas of work: it developed and operated the IT infrastructures and maintained and serviced the information systems in the Allianz

Cover page of the consistently bilingual staff magazine of the of the ASIC. The cover story is dedicated to the perspectives of the employees who put their expertise at the service of Allianz across Europe.

Group. It developed, installed and operated market-proven IT technology for mainframes, server systems and networks. It also offered services in the area of consulting, projects, application & data services and printing and was responsible for IT security.

ASIC concluded a contract with Fujitsu for workplace services, networks and telecommunications as part of the outtasking process. IT staff were the first to experience a trend that was later extended to many parts of Allianz. Tasks were outsourced. Specifically, this meant: Fujitsu, as the service provider, took over responsibility for the entire work area and eventually also around 500 Allianz employees who had previously been AGIS or ASIC employees.

A discussion at the "ASIC inside Round Table" between the CEO and the the works council of the company: On the left CEO Markus T. Müller, on the right the employee representatives Jürgen Lawrenz, Manfred Büttner, Helmut Eckelt.

All the upheavals, departures and sometimes painful changes of these years – including the separation of tasks and colleagues after the sale of Dresdner Bank to Commerzbank in 2008 – served, according to ASIC CEO Markus T. Müller in a round of talks with works council members Jürgen Lawrenz, Manfred Büttner and Helmut Eckelt, the goal of filling the clearly defined role of the company: "In my vision, ASIC is the European IT infrastructure provider for the Allianz Group, which clearly excelled in quality and cost for the task." [25] However, it quickly became clear that this vision of the Europeanisation of IT was only meant to describe a short stage of further development. (GM)

Scope, Scale & Skill
and the digitalisation of the Allianz

The year 2010 marks a turning point in the history of data and information processing at Allianz. For 120 years, despite many innovative ideas and groundbreaking innovations, the respective technology of Allianz could

The cover of the first issue of the new AMOS staff magazine in 2011 showed the European orientation of the company in a successful way.

hardly ever keep pace with the company's business development. In the end, it always remained a piece of work. Now was the time to change that. Only one path seemed promising: to found a company that would be responsible for Allianz's IT worldwide and make a decisive contribution to transforming Allianz into a digital enterprise.

The groundwork for this was laid in 2009 when the Allianz Management Board approved the plan to create Allianz Managed Operations and Services (AMOS). In May 2010, the entry was made in the commercial register: ASIC had become AMOS, initially managed by the three-person management team of Rüdiger Schäfer, Holger Werner and Ralf Schneider. Finally, in February 2012, Sylvie Ouziel joined as CEO. AMOS developed dynamically, both in terms of the volume of business and the number of employees. On the one hand, this was due to the fact that other Allianz companies were merged into AMOS, such as Allianz Common Applications and Services GmbH (ACAS), which mainly provided SAP solutions. On the other hand, units and departments of other Allianz companies, for example Allianz SE or Allianz Deutschland, transferred to AMOS. The third reason for the strong growth was the fact that the path of internationalisation, which ASIC had already taken, was consistently continued: At the end of 2011, AMOS already had six branches in Belgium, Great Britain, Ireland, the Netherlands, Switzerland and Singapore, as well as a subsidiary in Austria. Finally, in February 2012, a new branch was established in India, further underpinning AMOS's claim to be the key enabler of the digitalisation of IT infrastructure and applications for Allianz worldwide. At the latest

Right:
Sylvie Ouziel

Left:
Rüdiger Schäfer,
Ralf Schneider and
Holger Werner
in an interview (left)

in 2017, with the acquisition of the IT subsidiary of Allianz Cornhill, ACIS India, the branch office in India rose to become one of the central locations. The pride in this international development was reflected in "shared", the AMOS staff magazine, where the new branches were portrayed in detail in turn. Marc Zinkel, who supervised the establishment and integration of the AMOS branches in the early days of AMOS, summarised the possibilities of internationalisation very vividly in an interview in "shared": "Local services are transferred from the OEs to AMOS units on site. These now provide the services for the respective OE – just as they do in the existing branches. Certain services, on the other hand, are bundled in an optimal location, for example the worldwide purchase of software licences in Switzerland. In addition, we need locations where we can deliver comprehensive services cost-effectively, for example in India."[26]

However, it quickly became apparent that the bundling of IT tasks at AMOS did not necessarily lead to a reduction in complexity. Zinkel went on to say in the aforementioned interview: "in all countries there are different company and tax law requirements that we have to address. For this reason, we have different legal forms in the countries." Sometimes the

In 2014, AMOS presented the corporate strategy in a very colourful and entertaining way with the image "AMOS Digital Olympics".

negotiations with the respective authorities led to quite surprising results. For the branch in Great Britain, the English commercial court refused to register the company in the commercial register despite properly submitted documents. The reason given was that the company was an SE. Therefore, registration was not possible; but fortunately for working in the UK it was not necessary either.[27]

The goals of the new foundation of AMOS were to generate cost advantages and to achieve a high quality of service. The global reach, the economies of scale through standardisation and automation and the professional specialisation should help here – succinctly summarised in the alliteration "Scope, Scale & Skill"[28]. And employees and customers should also experience Allianz in a completely new way. Under the motto "Anytime, anywhere, with any device" AMOS aimed to ensure constant availability of the Allianz's IT, access from anywhere and perfect display on all end devices. In terms of content, three aspects in particular soon became the focus of the work: (1) the consolidation of the data centers, (2) the further development of the network infrastructure in the OEs and (3) the further development and implementation of the globally usable business and IT platforms and applications.

(1) The decision to **consolidate the data centers** was made by the Allianz Group IT Committee in October 2012. "The programme aim(ed) to transform Allianz's IT infrastructure, harmonise IT operations, technologies and data centers, and exploit synergies by building a global IT operation."[29] What sounded wonderful, however, was not so easy to implement. In reality It must soon have been clear to those responsible at Allianz that this would be a longer-term project. The mainframes and servers of the European Allianz companies were quickly relocated to the data center in Unterföhring near Munich. Soon, however, Allianz opened new data centers in Frankfurt, Paris, Phoenix and Edison (USA) to meet its resilience, availability and security requirements. In 2014, Allianz won IBM as a partner to support the operation of the data centers.

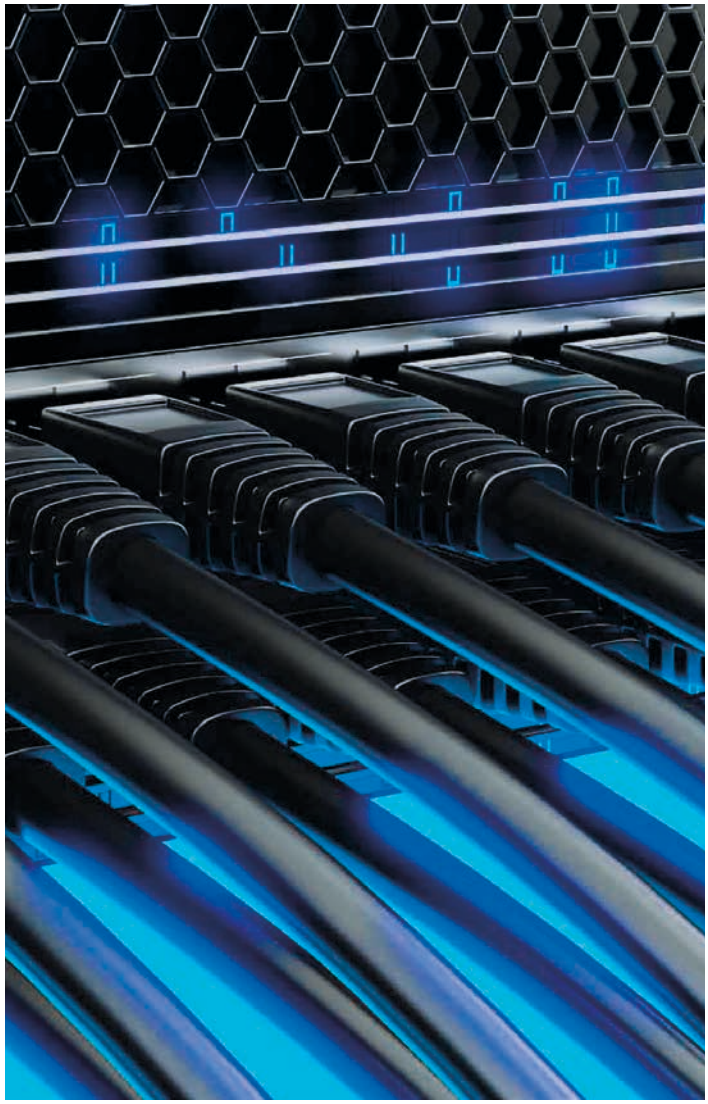
In the following years, 13,457 servers moved from more than 100 data centers until the closure of the data center in Unterföhring in 2019 marked the end of the Data Centre Consolidation project for the Americas and Europe. Meanwhile, Allianz has the data processed in the six strategic data

centers in Frankfurt, Paris, Phoenix, Edison, Singapore and Sydney. On-site servers provide additional support for printing processes, for example, in order to increase the speed of work and keep complexity low through short distances. For legal reasons, additional data centers exist in individual countries.

(2) In 2012, Allianz started to roll out the Allianz Global Network (AGN), the Group's most important **IT infrastructure** project. Only this modern network for the transmission of data, voice messages and video conferences, the foundation of Allianz's private cloud strategy, made it possible to access and process large volumes of business data. "AGN is transforming fragmented local networks into a system of high-speed data lines and voice highways that support shared services and form part of Allianz's digital programme. Together with an optimisation of network performance, service quality and costs, AGN enables group-wide, standardised network security in and between all Allianz companies."[30] Allianz Germany and the companies in France and Italy made a start; after completion of the fourth in 2017, around 220,000 LAN connections had been laid. And even if some Allianz employees initially missed the supposed solidity of the traditional copper cable, the advantages of the new technology very quickly became apparent. Ralf Schneider summed it up like this in 2012: "AGN ensures that the important applications are available at all times – with short time-to-market, best possible transmission speed and highest security."[31]

(3) The core task of IT at Allianz is **the further development and implementation of globally usable business and IT platforms and applications**. The Allianz Business System (ABS), the core insurance system developed in Austria under the leadership of Christof Mascher and introduced at Allianz Germany in 2006, made it possible to handle business processes across all lines of business on a common platform. More and more business areas and products in Germany were gradually mapped in ABS, for example the new insurance product "My Car" in 2011.

Internationally operating Allianz companies soon benefited from ABS as well. In 2012, for example, Allianz Global Assistance was able to introduce improved B2B2C functionalities for travel insurance worldwide, thus harmonising products and business processes. The many projects that



By 2017 alone, around 220,000 LAN connections had been installed in Germany, France and Italy as part of the Allianz Global Network programme.

were now starting soon threatened to overwhelm the few ABS experts at Allianz. The ABS Academy, founded in 2013, provided a remedy. Their head, Brit Fiedler promised all those who still had to wait for ABS: "Now we train as many employees as needed for this purpose."[32]

Since 2018, parts of ABS have been freely available as an open platform solution for other insurance companies. At that time, Allianz managed 42 million policies in 15 countries with ABS.

In a joint venture with Volkswagen launched in 2013, Allianz combined ABS for sales in VW's dealer network as well as for contract and claims processing and customer data management with the new One Web internet platform. When a customer took out his insurance on the joint venture's homepage, the data was imported into ABS without any detours. To make this possible, ABS had to be connected to the One Web website platform and the interests of countless departments within Allianz had to be coordinated, all this in intensive international cooperation. Barbara Karuth-Zelle, who was responsible for Business Transformation, summed it up like this at the time: "some developers were sitting in Pune and their results were then on the table for the colleagues in Munich first thing in the morning. The tests were conducted in India and Egypt. Coordinated by means of video and telephone conferencing. Not always easy, but it worked."[33]

Barbara Karuth-Zelle, Rüdiger Schäfer and Ralf Schneider visited the Pune site in India in 2014. At that time, 90 colleagues worked there, mainly in application development.

Allianz developed One Web as the basis for all corporate websites since 2011. Designed as a global platform, it was hoped to achieve positive economies of scale. Local web portals based on One Web were adapted to the respective market and customer requirements, and other Allianz companies were able to benefit from the experience and adopt good solutions. In May 2012, Allianz Suisse became the first Allianz company to use One Web for a customer portal. Now customers could view their policies and invoices or report claims and policy changes. And they could give feedback much more quickly and easily this way. Martin Jara, the head of marketing at Allianz Suisse at the time, was enthusiastic about the new possibilities: "every customer contact reduces the cancellation rate, and with One Web we achieve more interaction with the customer and are

thus more present with the customer."[34] By the time One Web was replaced by the new global platform One Marketing in 2017, well over 100 web portals had been created.

It was in the same year 2017 that the Allianz Group's IT provider was given a new name again. And just like 60 years ago, when electronic data processing at Allianz began with a few people in a department called "Rechenzentrum" (computer center), it was to be a name that spoke. For the first time in the history of Allianz, the employees themselves determined the name of their company. Together, more than 250 colleagues had first developed a short list of new names themselves before all employees could vote in Allianz Connect and the majority finally voted for "Allianz Technology". At that time, about 4,000 women and men worked for the company.

Allianz is still in the middle of its transformation into a digital company. However, in 2020 it proved that the enormous efforts of the last few years

Right: Home office of Allianz Technology employees: Matthew Winterer, Serap Keskin, Patthisar Yingsawat, Thu Rein Soe Tint, Rachanon Kratudngern (from top left clockwise).

Left: on the Allianz IT Infrastructure Transformation Programme (AIT) in 2015.

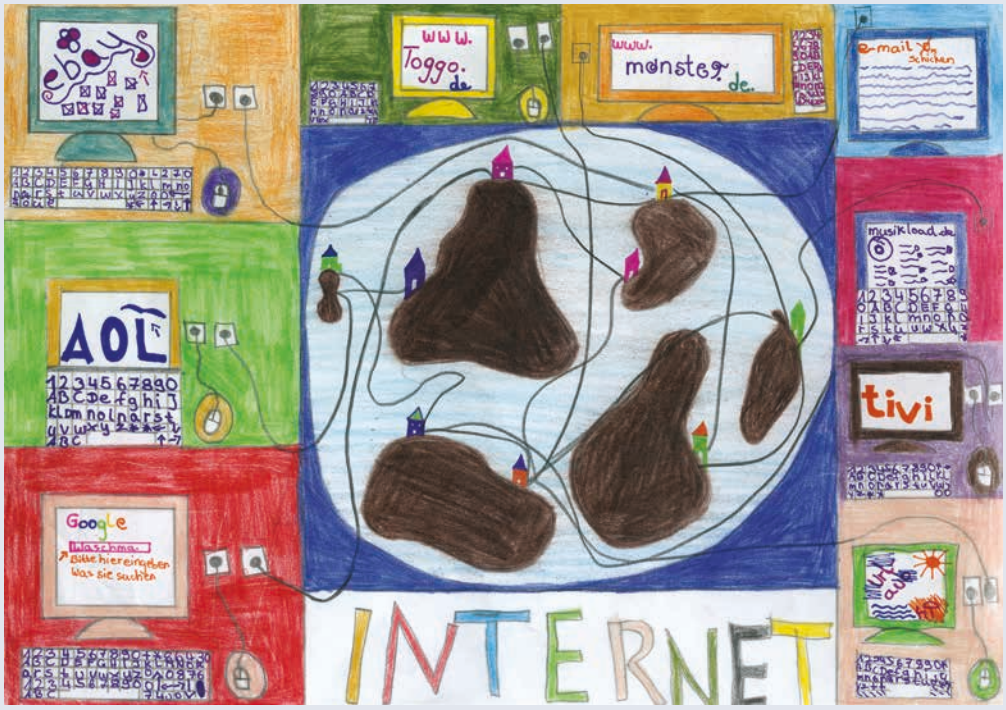
are bearing fruit: When Allianz employees started working from home after the outbreak of the Covid19 pandemic, many of them were very surprised and delighted at how quickly and smoothly the switch to home office worked. In this way, the 2011 vision was put into practice, that is "anytime, anywhere and with any device". The good infrastructure and dedicated staff thus ensured the almost smooth continuation of business operations and ensured that Allianz was able to settle insurance claims quickly and reliably even during the Corona crisis. In terms of publicity, it underlined the successes already achieved on the way to becoming a digital company by becoming the first Dax company to hold a purely virtual Annual General Meeting on 6th May 2020, thus helping to protect shareholders and employees. A success that Allianz owes above all to the approximately 8,000 employees of Allianz Technology and all others within the Allianz world who are involved in the development of IT. (SP)

Home page and single image example of the new Allianz website from 1997.

The Internet

http://info.cern.ch – This adress is a more than inconspicuous website. And it is unique because it was the first of its kind ever. Timothy Berners-Lee, Computer scientist at the European Nuclear Research Laboratory (CERN) in Geneva, who set up a hypertext system there in 1989, established this web presence. In the process, he invented the World Wide Web, the most popular form of use of the Internet, which had existed since 1969 as a communication network of universities and research institutions.

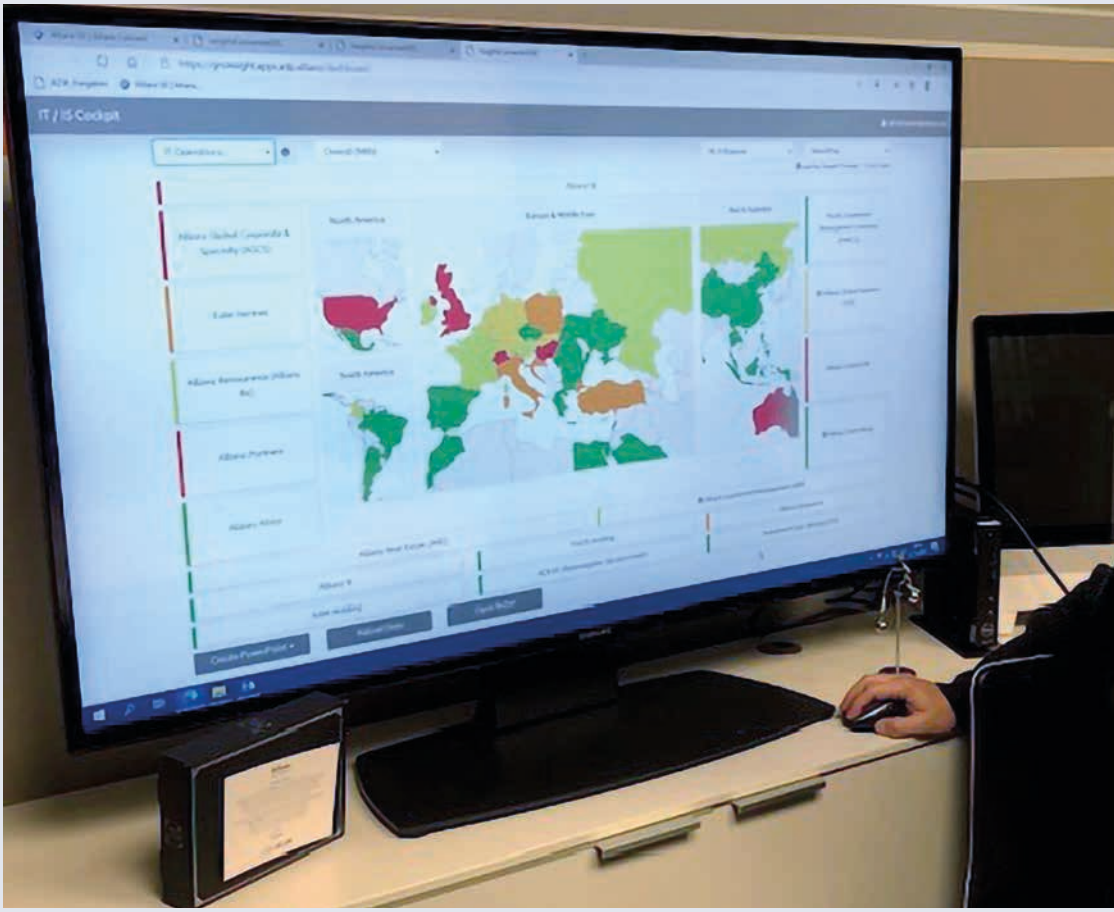
When the founder of Netscape, Marc Andreessen, released the Mosaic web browser in 1993, a new era of communication began. The web became popular, surfing was soon considered chic, and the number of users began to grow explosively. Two years later, Allianz entered the network. The first website was still modest and very manageable. On 1st January 1997, the result of the work of the "Allianz online" project team went online at www.allianz.de. The new website was comprehensive and presented information about the company, its departments, divisions and products. From the very beginning, it was to be a forum for dialogue with the customer and communication with everyone who was interested in Allianz. Of course, the idea of supporting sales was also there from the beginning. Allianz's real estate company (AGRAG) was the first to approach the customer here, followed by Kapital Anlagegesellschaft (KAG), which soon also offered online fund banking, and Allianz Leben. The latter was also the first company to let its employees surf the net via selected links. From that point on, it



The internet seen through children's eyes.
As Elisa Viscomi (10 years old) from Munich
imagines the Internet.

continued to achieve firsts. In the same year, the MEMO communication system was connected to the internet, Allianz Leben built the initial stage of an intranet, and representatives were given the opportunity to use the internet extensively in a test field: they were given access to the network, a secure e-mail system for contact with the customer, the "Homepage Assistant" for setting up their own agency web presence and a comprehensive sales support offer via the Allianz Extranet.

Since 1998, the Allianz internet presence, the intranet and the information system for the field service have been continuously developed and expanded. This included relaunches of the websites of all Group companies and the holding company, such as in 2000. In addition, there were projects such as the intranet for Germany (IND), the group-wide intranet platforms GIN (2002) and Allianz Connect (2015), the internet service for shareholders at the Annual General Meeting and the expansion of eBusiness as an online service and sales offering for Allianz customers.



IT & IS Health Indicator Cockpit

For a company the size of Allianz to function, it needs powerful and functional IT. To provide these, Allianz deploys large financial resources and employs numerous highly qualified experts. However, the most powerful network and the most functional programmes would be useless if the security of the data was not always guaranteed at the same time. Just as in the days of the central file until the 1970s of the 20th century, when only the registrars had access to this heart of data processing, it must continue to be ensured that no one gains unauthorised access to data or even manipulates the IT.

The prerequisite for IT security is, on the one hand, the smallest possible number of data centers. Allianz achieved this through its project to consolidate these assets, which began in 2011. The remaining data centers are protected against attacks both physically and virtually. On the other hand, the software must always be kept up to date, which has now become possible in a standardised way worldwide thanks to the Allianz Global Network and the use of virtual clients.

Allianz is a decentrally organised company. It consists of about 60 OEs and many more legally independent companies within the entire group. Since IT security can be centrally monitored but only decentrally controlled

Ralf Schneider
(Group CIO of Allianz)
presents the IT & IS
Health Indicator Cockpit.

and implemented in such a complex structure, those responsible came up with a cybernetic system of self-help in 2018, "as highly complex IT systems in the future can only be controlled cybernetically" said Ralf Schneider (Group CIO). Similar to air traffic control, which ensures the safety of air traffic from the tower, Group Information Security monitors the IT security of the entire group in real time.

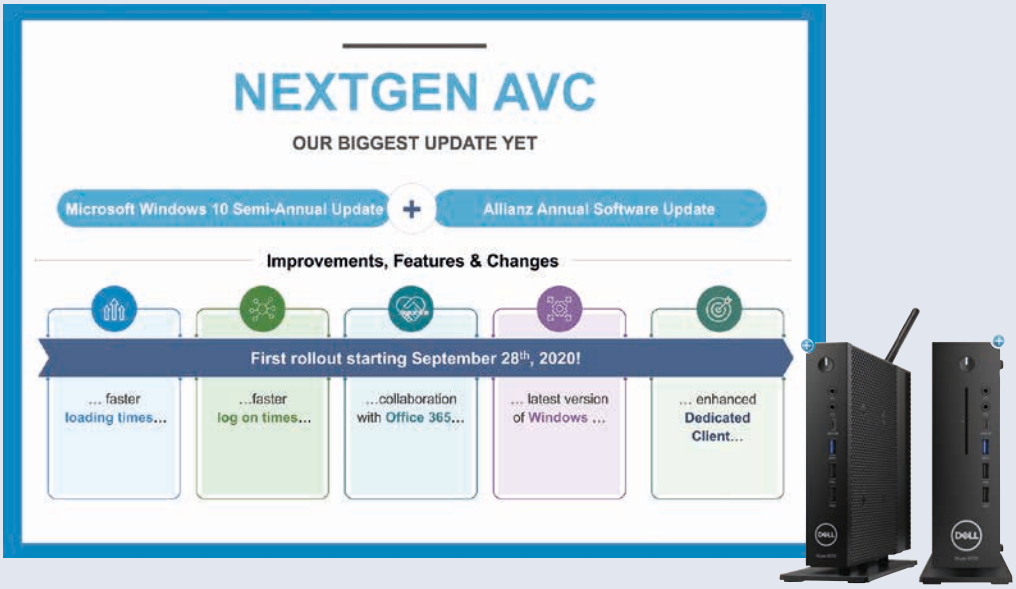
The cockpit makes use of the principle of self-regulation that exists in cybernetic to react quickly and appropriately to disturbances, i.e. incidents. So-called incidents, i.e. dysfunctions of individual devices or servers, are reported centrally and displayed on the IT & IS Health Indicator Cockpit. Anyone who has access to this tool can see the incident. Group Information Security learns about every incident in real time worldwide, but the various Allianz companies – supported by Allianz Technology – are responsible for resolving the problems within a certain period of time. This process works thanks to the common software system, like Qualys or Cynet, which runs on all servers in all data centers and detects and manages all vulnerabilities. In a next step, the Health Indicator Cockpit was extended to other branches of Allianz IT, like IT Run, IT Change and IT Economics.

In 2019, this team in Italy successfully migrated over 5,000 employees to the Allianz Virtual Client in 2019.

Allianz Virtual Client

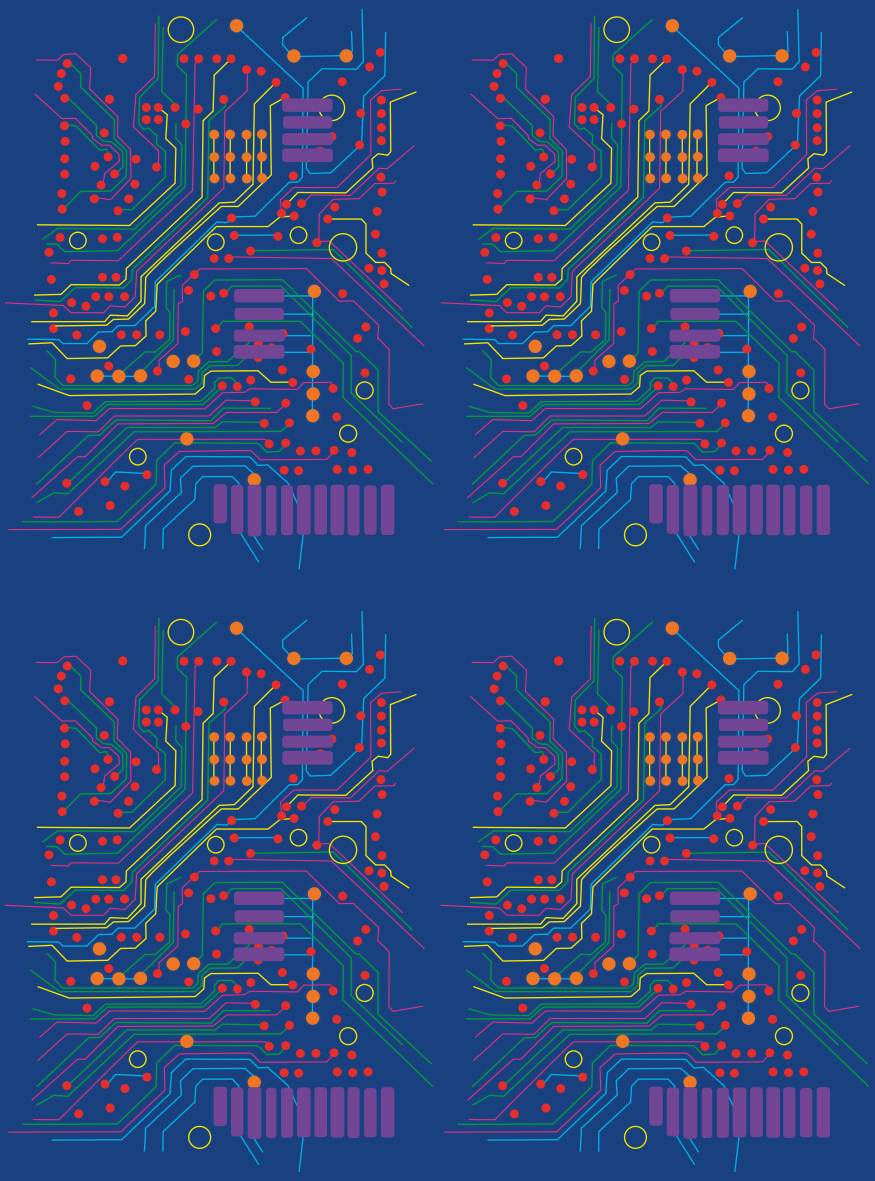
Since the 1980s, Allianz employees have become increasingly accustomed to working at their own PCs in the office. Soon everyone had a desktop on or under their desk or connected their notebook to the docking station. Hardly anyone wanted to voluntarily give up the new tool. However, as soon as the technology was used across the board, the disadvantages quickly became apparent. Thousands and thousands of computers all over the Allianz world had to be permanently maintained, repaired and replaced, and the programmes running on them kept up to date. When travelling, one lugged along one's lead-heavy notebook, but then it was offline and only allowed access to the data stored on the device.

The problems described were solved with the Allianz Virtual Client, which was introduced in 2011 in parallel with the Allianz Global Network. "The Virtual Client is based on virtualising the desktop and moving the data to the cloud. That is: programmes and resources are no longer kept on the local computer, but are located on central servers in the Allianz data center".[35] The highlight is that from then on, the software only has to be updated on the servers in the data center and the technology can be replaced much more easily. The big advantage for users is that access is much easier, faster and possible from any terminal device, and all programmes and files and all personal settings are available as usual at any time.



The development continues: since September 2020, Allianz employees have successively received new thin clients and new software.

The first workstations were virtualised at Allianz Germany, followed in 2012 by clients at Allianz SE, Allianz Ireland, Allianz Worldwide Care, Allianz Real Estate and Allianz Reinsurance. Especially in the latter society, progress has been tremendous. Up to now, they have been working with local IT solutions at their locations in Munich, Singapore, Zurich and Dublin. When you travelled to another location, it was technically like being in another company. Even the exchange of files from one location to another was enormously difficult. All that has now become history. Bernd Dietrich, at that time Head of IT at Allianz Re, described the new world like this: "We now have a common operating environment with identical software packages, unified support and a secure, shared storage environment. This has revolutionised the way we work."[36] By the end of 2018, more than 80,000 users from 21 Allianz Group national companies were already working with the Allianz Virtual Client.



4

“Allianz is crisis-proof thanks to IT” – Barbara Karuth-Zelle in the interview

Dr Barbara Karuth-Zelle, born in 1968, started at Allianz Private Health Insurance (Germany) in 2000, moved to the Board of AMOS as Head of Business Transformation in 2013 and became CEO of Allianz Technology in 2016 on 1 January 2021, Barbara Karuth-Zelle joined the Board of Management of Allianz SE as successor to Christof Mascher as COO.[1]

Ms Karuth-Zelle, what were your first tasks at Allianz?

I joined the health insurance company as a health economist in 2000 and already had a lot of contact with IT because Allianz Private Krankenversicherung tried relatively early to get in touch with customers via e-mail and to process the documents electronically, as far as they were interested.

At that time, we had started to create a new claims system to facilitate claims processing. I still come from a world where the tedious search for the paper claim envelope, where prescriptions and bills were collected and then later typed in, was part of everyday life. The staff were then spared this and it made the work much easier.

As a health manager at Allianz Private Health Insurance, what exactly made you switch to IT?

I was curious about a world that had not opened up to me at all until then. In this, I think I was always helped by my attitude that "everything is interesting, you just have to deal with it."

And so my thought was, IT has to be exciting and is something quite promising for the future. So even if you're a little afraid of contact, you have to take a chance! And that's what I did.

Can you say something about how it was for you as a woman to make your mark in the field of IT, which was dominated by men for a long time?

I would say I was lucky because I had great bosses who always encouraged me. I was certainly one of the first women at Allianz Private Health Insurance back then for whom a home office was set up when my daughter was born in 2001. I knew: I would like to continue working.

I can remember some meetings where my children called because something had happened. And every time, Mr Mascher's reaction was: "Then let's go quickly."

I have never experienced that it was judged negatively when I also took my role as a mother seriously.

What was your first impression of Allianz and of the role of IT in the company when you started working at Allianz?

Right from the start, I observed that AMOS, just like its predecessor companies ACIS and AGIS, was only noticed when employees had a problem and IT help was needed. This perception was also transferred to the company and its employees. AMOS (and its predecessors) was seen as **a company linked to a**

Barbara Karuth-Zelle in conversation with one of the guest speakers, Alastair Humphreys, at the Discovery Day 2016

problem. Nevertheless, many employees enjoyed their job very much because they had been there for years, which is otherwise very rare in IT. There was no praise for this, because no one notices when everything works.

"I am always impressed by the IT teams, without much praise or glory, dedicate themselves every day around the clock with enthusiasm and passion for the business."

From your perspective as a long-time employee of Allianz, how has the role and importance of IT changed?

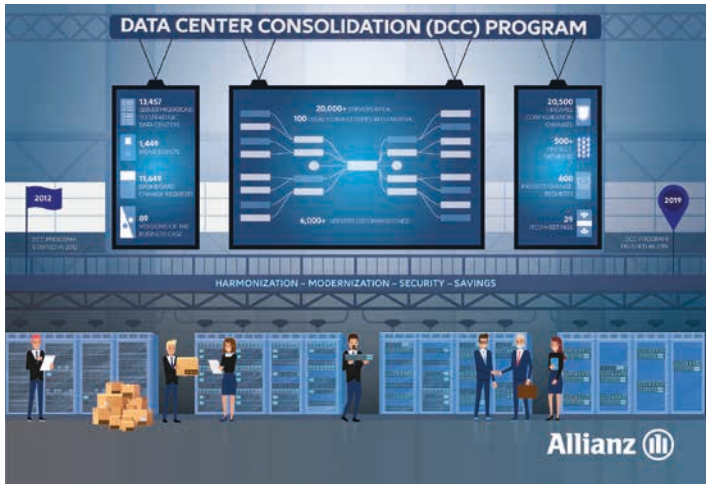
I think it is important that IT in Allianz has really come out of the "broom closet". And in the meantime it is indeed the case: people understand that without IT almost nothing works anymore. Without IT, we would not have made it now in the Corona crisis that we can continue to work around the world almost as before.

And secondly, there was the fact that AMOS, AGIS and other predecessor companies **operated far away from the business**. This means that there was little or no communication with the business and a lot of things went wrong.

Barbara Karuth-Zelle at the Fire Side Chat in 2018, a regular exchange with colleagues from Allianz Technology.

The most beautiful development that can be seen in the meantime is the following:
Everyone knows that Allianz could not survive today without technology. We don't have products that you can touch, but information and data. IT provides the platform to exchange information and data smoothly. The solutions for the **customers** are based on those things; as a result, IT is directly involved in the business and has become increasingly important in the Group. The successes that the employees experience as a result have made them successively more self-confident. Today, we have a very good mix of old and young at Allianz Technology and are more diverse than almost any other area of Allianz.

In your opinion, what makes Allianz Technology attractive for young professionals to join the company or for employees to transfer from other companies?
Due to the increasing importance of IT in the company and the more self-confident appearance, we are now also attracting talents from outside who **actually** want to go to Allianz because they now perceive Allianz as an IT-savvy company. This was not the case in the past. And for me it is particularly important that people apply to Allianz today because they have discovered it as a digital company. The transformation we are currently initiating plays a major role here: **The digital transformation is global**. This is intriguing for young talents who are mobile because Allianz offers them almost unlimited opportunities worldwide.



Allianz used this graphic to illustrate the data center consolidation project, which officially ended in 2019 with the closure of the data center in Unterföhring.

What did you change strategically after you became CEO at Allianz Technology in 2016? Did you realign the company or was the path already mapped out?

I would say the path was actually already laid.

With its new Group Strategy 2.0, the Allianz Group is pursuing a fundamental transformation that is also about **simplification**. The products are simplified, which also makes it possible to achieve simplification in IT. The important innovation is that until now, people have always tried to effect change via the system, now for the first time via the product.

Perhaps it can be summed up like this: **A simple product with simple processes cannot have a complicated system in the background.** With these simple products and processes, the strategic shift towards the Allianz Customer Model, combined with the pre-configured IT platform – which then virtually already contains the model – is also relatively easy to implement.

What does the "Group Strategy 2.0" mean in terms of workload and costs?

If we not only simplify, but also leverage synergies by having all national companies use the new platform, then we have already won.

If we make the functionalities available, all national subsidiaries will be able to use the IT platform in the future without expensive in-house developments. This makes the development effort more profitable and we can exploit the synergies that we have as a group due to our size. More specifically, we are experiencing a cultural shift: The entire Allianz Group has decided to follow this path of digital transformation.

The Innovathon 2019 took place under the motto "Simplicity Meets Customer Experience" was held in Pune in May 2019.

What are the most important changes for the future that are foreseeable today? In your opinion, what are the three most important future trends that are also significant for Allianz Technology?

One big issue of importance to Allianz is the **cloud**, another is **data security**. Both issues directly affect the work of Allianz Technology.

A third very big topic will be how we design the **workplace of the future**. It will look different because I don't think we will go back to the world where everyone sits at desks in offices 100 per cent of the time. **Especially during the crisis, I experienced that most projects were able to continue.** It was remarkable that despite the crisis, people were committed and worked productively from home. This clearly shows that we are already well positioned, but there is still a lot to do.

Allianz is crisis-proof thanks to IT!

What consequences does the increasing digitalisation of the world of work have for the environment?

We have a great need **for action on the** environmental issue for the future. We use a lot of technology today that requires a lot of energy. Our goal is to achieve a reduction in greenhouse gas emissions by switching to **green energy** and – in very practical terms – by examining, for example, which trips are really necessary in the future.

As recently as the beginning of 2020, it was simply inconceivable that people did not sit together at all when the international country associations met. They used to say: "Barbara, we need all the people on the ground!" Suddenly Covid

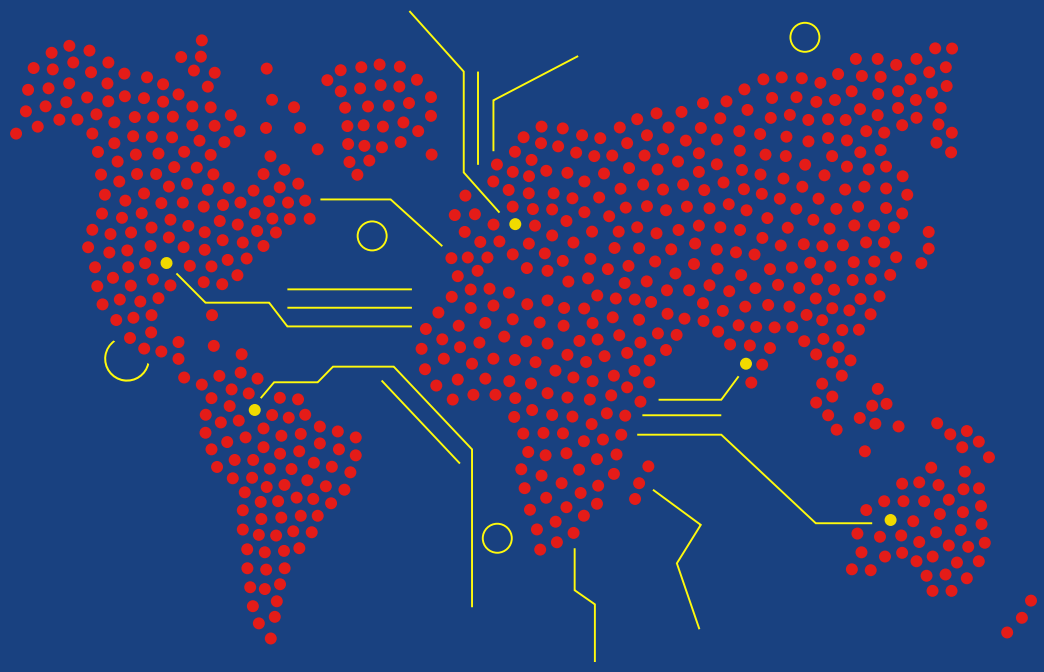
Barbara Karuth-Zelle and Jean-Marc Pailhol in April 2017 at the ceremonial announcement of the new name "Allianz Technology", which was favoured by the employees.

arrives and we realise: There is another way. Of course, you will still have to fly, but not to the **same** extent because you can simply do **much** more by working agilely from different locations.

My conclusion is: the "IT of the future" is ultimately a crystal ball. Nobody knows what it will look like in five years. It is important to keep an eye on developments and never stop trying things out and continuously improving topics.

Ms Karuth-Zelle, thank you very much for the interview!

(BE)



5

Digitalisation and simplification: Securing the future

For every company, it is of central importance **to understand** which social megatrends will shape our coexistence in the future. Based on this, the focus areas for the company's own strategy can be developed, to which the business is to be aligned in the future. Allianz is currently in a process of transformation toward a digital company that is supported by a globally networked IT infrastructure.[1]

In times of crisis, it is particularly difficult to formulate expectations of the future. The Corona pandemic, which erupted in 2019, has changed social and economic conditions faster than ever before and has led to a significant acceleration of digitalisation. Companies are faced with additional requirements because workers have been working more from home since 2020 due to the crisis. This trend will continue after the crisis, with an impact on the new mobile workplace of the future.[2] It can be assumed that the employees of Allianz will increasingly work in a hybrid mode in the future.[3] This requires additional efforts, such as implementing secure and reliable broadband networks with high data speeds for the workplace, both in the office and at home – a common task for

politics and industry. In addition, Allianz will increasingly need IT solutions that are suitable for travelling and technical applications that enable collaboration across many locations, such as Microsoft teams, Virtual White Boards, or advanced video solutions. This, in turn, will also speed up cultural change.

According to Oliver Bäte, digitalisation is one of the five core building blocks of the renewal agenda[4] and has been anchored in the company strategy, the "Renewal Agenda", since 2015 through the "Digital by default" project.[5]

Networking the World: Secure, high-speed broadband networks enable real-time global communication.

The aim is to develop sustainable digital solutions with the help of the IT to increase service quality for customers and reduce costs, as well as to create digital "ecosystems" that are attractive to the new generation of customers. For example, artificial intelligence consulting is one of the topics that are tailored to this clientèle, where solutions from the various product lines and assistance offers are incorporated. Oliver Bäte emphasizes that the idea behind the renewal agenda is not complete automation, but that customers can continue to be advised online and on-site by employees.

Business Master Platform (BMP)

Since 2013, in the course of the global Allianz Infrastructure Transformation, Allianz became increasingly digital and the IT global. In 2018, the entire digital business of the Allianz Group was merged into a new board of directors under the new Chief Business Transformation Officer, Iván de la Sota. This accelerates the transformation process once again. Fundamentally new is that this unit was created to develop and implement the strategies for digital business across the group and their implementation by the IT.[6] It's about creating a digital business model that focuses on the customer, not the product, and is able to better address their needs through a modular approach.

The existing **Allianz Customer Model** and **the IT master platform** will be standardised and further developed into the overarching **business master platform** of Allianz. This provides the country companies with a product with the same product architecture worldwide that allows local adaptations. By standardising the systems, considerable synergy effects are tapped and costs are saved.[7]

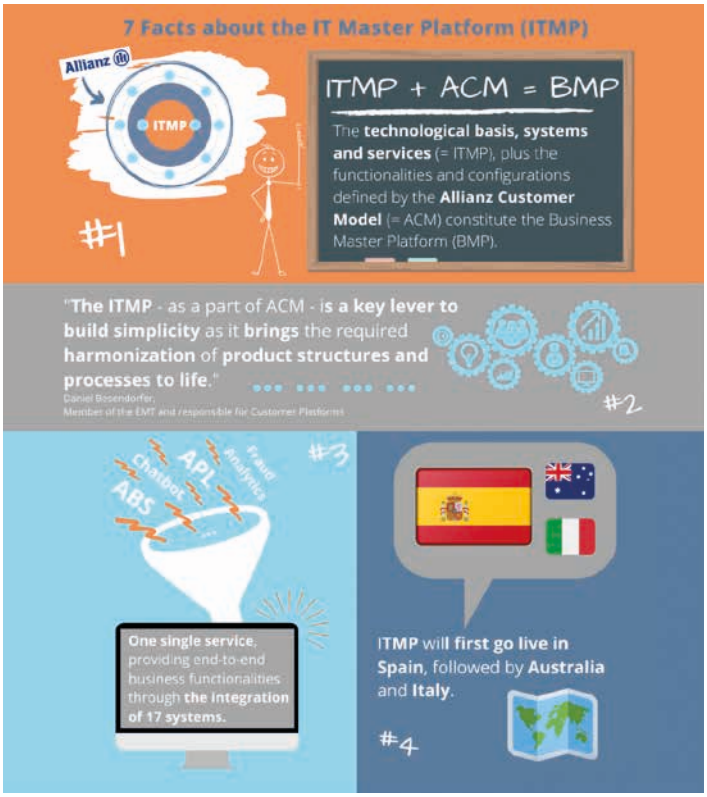
Iván de la Sota explains the procedure: Before the products could be simplified, customers were asked to better understand their needs. They want it to be as convenient and easy to deal with insurers as they do with digital platform providers. Complexity and confusion, long waiting times, many contacts and obscure exclusions are passing. The business model for the future should be simple: new digital products are being built, which follow a simple, intuitive logic, explain the exclusions in an understandable way and offer a basic product for each insurance requirement, which is modular in design.[8]

Veit Stutz is Head of Business Transformation and is responsible for the development of the Business Master Platform (BMP), where he accepts all these customer requirements.[9]. The new portfolio is to create a redesign of the products (1), processes (2) and the IT platform (3), whose complexity and thus costs are to be significantly reduced.

The work of the future will be hybrid. You will be able to access one's own workplace at any time from anywhere to anywhere with any device.

(1) The new master product will therefore consist of a few parts, a simple design, a profile and a logo.

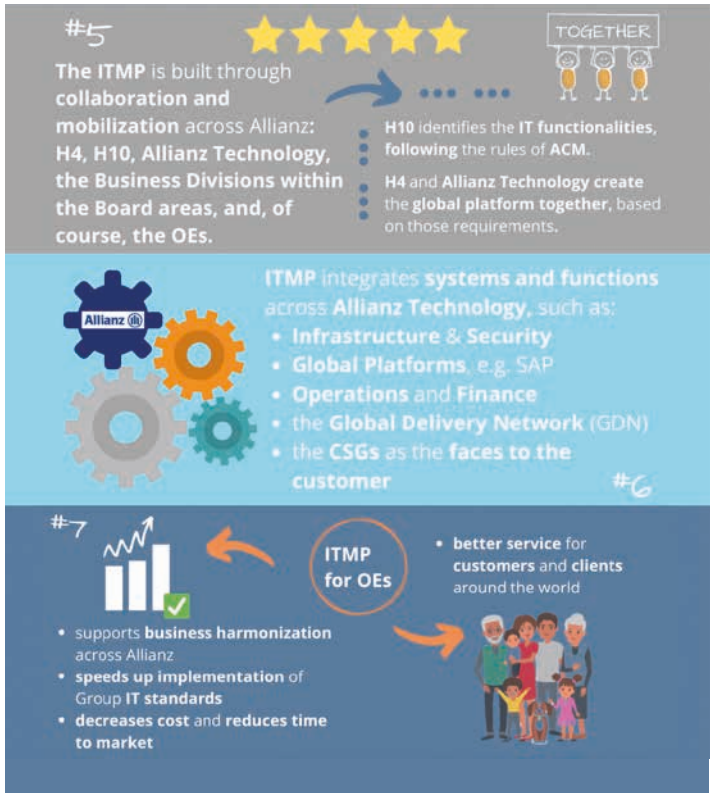
The new Business Master Platform is inspired by the standardisation and further development of the IT Master Platform and the Allianz Customer Model.



The BMP is currently in the test phase in Spain and in parallel in Australia, so that 2021 provides all the functions for customers and representatives for car insurance. In 2023, all products are to go online.[10]

(2) With a unique, significantly simplified process landscape – based on master processes developed jointly with the national companies – the customer will have the opportunity to enter his data online in the event of a claim. The processes were changed so that employees and customers **access an identical system** and enter their information there – once.[11] The process of entering customer data was often such that employees worked on two screens and had to manually transfer customer information from one system to another.

(3) In order to really reduce complexity and thus also costs, a global IT platform is also required for uniform products and processes – no longer one for each Allianz unit as before.[12]



If the standardized BMP is implemented in the future, it will be continuously developed, for example in the areas of cloud solutions and behavioural economics.[13]

- A first step in this direction was taken in the cloud solutions of Christof Masher, Chief operating Officer of Allianz until 2020: At the end of 2019, Allianz entered into a strategic partnership with the software provider Microsoft in order to be able to offer the further developed Allianz operating System (ABS) to other insurers on Microsoft's cloud servers via the software provider Syncier, which it founded.[14] Platform solutions are becoming increasingly important as they enable global operations to be faster and more efficient.[15] Allianz is currently pursuing the "hybrid cloud" approach, i.e. to use the "public cloud" of its strategic partners and – for regulatory reasons too – the "private cloud" in its own strategic data centers. In the long term, less and less Allianz data will be in its own data centers, according to Konrad Schachtner's forecast.[16]

In the future, Allianz's data will increasingly be stored in the public cloud less and less in its own data centers.

Digital transformation will lead to a completely new relationship between human and machine.

- Artificial intelligence (AI) is already used today to analyse customer behaviour on-line and to submit suitable product offers to the customer based on findings from "Behavioural Economics".[17]

Outlook

The insurance industry has a historically developed experience in collecting and evaluating data. Allianz was one of the first insurers to introduce data processing with the help of program-controlled computer machines back in 1926.

The strategic importance of data will continue to increase: it is about how we can collect, analyse and use data in real time in the future. Until now, the data was collected but not stored in a structured way and could therefore not be fully evaluated.[18] Decisions that were made based on experience will now be supported by algorithms and AI or fully automated. "An IT background will become more and more important in the future," says Veit Stutz.[19] This will also have an impact on the structure of the workforce and the demands on the employees. In the future, experts in data processing and developers of apps will increasingly be in demand. The customer experience and the added value for the insured are at the heart of every new application to be developed.

The potential of digitalisation for the insurance industry can be seen along the entire value chain from product development to claims management. Continuous digitalisation is a prerequisite for the successful implementation of the transformation process. (BE)

Notes

1 A brief history of the computer

1 Fabulous factories: Desktop manufacturing, in: Economist, March 23, 2005; Niels Boeing, one for all: Eine für Alles: Dem Personal Computer soll bald der Personal Fabricator folgen – eine Maschine, die Tassen und Zahnräder druckt und so die Produktion demokratisiert, in: DIE ZEIT 38/2006, p. 46-47.

2 Brett E. Kelly, Indrasen Bhattacharya et. al., 3D Printing. Volumetric additive manufacturing via tomographic reconstruction, in: Science, March 8, 2019, S. 1075-1079.

3 J.J. O'Connor, E. F. Robertson, Indian Numerals, in: An overview of Indian mathematics, (2000), http://mathshistory.st-andrews.ac.uk/HistTopics/Indian_mathematics.html (last viewed on March 13, 2020)

4 quoted by Karl Fröschl, Siegfried Mattl, Hannes Werthmer, Symbol verarbeitende Maschinen. Eine Archäologie des Computers. Catalog about the exhibition Info. Eine Geschichte des Computers, Steyr 1993, p.33.

5 The Alan Turing Internet Scrapbook. Who invented the computer? Alan Turing's Claim. In: http://www.turing.org.uk/turing/scrapbook/computer.html. Compare the assessment in the relevant biography of Turings: Andrew Hodges, Alan Turing, Enigma, Vienna/New York 1994.

6 Die Erfindung des Computers, in: HNF Museum Guide, Paderborn 2000, p. 49.

7 http://www.virtualtravelog.net/entries/2003-08-TheFirstDraft.pdf

8 George Gray, UNIVAC I: The First Mass-Produced Computer, in: UNISYS History Newsletter, 5/1 (2001); http://www-static.cc.gatech.edu/gvu/people/randy.carpenter/folklore/v5n1.html

9 http://www.isoc.org/internet/history/brief.shtml

10 http://www.daniel-von-der-helm.com/internet/entwicklung-des-internet.html. Zum machtpolitischen Missbrauch: Thomas Rid, Mythos Cyberwar. Über digitale Spionage, Sabotage und andere Gefahren. Edition Körber-Stiftung, Hamburg 2018.

2 Mechanisation at Allianz: Typewriter, Adrema and punch card

1 The name of Allianz changed several times over the years. Founded in 1890 as Allianz Versicherungs-Aktien-Gesellschaft, it was renamed Allianz and Stuttgarter Verein Versicherungs-Aktien-Gesellschaft in 1927 and was again renamed Allianz Versicherungs-Aktiengesellschaft in 1940. In 1985, a holding company was founded with the name Allianz AG. Since 13 October 2006 Allianz AG has been a European public limited company with the name Allianz SE. Allianz Lebensversicherbank AG was renamed Allianz and Stuttgarter Lebensversicherbank AG in 1927 and was named Allianz Lebensversicherungs-AG in 1940. The text describes Allianz Versicherungs-AG with the short form "Allianz" and Allianz Lebensversicherungs-AG with "Allianz Lebensversicherungs-AG". Hensel, Rudolf, 40 Years Of Allianz. A piece of German insurance history, Berlin undated (unpublished manuscript), p.59 and Hensel, Rudolf, fifty years Allianz 1890 – 1940, Berlin 1940

2 Arps, Ludwig, Auf sicheren Pfeilern. Deutsche Versicherungswirtschaft vor 1914, Göttingen 1965, p. 400

3 Arps, 1965, p. 413

4 Arps, 1965, p. 413

5 Arps, 1965, p. 399

6 Arps, 1965, p. 413

7 Pirker, Theo, Büro und Maschine: Zur Geschichte und Soziologie der Mechanisierung der Büroarbeit der Maschinisierung des Büros und der Büroautomation, Basel 1962, p.153-166

8 Pirker, 1962, p. 40

9 Kocka, Jürgen, Michael Prinz, Vom neuen Mittelstand zum angestellten Arbeitnehmer. Kontinuität und Wandel der deutschen Angestellten seit der Weimarer Republik, in: Sozialgeschichte der Bundesrepublik Deutschland. Beiträge zum Kontinuitätsproblem, contributions to the continuity problem, written by Werner Conze and M. Rainer Lepsius, Stuttgart 1983, p. 212, p. 215

10 Arps, 1965, p. 414

11 Hensel, 40 Jahre Allianz, undated, p. 45

12 Hensel, 40 Jahre Allianz, undated, p. 59

13 13 Kugler, Anita: Von der Werkstatt zum Fließband. Etappen früher Automobilproduktion in Deutschland, in: Geschichte und Gesellschaft, 13 (1987), p. 304 -339

14 Hensel, 40 Jahre Allianz, undated, p. 62 f.; pp., 50 Jahre Allianz, 1940, p. 19.

15 Allianz Versicherungs-AG, Annual Report,1924, p. 13

16 Allianz Versicherungs-AG, Annual Report, 1926, p. 11

17 Hensel, 40 Jahre Allianz, undated, p. 217

18 Müller-Lutz, Heinz-Leo. Automation der Büroarbeiten. Unter besonderer Berücksichtigung des Einsatzes elektronischer Großrechneranlagen im Versicherungsbetrieb, Karlsruhe 1961, p.13

19 Pirker, 1962, p. 125, p. 93

20 Allianz Vers. AG, Rechenzentrum. undated, p. 5

21 AZ Zeitung 7/1926, p. 103-105; AZ 7/1927, p. 114f.

22 Interview with Mr. Lenz, AZ Leben, from 17. 01.1980, p. 3f, FHA, B1

23 Interview with Mr. Lenz, AZ Leben from 17. 01.1980, 6. Petzold,1992, p. 126f.
24 Sandner, Günther, Hans Spengler, Die Entwicklung der Datenverarbeitung. Von Hollerith Lochkartenmaschinen zu IBM Enterprise-Servern, Böblingen 2006, p. 1-5, We would like to thank the authors for the opportunity to work with the still unpublished manuscript.
25 25 Petzold, Hartmut, Moderne Rechenkünstler. Die Industrialisierung der Rechentechnik in Deutschland, Munich 1992, p. 134
26 Metz, Alexander, Geschichte der Allianz-EDV/IT. A chronicle of the DVZ/DVA/AGIS from 1926-2005, Munich/Unterföhring 2005, p. 134
27 Petzold, 1992, p. 149.
28 Metz, Chronik, 135; Petzold, 1992, p. 148
29 Metz, Chronik, 135; Petzold, 1992, p. 171
30 Metz, Chronik, p. 135
31 Petzold, 1992, p. 148
32 Metz, Chronik, p. 135
33 EDV bei der Allianz 1945-1975, FHA, 19. Letter dated 25. 08. 1950
34 Metz, Chronik, p. 136
35 25 Jahre Betriebsorganisation 1954-1979, Ladner, p. 31
36 EDV bei der Allianz 1945-1975, FHA, AZ 19
37 Petzold, 1992, 155-159, 163ff.
38 Petzold, 1992, p.168
39 EDV bei der Allianz 1945-1975, FHA, AZ 19; letter dated 27. 7. 1949
40 Allianz Vers.-AG, Rechenzentrum, undated, p. 5
41 Metz, Chronik, 14
42 EDV bei der Allianz 1945-1975, FHA, AZ 19; letter dated 31.10.1950
43 Allianz Vers. AG, Rechenzentrum, undated, p. 5
44 Petzold, 1992, p. 172
45 Petzold, 1992, p. 169
46 Annual Report of the Business Management Department, 1958, see FHA, AZ 19.1.3, p. 5

3 IT at Allianz since 1956

1 Annual Report BWA (1954/55), 22f., FHA, AZ 19. 1.3/1
2 Ladner, Otto, 25 Jahre BWA, p. 30. in: 25 Jahre BWA/BO
3 Ladner, Otto, 25 Jahre BWA, 29 and others. in: 25 Jahre Betriebsorganisation 1954-1979. Documentation of the festival act for the 25-year-old is available to the department of plant management on March 8, 1979, Munich, undated
4 Allianz Vers.-AG, Data Center, undated, p. 5
5 25 Jahre Betriebsorganisation 1954–1979. Documentation of the festival for the 25-year-old will be available to the Department of Enterprise Organization on March 8, 1979, Munich, undated (34 pages), p. 29
6 Ladner, Otto, 25 Jahre BWA, p. 30
7 Müller-Lutz, Heinz-Leo, Automation der Büroarbeiten. Unter besonderer Berücksichtigung des Einsatzes elektronischer Großrechneranlagen im Versicherungsbetrieb. Karlsruhe, 1961, p. 6
8 10 Jahre Rechenzentrum, p. 1; Allianz Versicherungs-AG, Rechenzentrum. undated, p. 6
9 Matis, Herbert, Die Wundermaschine. Die unendliche Geschichte der Datenverarbeitung – von der Rechenuhr zum Internet. Frankfurt/Vienna, 2002, p. 240, p. 242
10 Blätter der deutschen Gesellschaft für Versicherungsmathematik, vol. III, H. 3, 10/1957, p. 307
11 Blätter der deutschen Gesellschaft für Versicherungsmathematik, vol. III, H. 3, 10/1957, p. 307-321
12 Allianz Versicherungs-AG, Rechenzentrum, undated, 6
13 Professor Heinz-Leo Müller-Lutz on May 29, 1968 minutes of the joint work of the company inspections and DVA head in Munich on May 29, 1968, FHA, AZ 19.3.1/17.
14 Minutes of the work meeting of the plant inspectors on 25.7.1973 in Munich, FHA, AZ 19.1.3/22.
15 BWA ANNUAL REPORT 1976 (XXIII), P. 25, FHA, AZ 19.1.3/25.
16 working meeting of the company inspectors on 2./3.6.1975 in Berlin, FHA, AZ 19.1.3/24.
17 ibid.
18 Board meeting of October 6, 1975 HA, AZ 3, executive meetings July 1975 to September 1976.
19 cf. on the subject Barbara Eggenkämper, Gerd Modert, Stefan Pretzlik, Die Staatliche Versicherung der DDR, Von der Gründung bis zur Integration in die Allianz, Munich 2010.
20 Allianz Magazin, special edition EDV 2006.
21 Allianz Journal 2/2003, p. 45.
22 "Nur die Fantasie setzt Grenzen", Allianz-Journal 1/2007, p. 26.
23 "Noch sind wir ein wichtiger Anbieter", Allianz-Journal 4/2008, p. 26-27.
24 "Vielflieger auf neuen Pfaden", Allianz-Journal 1/2008, p. 30-31.
25 "Ein Ticket für Europa", ASIC-Inside, 2/2009; p. 6.
26 shared 2.2011, p.13.
27 ASIC inside 2/2010, p. 26
28 Annual Report of AMOS 2010, p.10
29 Annual Report of AMOS 2012, p. 18
30 Annual Report of AMOS 2015, p. 17
31 shared 2-12, S. 23

32 shared 1-2013, p. 25
33 shared 2- 2013, p.28
34 shared 2-2012, S.20
35 Annual Report of AMOS 2011, p. 18
36 shared 3-2012, S.15.

4 "Allianz is crisis-proof thanks to IT" – Barbara Karuth-Zelle in the interview

1 the chapter is based on an interview with Barbara Karuth Zelle, COO Allianz SE, from 08. 08. 2020 , FHA AZ 10/ folder "Project History of IT, Zeitzeugeninterviews".

5 Digitalisation and simplification: Securing the future

1 the following statements are based on interviews with Dr. Konrad Schachtner, Country Leader UK and Ireland, Allianz Technology as of 3. 8. 2020; Dr. Ralf Schneider, Chief information Officer Allianz SE (Group CIO) of 20.5.2020 and Veit Stutz, Head of Business transformation Allianz SE, as of 18.11. 2020, FHA AZ 10/Folder "Project History of IT, Zeitzeugeninterviews"
2 interview with Ralf Schneider, as of 20.5. 2020, p. 21, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews"
3 interview with Konrad Schachtner,3.8.2020, p. 29, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews"
4 Oliver Bäte im Gespräch mit Gabriele Burkhardt-Berg, Nachgefragt: Digitale ID, „Wir wollen die Kunden in Echtzeit erreichen", https://connect.allianz.com /videos/24266; Shared 3-2015, p. 17.
5 Shared 3 - 2015, p. 16f.; Oliver Bäte im Gespräch mit Gabriele Burkhardt-Berg, Nachgefragt: Digitale ID, „Wir wollen die Kunden in Echtzeit erreichen", https://connect.allianz.com/videos/24266
6 interview with Ralf Schneider, 20.5. 2020, p. 23, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews"
7 interview with Veit Stutz,15. 11.2020, page 2, FHA AZ 10/ folder "Project History of IT, contemporary interviews"
8 Iván de la Sota, Transformation – Unterwegs zu einer digitalen Allianz, Handelsblatt online, 31.10. 2019. Das neue Vorstandsressort umfasst die Themen: „Allianz Direct, Allianz Partners, Allianz X, Business Transformation, Group Data Analytics, IberoatAm"
9 interview with Veit Stutz,15. 11.2020, S.5, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews". The results of the customer surveys from Germany, France, Italy and Spain showed that the expectations of customers across all countries are extremely close together.
10 interview with Veit Stutz,15. 11.2020, S.4, FHA AZ 10/ folder "Project History of IT, Zeitzeugeninterviews"
11 interview with Veit Stutz,15. 11.2020, 6f, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews".
12 Michael Stanczyk, "Es geht nicht alles ohne Schmerz, aber er ist bei uns überschaubar" Veit Stutz, Head of Business Transformation Allianz SE, on change in Group structures, Insurance industry, as of 1.12. 2020, 26-29, p. 27.
13 interview with Veit Stutz,15. 11.2020, p. 10, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews"
14 Carsten Herz, Christian Fast: Allianz. Trennung mit Kalkül, Handelsblatt, 4.9.2020, p. 30.
15 interview with Veit Stutz,15. 11.2020, p.10, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews".
16 Interview with Konrad Schachtner, 3.8.2020, p.14, FHA AZ 10/folder "History of IT project, Zeitzeugeninterviews".
17 interview with Veit Stutz,15. 11.2020, p.10f, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews".
18 Interview with Veit Stutz,15. 11.2020, p.11f, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews".
19 interview with Veit Stutz,15. 11.2020, p.12, FHA AZ 10/folder "Project History of IT, Zeitzeugeninterviews".

Picture credits

The book is illustrated with photographs by Son Luu Vu and Annika Seifert. Photographs by them can be found on the following pages: 36/37, 76/77, 78/79, 82, 84, 88, 94/95, 98/99, 104, 105, 108, 112, 122, 123, 127, 130/131.

All other photographs, except for those mentioned below, are from the collections of the Allianz company history archives.

Cover	Büro Müller-Rieger
p. 13	The Trustees of the British Museum
p. 14/15	akg-images
p. 15	Bridgeman Images
p. 16	Wikimedia Commons/National Geographic/ Oxford University - Bodleian Library
p. 17	Adam Risen Rechenbuch (title page, 2nd edition 1574)/Wikimedia Commons
p. 19	Wikimedia Commons
p. 20/21	Deutsches Museum, Munich, Archive BN 38895
p. 22	Deutsches Museum, Munich, Archive CD 67985
p. 23	Deutsches Museum, Munich, Archive R 2931
p. 24/25	Deutsches Museum, Munich, Archive BN 54120
p. 26	public domain, King's College Cambridge
p. 27	Wikimedia Commons/U.S. Army Photo
p. 28/29	Wikimedia Commons/U.S. federal government
p. 31	Wikimedia Commons/This image comes from Los Alamos National Laboratory, a national laboratory privately operated under contract from the United States Department of Energy by Los Alamos National Security, LLC between October 1, 2007 and October 31, 2018
p. 32	Heinz Nixdorf MuseumsForum
p. 34/35	Heinz Nixdorf MuseumsForum
p. 50	IBM Deutschland GmbH
p. 52/52	IBM Deutschland GmbH
p. 56/57	Sergei Magel/Heinz Nixdorf MuseumsForum
p. 60	IBM Deutschland GmbH
p. 83	IBM Deutschland GmbH
p. 85	IBM Deutschland GmbH
p. 86	IBM Deutschland GmbH
p. 90/91	IBM Deutschland GmbH
p. 102/103	IBM Deutschland GmbH
p. 107	IBM Deutschland GmbH
p. 120	Erika Remmele, private
p. 129	Rolf Herkelrath
p. 132/133	Historical Archive of Dresdner Bank
p. 149	Dabarti CGI/Shutterstock.com
p. 153	private
p. 170/171	greenbutterfly/Shutterstock.com
p. 172 top	istock.com/ginvalds
p. 172 below	istock.com/AJ_Watt
p. 176/177 top	geralt/Pixabay.com
p. 176/177 below	istock.com/Andrey Popov

We have attempted to respect all copyrights of the photos and graphics used. However, should you become aware of a copyright infringement, please inform us accordingly.

Index

Bibliography

Arps, Ludwig, Auf sicheren Pfeilern. Deutsche Versicherungswirtschaft vor 1914, Göttingen 1965

Boeing, Niels, Eine für Alles: Dem Personal Computer soll bald der Personal Fabricator folgen – eine Maschine, die Tassen und Zahnräder druckt und so die Produktion demokratisiert, in: DIE ZEIT 38/2006, p. 46–47

Borscheid, Peter, 100 Jahre Allianz, Munich 1990

Ceruzzi, Paul E., A History of Modern Computing, Cambridge 2. Aufl. 2003.

Deutsches Museum, Von Meisterwerken der Naturwissenschaft und Technik. Exhibition guide, 5th revised edition, Munich 2005

Eidam, Hardy, Manfred Weidauer, Summa Summarum ... das macht nach Adam Ries, Erfurt undated

Eggenkämper, Barbara, Die Vision vom "aktenlosen Büro". Von der Lochkarte zum Computer, in: Großstadtmenschen. Die Welt der Angestellten, ed. by Von Burkhart Lauterbach, Frankfurt a.M. 1995, p. 228–248

Eggenkämper, Barbara, Modert, Gerd, Pretzlik, Stefan, Die Staatliche Versicherung der DDR, Von der Gründung bis zur Integration in die Allianz, Munich 2010.

Fröschl, Karl, Siegfried Mattl, Hannes Werthner, Symbol verarbeitende Maschinen. Eine Archäologie des Computers. Katalog zur Ausstellung Info. Eine Geschichte des Computers, Steyr 1993

George Gray, UNIVAC I: The First Mass-Produced Computer, in: UNISYS History Newsletter, 5/1 (2001) http://www-static.cc.gatech.edu/gvu/people/randy.carpenter/folklore/v5n1.html

Hensel, Rudolf, 40 Jahre Allianz. Ein Stück deutscher Versicherungsgeschichte, Berlin o.J (unpublished Manuscript)

Hensel, Rudolf, Fünfzig Jahre Allianz 1890–1940, Berlin 1940

Herz, Carsten, Schnell, Christian, Allianz. Trennung mit Kalkül, Handelsblatt, 4.9.2020, p. 30.

HNF Heinz Nixdorf MuseumsForum GmbH, HNF Exhibition guide, Paderborn 2000

Hodges, Andrew, Alan Turing: Enigma, Wien/New York 1994 (OA New York City 1983)

Hülm, Christa, Sieghart Pietzsch, Vom Kerbholz zum Computer. Aus der Geschichte der Rechentechnik, Berlin (East) 1988

Katz, Victor J., A History of Mathematics: An Introduction, 2. Ed., Reading, Mass. 1998

Kelly, Brett E., Bhattacharya, Indrasen, et. al., 3D Printing. Volumetric additive manufacturing via tomographic reconstruction, in: Science, March 8, 2019, p. 1075–1079.

Kisch, Wilhelm, Fünfzig Jahre Allianz. Ein Beitrag zur Geschichte der Deutschen Privatversicherung, Munich 1940

Kocka, Jürgen, Michael Prinz, Vom neuen Mittelstand zum angestellten Arbeitnehmer. Kontinuität und Wandel der deutschen Angestellten seit der Weimarer Republik, in: Sozialgeschichte der Bundesrepublik Deutschland. Beiträge zum Kontinuitätsproblem, ed. by Werner Conze u. M. Rainer Lepsius, Stuttgart 1983, p. 210–254

Kugler, Anita, Von der Werkstatt zum Fließband. Etappen früher Automobilproduktion in Deutschland, in: Geschichte und Gesellschaft, 13 (1987), p. 304–339

Liegert, J., Die Geschichte der Entwicklung und Überleitung der EDVA R 300 von Robotron, Fassung vom 29.01.2006, as PDF under: http://robotron.foerderverein-tsd.de/311/robotron311a.pdf

Matis, Herbert, Die Wundermaschine. Die unendliche Geschichte der Datenverarbeitung – von der Rechenuhr zum Internet, Frankfurt a.M./Wien 2002

Metz, Alexander, Geschichte der Allianz-EDV/IT. Eine Chronik der DVZ/DVA/AGIS von 1926–2005, Munich/Unterföhring 2005

Meyen, Hans G., 120 Jahre Dresdner Bank. Unternehmens-Chronik 1872 bis 1992, Frankfurt a.M. 1992

Müller-Lutz, Heinz-Leo. Automation der Büroarbeiten. Unter besonderer Berücksichtigung des Einsatzes elektronischer Großrechneranlagen im Versicherungsbetrieb, Karlsruhe 1961

Naumann, Friedrich, Vom Abakus zum Internet, Darmstadt 2001

2001 Norman, Jeremy M., From Gutenberg to the Internet. A Sourcebook on the History of Information Technology, Novato 2005

O'Connor, J.J., Robertson, E.F., Indian Numerals, in: An overview of Indian mathematics, (2000), http://mathshistory.st-andrews.ac.uk/HistTopics/Indian_mathematics.html (as consulted online on 13th March 2020)

Petzold, Hartmut, Moderne Rechenkünstler. Die Industrialisierung der Rechentechnik in Deutschland, Munich 1992

Pirker, Theo, Büro und Maschine: Zur Geschichte und Soziologie der Mechanisierung der Büroarbeit der Maschinisierung des Büros und der Büroautomation, Basel 1962

Rid, Thomas, Mythos Cyberwar. Über digitale Spionage, Sabotage und andere Gefahren. Edition Körber-Stiftung, Hamburg 2018.

Sand, Stephanie, IBM – Eine kritische Geschichte der Computer-Giganten, Munich 1988

Sandner, Günther, Hans Spengler, Die Entwicklung der Datenverarbeitung. Von Hollerith Lochkartenmaschinen zu IBM Enterprise-Servern, Böblingen 2006

Scriba, Christoph J., Peter Schreiber, 5000 Jahre Geometrie. Geschichte, Kulturen Menschen, Berlin 2000

Staatliche Kunsthalle Berlin und Neue Gesellschaft für Bildende Kunst, Rationalisierung 1984, Berlin 1983

Sota, Iván de la, Transformation – Unterwegs zu einer digitalen Allianz, Handelsblatt online, 31.10. 2019.

Stanczyk, Michael, "Es geht nicht alles ohne Schmerz, aber er ist bei uns überschaubar", Veit Stutz, Head of Business Transformation Allianz SE, über Change in den Konzernstrukturen, Versicherungswirtschaft, 1.12. 2020, p. 26–29, p. 27.

Weinhart, Karl, Informatik. Führer durch die Ausstellung, Munich 2nd Ed. 1997

Wiegmann, Karl-Heinz, Big Blue, Microsoft, Apple & Co., in: DAMALS 38/3 (2006), p. 68–71

Wurster, Christian, Computers. Eine illustrierte Geschichte, Cologne 2002

Internet resources

www.turing.org.uk/turing/scrapbook/computer.html
www.static.cc.gatech.edu/gvu/people/randy.carpenter/folklore/v5n1.html
www.computerwoche.de/nachrichten/579591
www.br-online.de/wissen-bildung/thema/geschichte-computer/index.xml
www.mathematik.de/mde/information/matheInGeschichteUndGegenwart/uebersicht.html
www.isoc.org/internet/history/brief.shtml
www.daniel-von-der-helm.com/internet/entwicklung-des-internet.html
www.virtualtravelog.net/entries/2003-08-TheFirstDraft.pdf

Magazines

AGIS intern
Allianz Journal
Allianz Magazin
Allianz Magazin Sonderausgabe EDV, 2006
Allianz Zeitung
Supplement "Unser Computer Report"
Annals of the History of Computing
Blätter der deutschen Gesellschaft für Versicherungsmathematik
shared, Allianz Managed Operations & Services SE, Employee Magazine
ASIC inside, Allianz Shared Infrastructure Services GmbH, Mitarbeiter-Magazin

Archival materials

Bundesarchiv Berlin (BAB), DE/1
FHA/Sammlung Metz
FHA, AZ 3
FHA, AZ 19
FHA, B 1

Timeline

1890 Allianz Versicherungs-AG was founded in Berlin.

About 1890 Allgemeine Deutsche Versicherungsverein (ADVV) founded in 1874 in Stuttgart, acquired first typewriters to simplify correspondence.

1922 Allianz Lebensversicherbank AG (Allianz Leben), headquartered in Berlin, was founded by Allianz and Munich Rück.

1922–1925 In the rationalisation phase during and after the inflation period , Allianz introduced booking machines and Hollerith machines, as well as the address system.

In 1926 With the introduction of life insurance, Allianz Leben uses Hollerith machines for the processing of policies.

In 1926 Frankfurter Allgemeine Versicherungs-AG (FAVAG) established a working group with Powers punch card machines for processing premium invoices for burglary-theft insurance.

1927 Takeover of the Stuttgarter Verein (formerly ADVV) by Allianz

1929 Takeover of FAVAG by Allianz.

1930 Allianz Leben set up a punch card division for the small life business in Stuttgart, modeled on the Berlin headquarters.

1930–1950 Allianz Leben uses the tabulating machines of the Deutsche Hollerith in the 1930s and 1940s, first the tabulating machine type IIIB, then the devices BK, D9 and D11.

1949 The conversion from Adrema to punch card technology began.

In 1950 Frankfurt Allianz enters into a contract with IBM and completely turns to data processing on IBM machines after 1954.

1954 Foundation of the business administration department BWA in Munich.

1955 Foundation of a data center under the direction of Hans-Willy Schäfer for the preparation of the IBM 650 deployment.

In 1955 The limits of the performance and system expansion of punch card technology at Allianz were reached.

1955 Allianz Leben introduces the first electronic mainframe IBM 604.

1956 On 20 January, the age of electronic data processing at Allianz begins with the IBM 650, Europe's first magnetic drum computer.

1959 Replacement of address technology in inventory management .

In 1961 The company installed second-generation mainframe computers. Allianz uses IBM 7070 and IBM 1401 in Munich, Allianz Leben in Stuttgart uses IBM 1620 and IBM 1410.

In 1963 99 employees work in the punch card department of Allianz Leben.

1966 Allianz Leben used the first mainframe of the third generation (IBM 366-40).

1968 Allianz in Munich installed an IBM 360.

1969 Use of the first screens IBM 2260 at Allianz.

1973 Allianz installed the IBM 370-158; the Allianz Data Processing Center (DVZ) has 140 employees.

1974 Premium collection via IT since the introduction of the central direct collection system (ZDI).

1980 Announcement of ELIAS II.

1981 VIS gave sales representatives to access the Allianz database via the terminal.

1983/84 Use of the first PCs at Allianz and Allianz Leben (IBM XT and Columbia 1600-4).

1984 Start of MEMO as a mail system.

1987 Use of the first mobile computers in the field:
The portable Nixdorf 8810 M 15 referred to as a case PC.

In 1990 After the foundation of Deutsche Versicherungs-AG – as a result of the takeover of the East German state insurance company – Allianz built up the IT operation.

1993 Installation of the one-thousandth PC at Allianz Leben.

1995 First Internet presence of Allianz.

1995 Takeover of Vereinte Versicherung by Allianz.

1997 Takeover of the data center operations of Vereinte Versicherung into the DVZ of Allianz.

1997 Foundation of AGIS, Allianz Gesellschaft für Informatik Service mbH.

2000 Foundation of DREGIS, Dresdner Global IT-Services Gesellschaft mbH.

2000 Getting started with e-business: Set up from allianz.de + allianz.com.

2001 Takeover of Dresdner Bank by Allianz (until 2008).

2002 Establishment of the Global Intranet (GIN) at Allianz.

2003 Foundation of Allianz Cornhill Information Services (ACIS) Trivandrum, India with 20 employees. By 2008, there were already 600 employees.

2003 AGIS and DREGIS merge to form new AGIS, Allianz Dresdner Informationssysteme GmbH.

2006 Completion of the centralization of the data centers in Germany.

2006 Transformation of Allianz AG into Allianz SE (Societas Europaea), a European company.

2006ff Building up the standardized IT-system ABS (Allianz Business System) for Allianz Deutschland AG, after the model had been introduced in Austria.

In 2007 In Central and Eastern Europe, Allianz offered a unique life insurance offer (Best Invest) across all countries, based on a unique IT platform for the sale.

2007/2008 Foundation of ASIC (Allianz Shared Infrastructure Services) with the aim of unifying information technology and bringing together the IT infrastructures, mainframe computers and servers, initially of 15 European subsidiaries. ASIC becomes Societas Europaea in 2008.

2010 Setup of Allianz Managed Operations and Services (AMOS), which was to be successively responsible for the IT of the Allianz Group worldwide.

2012 AMOS had seven offices in Belgium, the UK, Ireland, the Netherlands, Switzerland, Singapore, Austria and India.

2012 Initiation of the Group-wide IT infrastructure project, the Allianz Global Network (AGN). The private cloud strategy based on the global data and voice messaging network. By 2017, 220,000 LAN connections were created worldwide.

2013 Building up the ABS Academy.

2013 Initiation of the Global Allianz Infrastructure Transformation with the goal of the global orientation of IT.

2015 AMOS took over responsibility for the entire IT of Allianz Worldwide Partners (AWP). About 260 employees transferred to AMOS.

2015 Allianz SE adopted the new strategy program "Renewal Agenda".

2017 AMOS acquired ACIS in Trivandrum, India, and expands this branch into a central location.

2017 One Marketing replaced One Web (since 2011) as the basis of all corporate websites.

2017 AMOS renamed Allianz Technology after the company-wide agreement of its employees.

2018 Allianz Customer Model and IT Master Platform standardised and further developed into the overarching Allianz Business Master Platform (BMP).

2019 Completion of the Data Center Consolidation project for America and Europe. Allianz with six strategic data centers worldwide in Frankfurt, Paris, Phoenix, Edison, Singapore and Sydney.

2020 Covid19 pandemic: the globally standardised IT infrastructure enables employees to work from home and Allianz to run business in a crisis-proof manner.

2020 Initiation of the Gearshift project, which bundles all IT services across the Group and creates an integrated, global IT setup with dedicated IT units.