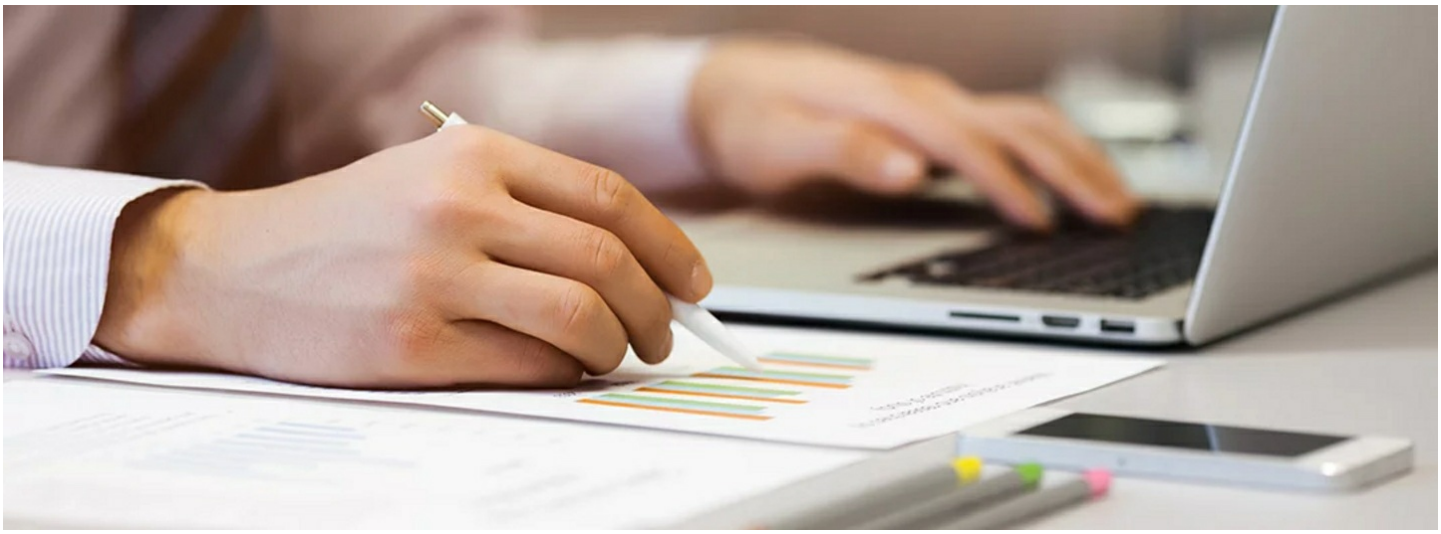

First chip card patent filed 50 years ago on September 13, 1968

10-09-18 | Munich | Giesecke+Devrient

Giesecke+Devrient (G+D) has been instrumental in introducing and developing this groundbreaking technology from the original form factors to today’s eSIMs

Chip cards are indispensable in our everyday lives. We use them on a daily basis, for example at ATMs, when shopping, at the doctor, on public transport, in electronic identity cards, in cell phones, for access to buildings and IT systems, and in more and more IoT devices. Without the development of the chip card and its diverse applications, today's modern, connected world would not be conceivable. The chip card has laid the foundation that enables global, secure, cashless payment processes, the secure and flexible use of mobile connectivity, increased security levels for identity cards and passports and, ultimately, the protection of our digital identities. Two German engineers and G+D played a decisive role in the basic, groundbreaking technology and its further developments.

Today, our most important data is now stored on just the few square millimeters of the integrated circuit card. Advances in semiconductor technology enable increasingly more functions in a chip card. The chip card is one of the core building blocks of the connected digital economy. As an eSIM (embedded SIM), it will be found in new and even wider applications in cell phones or wearables, or as part of the Internet of Things, in the next few years. The German patent office considers the invention of the chip card as one of the great milestones of technology's history – in the same league as the diesel engine, the refrigerator, the dowel, the X-ray tube, or the MP3 file format (https://www.dpma.de/english/our_office/publications/poster_gallery/index.html).

Two inventors shaped the history of the chip card. 50 years ago, on September 13, 1968, the German engineers Juergen Dethloff (1924-2002) and Helmut Groettrup (1916-1981) filed a patent in Austria for their idea of an "*identification circuit*". The purpose of this so-called identification circuit is to receive offered information and assign it a specific meaning. To this end, a special assignment logic with transmitting and receiving points is used. On September 10, 1969, a subsequent, identical application (Patent DE1945777A) was filed in Germany. The patent was also already provided for wireless transmission by means of inductive coupling (i.e. RFID or NFC technology). Among other things, the chip card eliminated the limitations of the magnetic strip card in terms of poor reliability and lack of fraud protection.

Dethloff took the technology further in a new patent application by using microprocessors and EEPROMs to make data handling even safer and more flexible. G+D purchased this application and developed three fundamental, global patents from it: these patents describe the secure initialization and personalization only through authorized locations in card production, writing properties based on the non-volatile programmable read/write memory (EEPROM), the use of a charge pump to prevent tampering during the writing process, and the blocking or self-destruction of the information in the event of an attack. These fundamental ideas still apply today and are among the most important basic innovations of the 20th century, as they are the key to the security and adaptability of the chip card.

The chip card inventions by Dethloff and Gröttrup (who from 1970 served as Managing Director of G+D's research and development company "Gesellschaft für Automation und Organisation (GAO) mbH") along with the many products derived from them, laid the foundation for G+D's technology leadership in chip card systems.

About G+D Mobile Security

G+D Mobile Security is a global mobile security technology company headquartered in Munich, Germany. The company is part of the Giesecke+Devrient group. G+D Mobile Security has a workforce of 5,700 employees and generated sales of approximately EUR 812 m in the 2017 fiscal year. More than 40 sales and partner offices as well as 20+ certified production and personalization sites and data centers ensure customer proximity worldwide.

G+D Mobile Security manages and secures billions of digital identities throughout their entire life cycle. Our products and solutions are used by commercial banks, mobile network operators, car and mobile device manufacturers, business enterprises, transit authorities and health insurances and their customers every day to secure payment, communication and device-to-device interaction. G+D Mobile Security is a technology leader in its markets and holds a strong competitive position. For more information, please visit: https://www.gi-de.com/de/de/mobile-security