

Excellence in Science.

Time travel from 1968 – 2018.



### Foreword Akira Nakamoto

Let me address my heartiest congratulations to the 50<sup>th</sup> anniversary of Shimadzu Europa GmbH. It's my pleasure and honor to address this as Chairman of the Board of Shimadzu Corporation.

Starting in August 1968, Shimadzu Europa has developed successfully over the last 50 years, of which we are all proud. Starting with just a few people, Shimadzu Europa has meanwhile grown to a company which now employs Europe-wide approximately 750 people by transferring from a Western Europe oriented small organization to a strong European acting sales and service network. During this time, Europe has passed through many changes: Opening the borderlines between East and

West, big political changes in South East and Eastern Europe, the German reunification, the forming of the European Union after the Maastricht Treaty and the introduction of the Euro currency.

The business development over all these years underlines the potential of the European market and its strong demand for high end analytical techniques. European scientists and researchers are known for their creativity and innovation spirit, which we all need to strengthen products. The current hard- and software solutions we see as just an intermediate step to future instrumentation, therefore we need more input from Europe and

from your customers to our development teams. We still see much unawakened potential, new challenges and opportunities which need to be addressed.

My deep appreciation goes to all SEG group members for their work during the last years to create a strong image of the name Shimadzu in Europe. I wish you much success in the coming years. You have the power to influence our company's future.





### Foreword Dr. Teruhisa Ueda

Congratulations to Shimadzu Europa on the 50<sup>th</sup> anniversary of its foundation. It is my honor to address some words to this event.

Looking at Shimadzu Europa and its development over the last years, we would like to address our deepest thanks and appreciation to all current and former staff members for their efforts to strengthen the name Shimadzu in the European markets. The actual position of Shimadzu in Europe is the result of hard and strategic work and business with Shimadzu's instruments.

Shimadzu Europa represents one of what we call advanced markets, as new trends and developments found their roots here and cooperation partners influence our Research and Development groups.

Looking to our future plans – the structure of Shimadzu Europa, the close link between Analytical and Medical Sales and Marketing organization is becoming even more interesting for Shimadzu, as we are combining broad expertise knowledge for both markets and can rely on strong partners in both fields. Trends towards fast and reliable diagnostics and design of such instruments and

methods requires strong teamwork, and the synergies and potential for analytical and medical systems will play an important role in the further development of Shimadzu Corporation.

My best wishes to Shimadzu Europa for further progress, we count on Shimadzu Europa as a strong and creative voice in our Corporation.

Jemhisa neda



### In dialogue with Jiro Takashima, Jürgen Kwass and Kiyohito Sonoki

#### How long have you been with Shimadzu?

Jiro Takashima: Since 1983, this means 35 years now. Jürgen Kwass: For me, it is 29 years. I started in 1989. Kiyohito Sonoki: I have been with the company for 31 years.

Tell us about your early personal impressions and experiences with Shimadzu Europa (SEG).

**Jürgen Kwass:** It was in the early days of my career. I had an offer to start working for the Bayer company, a huge international player. But I dropped the opportunity because I thought there were too many chemists there. I preferred starting at SEG, and then I found out that there were even more chemists.

**Jiro Takashima:** I first visited Duisburg in 1990. Although I have worked abroad many times since then and set up Shimadzu facilities and organizations in Melbourne, Vietnam, Philippines, and Sydney, I have always been up to date about the situation at SEG.

**Kiyohito Sonoki:** Before I came to SEG, I didn't have any experience in sales. So I have learned much from my European colleagues. This helps the headquarters to understand even better the medical business in Europe.

#### How do you see the European market?

**Jiro Takashima:** The European market with its unique nature and multinational regulations is the most sophisticated market. The size and quality of the market are exceptional. Europe is a place of 500 million consumers, where key industries are located and the markets are highly competitive and innovative.

Jürgen Kwass: The European market is multi-faceted. We have nearly 50 nations, with different cultures and mentalities. In the last 25 years, the political, societal and economic situation in Europe has changed a lot. The business between European countries has grown tremendously. Markets, customers and technologies have changed and developed, and so has Shimadzu. We have restructured as an organization, changed our branch offices to subsidiaries thus achieving closer proximity to markets, and set up triennial development and growth plans to adjust our company to market needs.





**Kiyohito Sonoki**: Our Medical Systems Division gives a high priority to countries which have big markets, such as USA, China and Japan. The European market as a whole is larger than the Japanese and Chinese markets. But it is not a homogeneous market; there are differences from country to country regarding structure, needs and sometimes rules. Nevertheless, new clinical trends often spread from Europe. It should be our next target area for growth.

The 50<sup>th</sup> anniversary of Shimadzu Europe – please share some of your thoughts with us.

**Kiyohito Sonoki:** It is my pleasure to congratulate SEG and all the Shimadzu people in Europe on the 50<sup>th</sup> anniversary, and also the Medical Systems Division's history in Europe. The changes in healthcare markets all over Europe have been challenging and very competitive. But we as a team of inventors, engineers, market, sales and service experts are a strong crew to succeed in the future.

**Jiro Takashima:** We have reached a milestone, and we deserve to celebrate. Since 2017, I have been located in Duisburg and proud to attend and contribute to this anniversary in person. SEG is the oldest continental subsidiary of Shimadzu, and it plays a vital role within the Shimadzu Group to accelerate our globalization process.

Jürgen Kwass: An anniversary has many perspectives. First, it is a time to party with all who contributed in achieving this jubilee. Second, it is an opportunity to review and recap what has been accomplished so far and how, in order to, third, draw the right conclusion for future goals and developments. We live in a global world with global customers who expect us to be their global partner wherever they are. We have the space and opportunity to prepare the ideal environment for our further growth.

#### What are the next steps for the future?

**Kiyohito Sonoki:** From a Medical Systems Division angle, key success factors are growth of direct sales, e.g. in Germany as a huge market place, activation of after-market business, and shifting to cardiovascular system business which is a difficult segment to enter. We work on improving our capabilities, meaning we develop not only individual abilities, but also our organizational capacity. We will apply next-generation service infrastructure, e.g. IoT technologies. Also, new relationships with stakeholders will create new synergies leading to our growth.

**Jiro Takashima:** Talking about innovations, we will research and develop new products for the European markets and their customers. This includes more efficient operation in order to modify the interfaces to our customers and to recognize their demands earlier and better for offering customized solutions. From a growth perspective, we aim to extend our network in the





entire European region, to double our market share and from a corporate perspective to become No. 1 in the world.

Jürgen Kwass: Picking up Jiro's thought about customer interfaces: I see communication as being fundamental for the future. This covers communication and its qualities with customers and markets as well as our internal communications. In the coming years, we will go through a switch of generations in our company. We have the huge opportunity that the interaction between long-time employees and newcomers gives us a real push: our experienced people can train the younger generation, while on the other hand the new talents bring in new ideas, tools and networks such as social media. Each of us has to be open to change.

#### Your core message to the readers?

**Jiro Takashima:** Iln my view, SEG provides a stable working place in a great corporate culture, and one of our goals is to continue in this regard. The employees of Shimadzu in Europe have contributed to shape the organization, and I am happy and proud to express my gratitude to them. Together, we go for the next important goals. One of them is growth, a driver for long-term survival of the company.

**Kiyohito Sonoki:** Shimadzu is a very innovative company, and we have a proven track record with inventions and 'industry's first' technologies. We set technological benchmarks, and we have been awarded for solutions and novelties. In the near future, we will see more Shimadzu technologies integrated from Medical Systems as well as Analytical & Measuring Instruments for the healthcare business. Also, seamless digital environments and faster diagnostics will benefit patients and clinical workflows. We look with great confidence towards the future.

Jürgen Kwass: I would like to add to my colleagues' wishes and views and thank our employees for their great work all over Europe. As a team, we focus the next steps of development and plan to grow the company to 1,000 employees in Europe. We also aim to achieve leading positions in technology, sales and growth based on "best for our customers". We have the best skilled people available developing excellent innovative products. We are a great company with great people and with a bright future.



## Greeting Sören Link

It is 50 years since the Shimadzu Corporation from Kyoto, Japan, came to Germany to found its European Headquarters. Initially located in Düsseldorf, Shimadzu Europa GmbH moved to our city in 1987. This was a step of great importance for the company, but also for Duisburg as a business location. I am very pleased that Shimadzu and Duisburg have been following a common path since then and congratulate the company cordially on behalf of the city of Duisburg on its 50<sup>th</sup> anniversary.

Since 1968, Shimadzu has been on a successful course, and thanks to forward-looking investments the company has developed steadily and innovatively, especially at the location in Duisburg. The Laboratory World, the European Innovation Center and the

establishment of Shimadzu Deutschland GmbH as an own entity prove the close ties to our city, from which Duisburg greatly benefits. I am very happy that our town is an important part of the company's worldwide network, and I wish Shimadzu every success and all the best for the future.



## 50 years Shimadzu Europa

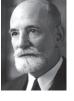
Time travel from 1968 - 2018.



### 1968



The Nobel Peace Prize is awarded to René Cassin (France) for his work in drafting the Universal Declaration of Human Rights





With 37 countries participating, the Winter Olympics are celebrated in Grenoble, France. The year 1968 marked the first time the IOC permitted East and West Germany to enter separately, and the first time the IOC ever ordered drug and gender testing of competitors.

## "Curtains Up!"

August 1, 1968, Shimadzu Europa GmbH is founded and starts operations in Bismarck Street in Düsseldorf, the capital of Germany's industrial heartland in the state of North Rhine-Westphalia, one of the largest industrial regions within Europe. There are already 100 Japanese companies in the Düsseldorf region. Due to the city's central location on the continent, its close connection through airport, inland seaport in Duisburg and a network of highway systems to other metroregions, Japanese companies prefer Düsseldorf to establish European operations. Düsseldorf is the only city in Germany called Japan-town (日本人街 Nihonjin-gai) which is a common name for official Japanese communities in large cities outside the home country.



Shimadzu Europa commences operations with five employees. Part of the assets within the founding process is a network of distributors in UK, Sweden and the Benelux countries. The Shimadzu team started direct sales and expanded the sales network in Europe.

In the beginning, the company had to start its life in brackets: Shimadzu (Europa). "The Commercial Register thought, the addendum 'Europa' for a team of five people is not appropriate," remembered Akira Yamamoto, then Managing Director. A prank of history in the light of the company's success story to come.

The product portfolio includes analytical instrumentation systems as well as material testing equipment, such as the one-beam spectrophotometer QV-SO, the multi-purpose double-beam spectrophotometer MPS-SOL, the isothermal GC-3A gas chromatograph, a Koka-type flow tester and a microhardness tester.





For the first time, the European Nations' Cup in soccer is held under the name European Championship. It was then a small format with only four countries attending the semi-finals and the final in Italy after a European-wide group phase before. In the final, Italy played against Yugoslavia and won 2-0.



The movie '2001: A Space Odyssey' is released, widely regarded today as one of the greatest and most influential films ever made





1969



Seiko launches the world's first 'quartz clock' wristwatch, the Quartz Astron. Applying a new technological concept, it was accurate to one minute per year. Retail price was US \$1,250 at the time, equivalent to the price of a medium-sized car.



Intel was coming up with the idea of using a 'universal processor' rather than a variety of custom-designed circuits. This chip started the microprocessor revolution in industry applications and consumer products.

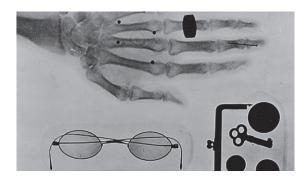


#### From a 'local workshop' to a global player:

## a very brief history

Three coins, a key, an eyeglass frame, the bones of the left hand with a wedding ring — Genzo Shimadzu jun. is satisfied with his experiment. Just one year after Wilhelm Conrad Röntgen explored x-rays in 1895, Shimadzu recorded the first images in Japan. This has been a catalyst for the development of this young company, founded in 1875 by Genzo Shimadzu sen. (1839-1894) at the doorstep from the industrial revolution to the scientific age. It started with the development and production of chemical and physical testing equipment, and very soon the company succeeded in 1877 in launching the first manned balloon flight in Japan.

Genzo Shimadzu, the founder, had the talent to recognize technical revolutions at an early stage.



His successor, Genzo Shimadzu jun. (1869–1951) even excelled his father with a total of 178 technical inventions. In 1930, the Japanese Emperor awarded him as one of the Top 10 inventors in the history of the country, together with Kohtaro Honda and Umetaro Suzuki, for example.

Today, Shimadzu Corporation is one of the worldwide leading manufacturers of analytical instrumentation and diagnostic imaging systems. The company operates production facilities and distribution centers in 74 countries, with more than 11,500 employees worldwide. Its technologies are used as essential tools for quality control of consumer goods, in health care as well as in all areas of environmental and consumer protection.

The continuous commitment to innovation and highquality technologies has, from the early days, been the key to European customers – and this is still the case today.

#### Königsallee

Just one year after Shimadzu Europa has been established, the company moves to Königsallee,

a top district for business, finance and shopping. This move sets the stage for the next steps of development.

**Born to be wild.** An independent road movie, 'Easy Rider' is a box office hit of the year.



"Tranquility Base here. The Eagle has landed." On July 21, Neil Armstrong, commander of Apollo 11 mission, is the first person to walk on the moon. When he stepped onto the lunar surface on July 21, 1969, he said: "That's one small step for [a] man, one giant leap for mankind." An audience of about 500-600 million people worldwide watched the Eagle lunar module landing.





1970

The first charge-coupled device is produced one year after its invention. Originally intended for data storage, CCD sensors are suitable for capturing two-dimensional images. Today, they are used in video and digital cameras, in fax machines, spectrometers and scanners.





"Game of the Century" June 17, the semi-final of the FIFA World Cup in Mexico is played between Italy and West Germany. It is later known as the "Game of the Century" (Italian: Partita del secolo; German: Jahrhundertspiel). Italy won 4-3 after scoring five goals in extra time.



HeartSPEED the world's first diagnostic X-ray imaging system equipped



For the European markets, Shimadzu provides medical technology and analytical instrumentation solutions. Both have the longest tradition within the company and also make the largest business segments. On a corporate level, Shimadzu's portfolio is complemented by industrial machinery and aircraft equipment as well as device components such as diffraction gratings, covering optical and microfabrication technology.

#### Medical technology

Shimadzu provides state-of-the-art processing technologies and diagnostic imaging systems for

examinations, diagnostics, prevention, interventions and other clinical applications. The product line-up consists of angiography and cardiac systems, radiography and fluoroscopy solutions, general radiographic instruments, mobile C-arm and mobile x-ray systems as well as core imaging technologies. They are used in multifold applications such as cardiology, orthopedics, pediatrics and many others.

#### **Analytical instrumentation**

The company's analytical instrumentation solutions are used in science and technology, particularly in nearly every manufacturing industry, such as

chemical, pharmaceutical and biotechnological industries as well as food and beverages, advanced manufacturing, automotive, semiconductor and plastics industries. They are applied in research and development, and also in process and quality control.

Many 'world's firsts' and awards underline Shimadzu's approach to overcome technological borders and provide the markets with even better qualities and solutions.

1971



The Nobel Peace Prize is awarded to German Chancellor Willy Brandt for West Germany's 'Ostpolitik' (eastern policy), i.e. the normalization of relations between West Germany and Eastern Europe, particularly East Germany.





Raymond Tomlinson, an American computer programmer, implements the first email program. To separate the user name from the name of their machine, he applied the @ sign, which is in use since then. When Tomlinson demonstrated the system, a colleague said: "Don't tell anyone! This isn't what we're supposed to be working on".



After five years of development,
Mercedes Benz applies for an airbag
patent. It will take another ten years before
it is ready to go into mass production.





#### 1972

The Summer Olympics are held in Munich, Germany. The design of the venues is considered revolutionary, with sweeping canopies of acrylic glass stabilized by metal ropes, used on such a large scale for the first time. Mark Spitz, a U.S. swimmer, won seven gold medals by setting seven new world records.



### Close to the customers

Customers and their needs are the focal points of Shimadzu's strategy. Regarding technologies and system solutions, innovation is one of Shimadzu's key drivers, either for further development of existing technologies or for searching for new ways and solutions. It is Shimadzu's aspiration to be a market or technological leader in the product segments the company covers.

Regarding high-quality client relationships and close cooperation, Shimadzu is constantly tailoring its organization, product and services portfolio. In this regard, Shimadzu has since 2004 restructured its business organization in Europe and established subsidiaries in major markets and countries all over Europe. These entities are legally independent of the Shimadzu Europa headquarters and better able to serve the market needs due to their close proximity. Today, Shimadzu employs approx. 750 people in Europe and has developed into a large European network with offices and trade partners in 81 cities in 47 countries.

With its decentralized structure all over Europe, Shimadzu's European Innovation Center (EUIC) complements this approach in order to provide local access to scientists and related markets, as well as to users, projects and samples. Shimadzu's European Innovation Center is based in Duisburg, Germany with local laboratories at universities all over Europe. It focuses on creation of new solutions for tomorrow, meaning new methods, tools, techniques, diagnostics and solutions such as clinical applications, imaging technology, food and composites, intending to offer even more and even better customer-focused service.

The 'Excellence in Science' slogan proclaims outstanding quality in technology and services, and in every single aspect of working with clients.



Hewlett-Packard introduces the HP-35 world's first scientific pocket calculator, a device with trigonometric and exponential functions. It replaced slide rules which were at the time the only practical portable devices for performing these tasks. Retail price was US \$395, equivalent to \$2,300 in 2017.



The Winter Olympics in Sapporo, Japan are the first to be held outside Europe and North America. In ski jumping 70 m, Japanese athletes won gold, silver, and bronze.



1973



The European Economic Community, the EU's predecessor, is enlarged through Denmark, Ireland, and the United Kingdom. So far, the EEC consisted of the so-called 'Inner Six' which is Belgium, the Netherlands and Luxemburg (Benelux) as well as France, Germany and Italy.

The first handheld mobile phone is demonstrated by Motorola, using a larger prototype handset weighing 2 kilograms.



# Consumer and environmental protection, product safety

Shimadzu's analytical instruments are used in sciences and academics, in chemical, pharmaceutical and biotechnology laboratories, in nearly all manufacturing industries, in the food and beverages segments, in research and development as well as in process and quality control. They provide consumer and environmental protection and product safety.

Shimadzu offers systems for chromatography (HPLC, GC), mass spectrometry (LC-MS, GC-MS, Q-TOF MALDI-TOF MS), spectroscopy (UV/VIS, FTIR, AAS, ICP) and sum parameters (TOC). These product lines are complemented by weighing technologies and material testing.

The product range has grown organically, and some segments are cross-linked interdisciplinarily. This is due to Shimadzu's power of innovation and the creativity and inventive spirit of the company's engineers and scientists.

Numerous world premieres and awards substantiate the claim to continuously exceed existing limits of technology and to provide better and better instruments. In all its product segments, Shimadzu has provided a proven track record of expertise for decades.

1974



The Nobel Peace Prize is awarded to Seán MacBride, an Irish government minister, for his strong representation of human rights. Furthermore, Eisaku Satō (佐藤 榮作), Prime Minister of Japan, has been awarded for his "renunciation of the nuclear option for Japan and his efforts to further regional reconciliation".



The FIFA World Cup is held in West Germany. The host nation won the title beating the Netherlands 2-1. For the first time, the current FIFA World Cup Trophy, created by the Italian sculptor Silvio Gazzaniga, was awarded. The previous Jules Rimet Trophy was awarded permanently to Brazil after three world cup wins.







Seventeen nations took part in this year's Eurovision Song Contest. The format was broadcasted to 32 countries and reached an audience of 500 million viewers. Greece made their début. **The winner was Sweden with the song "Waterloo" performed by ABBA.** They went on to become one of the most popular recording acts of all time.

Infotec introduces the first digital facsimile machine, the Infotec 6000, to the European market. Its technology marked the so-called G3 encoding format for fax transmission, which is still valid today. G3 supports one-dimensional image compression of black and white images.



# Prevention, accurate diagnostics, patient safety

Since Shimadzu was founded in 1875, research and development have been core competencies of the company. They are part of the DNA of new inventions and novelties in diagnostic imaging, which today are standards in clinical applications. Enabling doctors and hospital to recognize diseases more precisely at an ever-earlier stage is one of the drivers for the future. This provides new possibilities for treatments.

Shimadzu offers a whole bandwidth of floor or ceiling-mounted radiographic and fluoroscopic systems as well as mobile solutions. Leading technologies, advanced applications and sophisticated

functionalities increase efficiency and safety of examinations and reduce radiation exposure. New diagnostic imaging instruments with cutting-edge features and functions enable an excellent image quality for a vast number of efficient examinations. Patients benefit from a high comfort level and reduced x-ray exposure, and clinical staff benefit from easy operability, patient positioning and high patient-throughput.

In diagnostic imaging, Shimadzu has broken new ground many times with inventions and 'industry's first' technologies, and has been awarded for its novelties and solutions.

1975



The Nobel Peace Prize is awarded to Andrei Sakharov (Soviet Union) "for his struggle for human rights, for disarmament, and for cooperation between all nations".



The great white shark in the 'Jaws' thriller film scares a whole town.





1976



The Nobel Peace Prize is awarded to Betty Williams and Mairead Maguire (United Kingdom), the founders of the Northern Ireland Peace Movement (later renamed Community of Peace People).

For the first time, Shimadzu Europa attends trade exhibitions in East Germany, Czechoslovakia, Hungary and Yugoslavia.

> 'Rocky' is considered to be one of the greatest sports films ever made, featuring the story of Rocky Balboa, a small-time club boxer who makes it into the world heavyweight championship fight.



# The framework accompanying Shimadzu's development in Europe

Companies as parts of a macrocosm of cultural, political, societal, technological and economic settings always reflect all facets of their environments, also through the individual employees. Although companies have their own personalities and values, they are always part of larger contexts of markets and cultures which do not stop at the factory gate.

From 1968 until today, three paradigm shifts in particular influenced the settings and the framework of the European continent:

 the political change and economic progress in Europe due to the raising of the iron curtain leading to a common market of 500 million consumers

- the expansion of the EEC and the EU as the basis for development of national markets, a common European market and economic wealth in peace
- the democratization of the continent, strengthening the self-conception and civil society.

This led to individual and societal mindsets and topics influencing generations of people in their way to shape their social, economic, ecological and political environments. Some of these topics became social movements, other became megatrends. They have in common that they are "blockbusters" of change. They are long-term developments and formative for all societal and economic spheres.

Some of them refer to Shimadzu's businesses. These are environment and sustainable development; resource and energy efficiency; food, food safety and quality; health-care; sports, anti-doping and anti-drugs; and technological progress. Shimadzu provides support and solutions in all of these fields to achieve a better living environment and to preserve nature.

This framework driving our lives and human coexistence also interconnects and interacts with Shimadzu's

- corporate activities and development of market and application-specific technologies
- corporate philosophy "Contributing to Society through Science and Technology"
- corporate principles "Realizing Our Wishes for the Wellbeing of both Mankind and the Earth."

1977

The world's first VHS-based video recorder is released by JVC. VHS (Video Home System) became the world standard for home video tape recorders.



Within a few months in the same year, the Commodore PET, the Tandy TRS-80 Model 1 and the Apple II are released and can be regarded as the first personal computers in the world. Although other manufacturers can claim to have been earlier on the market, these three PCs have been first with ready-to-run equipment, e.g. monitor, keyboard, operating system and power supply.



## From environmental movement to sustainable development

Although the environmental movement achieved early awareness in the 19<sup>th</sup> century, it gained momentum in the second half of the 20<sup>th</sup> century around air pollution, massive use of insecticides and chemical, nuclear and oil accidents. Environmental problems are man-made. They are caused by overexploitation of nature, over-fertilization, the use of fossil energy, industrial production and many more. They appear as water and air pollution, acid rain, death of forests ("Waldsterben"), ozone depletion, global warming, climate change or chemical residues in nature, products or in our surroundings.

Particularly since the 1970s, environmental issues have shaped a broad social movement redefining the relation between nature and mankind. In 1970, the

first Earth Day was celebrated for environmental education and awareness. Today, there are Earth Day events almost anywhere in the world. The European Nature Conservation Year proclaimed in 1970 by the Council of Europe was the first pan-European environmental campaign with 200,000 activities, and is seen as the hour of birth of the modern environmental movement.

In 1972, the United Nations Conference on the Human Environment created the UN Environment Programme. In the same year, the EU's environmental policy was formally founded by a European Council declaration. In 1992, the UN summit in Rio de Janeiro adopted the Agenda 21 for sustainable development. The Kyoto Protocol in 1997 set specific

targets and deadlines to reduce global greenhouse gas emissions. In 2007, the Nobel Peace Prize was awarded jointly to Intergovernmental Panel on Climate Change (IPCC) and to Al Gore, an American politician and environmentalist who served as the 45<sup>th</sup> Vice President of the United States, "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change".

Technologies and guidelines are often part of consumer, nature and environment protection solutions, e.g. through flue gas desulfurization, CFC-free products, regulations such as REACH or RoHs (Restriction of certain Hazardous Substances),

"May the Force be with you". 'Star Wars' is released, an epic space opera, one of the best-selling films ever. It applied an extensive media franchise including books, television series, computer and video games, and more.



The first test batches of the Rubik's Cube (Magic Cube) are produced and released in Budapest, Hungary toy shops. This 3-D combination puzzle was invented in 1974 by Hungarian sculptor and professor of architecture Ernő Rubik.





which inspire bio certificates and eco labels.

Shimadzu's analytical instrumentation technologies – chromatography, mass spectrometry, sum parameter (TOC), chip electrophoresis, and spectroscopy – support its customers to comply with all requirements, regulations, laws and legislations in the environmental context.

Today, environmental awareness is an international movement, represented by a range of governmental and non-governmental organizations, groups, private citizens, professionals, politicians, and scientists, and leads to new concepts such as sustainable development and reusable energies.

1978

**Texas Instruments introduces the industry's first digital signal processor, the TMS5100.** This innovation in audio processing began the huge digital signal processing consumer market. DSPs convert analog signal into digital data. Today, they are key devices in mobile phones, DVD players, digital cameras and much more.

In Germany, Shimadzu Europa delivers the first high-speed tensile testing machine to a steel manufacturer.

**'Superman' saves the world,** and receives the Special Achievement Academy Award for Visual Effects.





Shimadzu starts direct sales for medical technology systems in Europe. The team consists of ten employees.

1979

The European Monetary System (EMS) is introduced where most nations of the European Economic Community (EEC) linked their currencies to prevent large fluctuations relative to one another.



The first international election in history, the European Parliamentary elections are held across all 9 (at the time) European Community member states.

# Resource and energy efficiency

The Club of Rome's "The Limits to Growth" study published in 1972 described the global impact of industrialization, growth of population, undernourishment, exploitation of resources and destruction of environments and biotopes. In parallel, the politically and economically caused energy crisis triggered a chain of action leading over years to saving of resources, alternative fuels, waste incineration, renewable energies, thermal insulation, more efficient engines, alternative materials, energy efficiencies and many more. These topics are closely related to environmental awareness, particularly around energy production from fossil sources, industry emissions, energy-intensive production or individual consumer behavior.

Resource efficiency means using the Earth's limited resources in a sustainable manner while minimizing

environmental impact. The European Commission applies a definition for resources, which also covers ecosystem services, water, soil, air and biodiversity. In its Europe 2020 agenda, the European Commission targets reduced greenhouse gas emissions, increase in the proportion of renewable energy in final energy consumption and achievement of an increase in energy efficiency.

Resource efficiency in the context of goods means measures and actions to extend a product's life cycle. Just to mention a few examples: this includes lightweight construction and miniaturization already implemented in the product design, saving of raw materials during manufacturing, reduction of consumables during utilization as well as separation and recycling of materials in technical or natural loops.

Shimadzu is committed to the objectives of resource and energy efficiency, both for the company's own as well as customers' production procedures and operation time. Over the years, Shimadzu has provided technologies enabling its customers to achieve resource efficient processes in time, cost and energy-saving ways, and to explore and test new materials. This covers for example testing machines and procedures cutting test cycles to a minimum, or instrumentation with less energy, materials and consumables consumption during run times leading to a resource efficient and environment-friendly footprint.



Sony introduces the TPS-L2 Walkman, a portable audio cassette player with earphones. The Walkman changed music listening habits by allowing people to listen to their music while on the move. It also included an extra audio jack so two people could listen at the same time.



The Philips company demonstrates a Compact Disc Audio Player. It showed that it is possible by using digital optical recording and playback to reproduce audio signals with superb stereo quality. Philips also set the technical standard for digital optical recording systems.



## Food, food safety and quality for an increasing life expectancy

Regarding food, water, beverages and agricultural cropland, the increasing world population is one of the biggest challenges of mankind. By 2050, the world population is expected to be 9 billion people. Experts estimate that the production of food in general will need to be doubled compared with 2018.

Urbanization and improved standards of living will influence the food patterns worldwide. It is expected that demand for grain will switch to a higher consumption of meat, fish, and dairy products. The availability of crop areas, health of crops, water and energy supply will be key, but also new agricultural and technological developments. 2050 seems far ahead, but it is just three decades

away, and the technological and organizational basis is already laid.

Next to food security which covers pillars such as availability, access, utilization and stability (according to the UN Food and Agriculture Organization), food safety is an issue which refers to safety between industry and the market, and between the market and the consumers. Topics included are for example origins of food, quality of raw materials, food additives and pesticides residues, and also food packaging.

Regarding clean and drinking water, we face challenges of residues originating from fertilization, pesticides or medical treatment with drugs which

migrate after use into groundwater, lakes and rivers, and getting back from there into the human food chain. Residues can also be found in fish or in beer, and even in grain heavy metals can be detected originating from emissions.

In the context of convenience food, the supply chain of raw materials, ingredients, their processing and treatment during and after production must be made safe against residues of forbidden or hazardous substances. This also includes the migration of pollutants from food packaging materials into food products. Alternative ingredients may also be discovered to replace excessive use of fat and sugar amounts in order to support a healthier nutrition.

1980

Shimadzu completed "PANGIOMAX" stereoscopic magnification system for cerebral and abdominal angiography.

1981

Shimadzu introduces a new sales concept in Germany through a number of Technical Offices which work closely together with sales experts, thus providing fast and full

service to clients in Germany's urban and metroregions.



The Summer Olympics are the first Olympic Games to be staged in Eastern Europe, in Moscow. Winning eight medals in total, the Soviet gymnast Alexander Ditjatin was the most successful athlete.



The 1981 enlargement of the European Communities is the second enlargement of what is now the European Union: Greece became a member.

Food quality is also related to a consistent taste experience, particularly when natural products are the raw material. Also across different batches, finished products have to keep consistent taste, texture and properties, and depending on the product consistent crispness, gumminess or softness resp. hardness.

In general, the analysis of food and food products is challenging and multi-faceted due to complex matrices. It affords qualitative and quantitative methods with ultra-fast and ultra-trace detection.

Shimadzu provides customized solutions for food, food safety and food quality based on the complete portfolio of chromatography, mass spectrometry, spectroscopy, TOC, software and testing machines. A closer look at the technologies in the last years, and this is true for the future as well, shows that

levels of sensitivity have increased, and allow continuously better analytical results, very often combined with time efficiency. Shimadzu provides laboratories and scientists with a large variety of highly precise, fast, fully automated and environment-friendly methods that are able to detect multiple parameters at lowest doses.

Besides health and hygiene standards, the quality of food is a key factor for an increasing life expectancy. With the European Innovation Center, Shimadzu explores new methods and cutting-edge solutions for customers in the food sector together with key opinion leaders (KOL's) at leading European universities and research centers. This guarantees next-generation expertise and technologies to enable the customers serving their customers even better.

**The IR-435 infrared spectrophotometer is released.** This dispersive instrument featured an integrated microcomputer and room for optional ROM memory. It was a substantial improvement over previous systems: Automatic peak detection became possible with accurate spectrum recordings of rapid reaction processes.

NASA's space shuttle Columbia is launched for its first mission, and returned after orbiting the Earth 36 times. It was the first flight of the Space Shuttle program. Five complete Shuttle systems were built and used on a total of 135 missions from 1981 to 2011. Operational missions launched numerous satellites, interplanetary probes and the Hubble Space Telescope.





## Healthcare on the growth path

Over the last years, the healthcare market has developed to be an economic pillar with international growth expectations also in the mid-term future. Healthcare is a multi-faceted topic with corporate and individual specifications, but Shimadzu's focus is on medical technology, clinical and pharmaceutical applications.

#### Medical technology

Increasing healthcare expenditures and cost pressure as well as structural changes, rationalization, scientific findings and new technologies present challenges particularly for hospitals and clinics. In this context, digitalization is a core topic in medical care. The workflow will be more and more digitalized, larger and more complex data will have to be pro-

Due to the sustainable development of the company and the growth of the team with 15 people, **Shimadzu moves again within Düsseldorf**, and rents an 810 sqm venue in Ackerstrasse covering offices and storage facilities.

cessed faster, diagnostics will be progressively software-supported, process-oriented IT systems enable inter-divisional data exchange including healthcare providers, physicians access virtual patient files via tablets, and the patients will be the main focus in a networked environment.

In medical technology, Shimadzu has driven progress from the early beginnings of the company and introduced many inventions and innovations which meanwhile have become standard in today's clinical applications. Particularly in the last years, Shimadzu has driven digitalization through launching Flat Panel Detector technology and many software-based diagnostic options – all of them supporting seamless digital environments and faster diagnostics.

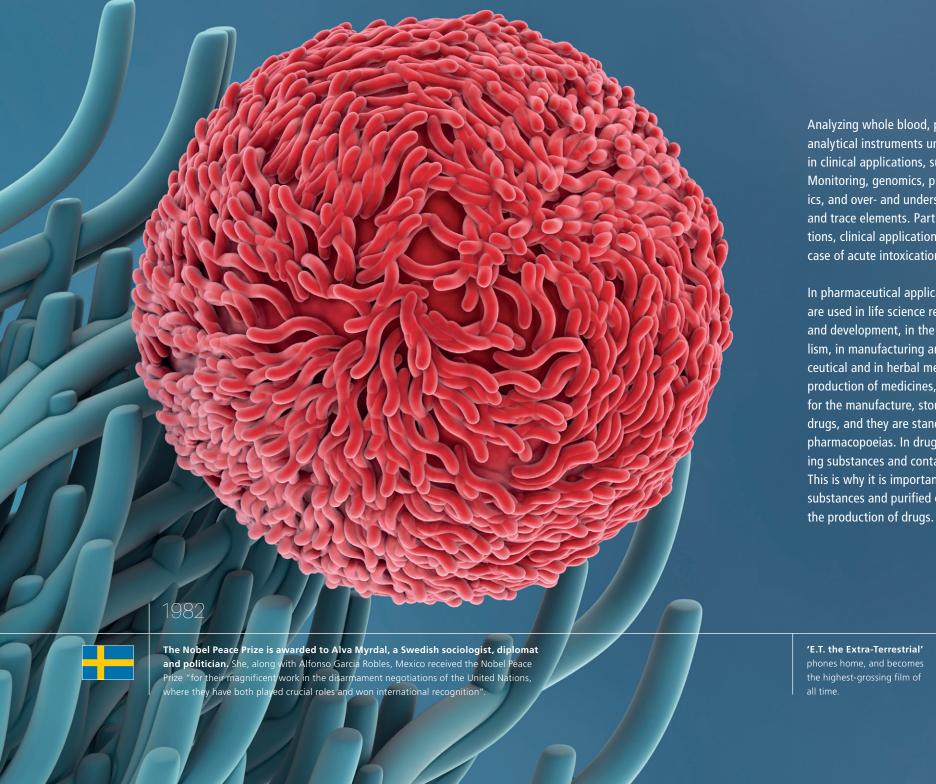
Hospitals benefit through instruments applying the highest standards, intelligent concepts offering customized system solutions, and improved working and workflow conditions. Patients benefit through improved clinical results with reduced radiation exposure and patient-friendly systems with numerous safety features.

#### Clinical and pharmaceutical applications

Progress in medical, clinical and pharmaceutical technology is a key tool to increase people's life expectancy. Furthermore, research leading to advanced diagnostics, treatments and therapies assists in fighting and curing illnesses. The analytical instrumentation solutions provide applications for clinical as well as pharmaceutical challenges.

A new HPLC series is introduced, and first sales activities start in East Germany.

The world's first map-based automotive navigation system, 'Honda Electro Gyrocator', is released. This system was based on inertial navigation technology using mileage and gyro sensors which sense angular velocity.



Analyzing whole blood, plasma, serum and urine, analytical instruments unfold a multitude of benefits in clinical applications, such as in Therapeutic Drug Monitoring, genomics, proteomics and metabolomics, and over- and undersupply of vitamins, minerals and trace elements. Particularly in time-critical situations, clinical applications can help save lives, e.g. in case of acute intoxication, medical or drug abuse.

In pharmaceutical applications, Shimadzu's systems are used in life science research, in drug discovery and development, in the analysis of drug metabolism, in manufacturing and QA/QC, in biopharmaceutical and in herbal medicine. Particularly in the production of medicines, methods and rules apply for the manufacture, storage, quality and testing of drugs, and they are standardized and defined in pharmacopoeias. In drugs, side effects from interfering substances and contaminations are undesirable. This is why it is important to use the purest possible substances and purified equipment and materials in the production of drugs.



#### Technological progress

Whereas orbit probes explore the endless wideness of space, the sciences of physics, chemistry and biology go in the opposite direction and investigate the worlds of microcosms, i.e. the smallest constituents of matter. They measure in units such as Femto which is 10<sup>-15</sup> or 0.00000000000001. New analytical instruments with new sensitivities enable new technical standards, defining precise limits when it comes to consumer, patient and environmental protection as well as product safety.

Digitalization is often the driver not only of precision, but also of miniaturization and automation, both key factors for efficiencies and effective value chains. Internet of Things, Industrial Internet of Things (sometimes called Industry 4.0), and telemedicine

are expected to be engines of developments in various industries and healthcare. Global business with its cross-border data flows will fuel the growth.

In medical technology and healthcare, digitalization allows new options and applications regarding diagnostics and therapies, more efficient workflow and use of the systems, networked hospitals with seamless processes. Shimadzu's advanced diagnostic imaging solutions and applications support recognition of diseases more precisely at an ever-earlier stage and appropriate treatment. This will give hospitals new opportunities.

In the last years, technology in analytical instrumentation has also been driven by

digitalization which has enabled continuous achievement of new levels of precision in detection and identification of substances, incl. high-speed in analysis and processing of data, and also instrument control and communication.

Advanced qualities, user-friendly operation, an impressive cost/performance ratio and optimum customer service have been and will remain key aspects in Shimadzu's product developments. Shimadzu produces globally according to acknowledged quality standards and enables its customers to work according to GLP, GMP, FDA and standard methods described in various pharmacopoeias.

1983

The compact disc (CD) is released. This digital optical disc data storage format was co-developed by Philips and Sony. The format was originally developed to store and play only sound recordings; later, it was adapted for storage of data (CD-ROM). Several other formats were further derived from these, e.g. including write-once audio and data storage (CD-R), and rewritable media (CD-RW). The first commercially available Audio CD player, the Sony CDP-101, was released in October in Japan.



What a feeling ... the movie 'Flashdance', a romantic drama film, becomes a box office surprise.



With Shimadzu's Innovation Centers in Japan, China, U.S., Singapore and Europe, there is a network of scientific centers of excellence available all around the globe to meet challenges of the future. Based on Shimadzu's collaboration with academia and research institutions, the input of key opinion leaders and inspiration through outside experts, Shimadzu is able to develop new technologies and solutions which give the customers competitive advantages.

Shimadzu also generates synergistic effects between analytical instruments and the health sector, for example by establishing high-end analytical instruments for on-site medical checks in hospitals during medical treatment/operations. For next-generation brain science, Shimadzu provides LABNIRS, an

imaging technology for visualization of brain functions by functional near-infrared spectroscopy (fNIRS).

The synergies from integrating technologies from Medical Systems as well as Analytical & Measuring Instruments for the healthcare business are a growth field. They have the potential to provide solutions for today's most challenging diseases, such as diagnosing and treating cancer, dementia and endocrine disorders.

Some examples of near-future introductions:

 The combination of an angiography system with LCMS can be used for the diagnosis of Primary Aldosteronism, a cause of high blood pressure.

- Besides surgery, chemotherapy and radiotherapy, NIR-Pit (Near Infrared Photoimmunotherapy) can be the fourth approach to treating cancer; this new method is based on a near-infrared camera system in combination with a LCMS system.
- PESI (Probe Electrospray Ionization) with MS identify the tissue suspected of cancer.
- In order to screen dementia markers in blood,
   LCMS can be used for a first screening before an expensive PET scan has to be applied.

These solutions fully pay into the account of Shimadzu's corporate philosophy "Contributing to Society through Science and Technology".

Between 1980 and 1984, Shimadzu's revenues in Europe doubled each year.

Lech Wałęsa, founder of Solidarność (Solidarity) and campaigner for human rights is awarded the Nobel Peace prize. He co-founded and headed Solidarity, the Soviet bloc's first independent trade union, and served as President of Poland from 1990 to 1995.

Sony releases the first camcorder, an electronic device originally combining a video camera and a videocassette recorder. A key component was a single camera-recorder unit, eliminating a cable between the camera and recorder and increasing the camera operator's freedom. It became standard equipment for broadcast news.







Shimadzu is the first to develop the technology for manufacturing blazed holographic gratings (BHG) ensuring less stray light and excellent performance to match the characteristics of different types of spectroscopic devices. This patented technology will be optimized in the future and also patented as the LO-RAY-LIGH principle for outstanding grating quality.



The Winter Olympics take place in Sarajevo, Bosnia and Herzegovina, SFR Yugoslavia. Marja-Liisa Hämäläinen (Finland) won all three individual cross-country races for women. Skier Jure Franko won Yugoslavia's first Winter Olympic medal, a silver in the giant slalom. Disabled skiing was a demonstration sport for the first time.



The European Football Championship is held in France. Achieving their first major international title, France beat Spain 2-0. Michel Platini scored nine goals in France's five matches.



# Leading position in spectroscopy

Since the middle of the 20<sup>th</sup> century, spectroscopy has been at the core of Shimadzu's analytical business unit and a main driving force in the company's growth and reputation. In 1956, Shimadzu entered the IR market with its first double beam self-recording infrared spectrophotometer: the AR-275. It was robust enough even for export overseas.

Up to today in 2018, know-how, technological skills and innovative power have brought Shimadzu to a leading position in spectroscopy. In 1984, the FTIR-4000 played a special role as Shimadzu's first Fourier Transform Infrared spectrophotometer. It allowed high speed digital recording and storage of the measurement data based on a custom-made multi CPU system with 8 inch floppy disk memory, at the time a very sophisticated data storage technology. From the hardware side, the FTIR-4000 employed an air bearing mechanism for smooth driving of the moving mirror.

Shimadzu starts expanding the direct sales network in Europe.

**Chuck Hull files his patent for stereolithography.** This is an additive manufacturing process that works by focusing an ultraviolet (UV) laser on to a vat of photopolymer resin. It is used in advanced manufacturing and automotive applications for Rapid Manufacturing and Rapid Prototyping. In medical modeling, stereolithography is used for creating accurate 3D models of various anatomical regions of a patient, based on data from computer scans.





Marty McFly and Doc Emmett go 'Back to the Future' in a DeLorean car powered by a Flux capacitor.



The Bell Laboratories develop methods of using laser light to cool gases to the  $\mu$ K temperature range and keeping the chilled atoms floating or captured in different kinds of 'atom traps'. The methods may lead to the design of more precise atomic clocks for use in, e.g. space navigation and atomic interferometers with which very precise measurements of gravitational forces can be made.

#### The European City of Culture

For the first time a European City of Culture (ECoC) is named: Athens, Greece. The idea of designating an annual Capital of Culture has been brought up by Greece and France recognizing that at the time culture was not given the same attention as politics and economics. The ECoC initiative highlights the richness and diversity of European cultures, and raises awareness of their common history and values intention in order to bring Europeans closer together.

The cities are named by the European Union for one calendar year. During this period, the specific city hosts a series of cultural events with a strong pan-European dimension. In 1999, the European City of Culture program was renamed the European Capital of Culture.

A 2004 study found that the status of European Capital of Culture is an accelerator for the cultural development and the transformation of the city.



Microsoft releases Windows 1.0, a graphical PC operating environment, and the first version of the Microsoft Windows line. Despite hard critic, Windows 1.0 was an important milestone for Microsoft, and was supported for 16 years – the longest of all versions of Windows.

The T1100 is an IBM PC compatible laptop computer manufactured by Toshiba, and is described by the company as "the world's first massmarket laptop computer". It used floppy disks and had no hard drive. The T1100 won acceptance both among PC experts and the business community.























With the third enlargement of the EEC, Portugal and Spain become the 11<sup>th</sup> and 12<sup>th</sup> member states. For both countries, this means leaving behind a longlasting political isolation.



**Florence, Italy is named as European City of Culture.** The capital of the region of
Tuscany is a World Heritage Site and has a rich
artistic and architectural heritage.

#### Preparing the move to larger venues

Due to continuous growth, Shimadzu purchases a 33,720 sqm construction area for industrial purposes in the city of Duisburg, a 20 minute car ride north of Düsseldorf with its international airport. Duisburg is a leading center of the steel industry and hosts a world-leading inland port where the Ruhr and Rhine rivers meet. Duisburg is part of the Ruhr metroregion with a population of 10 million people.

Shimadzu holds the first elections of a workers council as all preconditions for this institution are fulfilled.

In USSR, Shimadzu starts direct sales of analytical instrumentation systems and medical technology as well as testing machines. Two reference laboratories and one office are established in Moscow.

'Top Gun', an action drama film, flies in a huge commercial success at the box office.



The Mir space station (Russian: Mup) is launched and operates in low Earth orbit from 1986 to 2001 by the Soviet Union and later by Russia. The station served as a microgravity research laboratory in which crews conducted scientific experiments with a goal of developing technologies required for permanent occupation of space.

















From a product perspective, Shimadzu steps into a new age with the GC-14A equipped with a capillary column.

Newly designed detectors in combination with capillary columns

Newly designed detectors in combination with capillary column achieve better sensitivity and chromatographic resolution.



Amsterdam, Netherlands is chosen as European City of Culture. It is the country's capital, and commercial as well as cultural center.

"Tear down this wall!" is a line from a speech made by U.S. President Ronald Reagan in West Berlin, calling for Mikhail Gorbachev, the leader of the Soviet Union, to open up the barrier which has divided West and East Berlin since 1961.



# Grand Opening of the Duisburg site

September 9, 1987: Grand Opening ceremony of the new research, development and production facilities. 450 guests and employees attended the Shimadzu event at Albert-Hahn-Strasse 6-10.

During a Sake Ceremony, the new building was inaugurated by Duisburg's Lord Mayor Josef Krings, Dr. Minoru Nishihachijo, President Shimadzu Corporation, and Yasutsugu Kawabe, Shimadzu Europa. The 'celebration sake' (iwai-zake) comes from a wooden cask which is opened with mallets. In a masu, a square wooden box, it is served freely to all guests to spread good fortune.

Shimadzu invests 25 million Deutschmarks in the building and premises. 6,300 sqm is intended to cover offices as well as production space. Currently a team of 38 people, Shimadzu Europa keeps enough space available for future expansion. In Duisburg, Shimadzu started research and development as well as manufacturing, enabling the company to meet the needs of the markets faster and more flexibly.

Manufacturing in Germany covered analytical instruments such as HPLC systems and UV-Vis spectrophotometers. A short time later, production of medical technology systems was about to begin, e.g. surgical image intensifiers and x-ray generators.

A medical technical product is put on the market: the ZS-50,

a cassetteless diagnostic table with planigraphic function.

1988



The EU names Berlin as European City of Culture. At the time, the city is still divided by the Wall into an Eastern and a Western part. Sharp demonstrates a fourteen-inch TFT-LCD (thin-film transistor liquid crystal display) for TV when the display size of the mass-produced TFT-LCD was three inches. The high display quality in Cathode Ray Tube (CRT) size convinced other electronic companies to join the infant TFT-LCD industry aimed at emerging full-color notebooks. Two decades later, TFT-LCDs replaced CRTs.





Shimadzu acquires Kratos Group Plc. in UK and makes it a Shimadzu Group company. Kraton's MALDI (Matrix Associated Laser Desorption and Ionization) mass spectrometry business is recognized to be at the forefront of its development and application as applied to the analysis of biomolecules.





Known for its museums and architectural landmarks, one of Europe's major centers of finance, commerce, fashion, science, music and painting: Paris, France is this year's European City of Culture.



Riva, representing the now-defunct Yugoslavia, wins the Eurovision Song Contest with the song 'Rock Me'. This was the only victory for Yugoslavia as a unified state.

## Political paradigm shift in Europe

Following a period of economic and political stagnation in the 70s until the mid-80s, the Soviet Union decreased its intervention in Eastern Bloc politics. Mikhail Gorbachev (General Secretary in 1985) initiated the policies of glasnost (openness) and perestroika (economic restructuring). A wave of revolutions occurred throughout the Eastern Bloc in the late 1980s and early 1990s resulting in the end of communist rule in Central and Eastern Europe and beyond.

The events of the full-blown revolution began in Poland and continued in Hungary, East Germany, Bulgaria, Czechoslovakia and Romania. One feature common to most of these developments was the extensive use of campaigns of civil resistance, demonstrating popular opposition to the continuation of one-party rule and contributing to the pressure for change.

In June, Hungary began dismantling its section of the physical Iron Curtain, leading to an exodus of East Germans through Hungary which destabilized East Germany. This led to mass demonstrations in cities such as Leipzig and subsequently to the fall of the Berlin Wall in November 1989, which served as the symbolic gateway to German reunification in 1990.

The raising of the iron curtain lead to

- political change and economic progress in the Eastern parts of Europe, and to a common market of 500 million consumers
- the democratization of the continent, strengthening the selfconception and the civil society
- the expansion of the EEC and the EU as the basis for the development of national markets, a common European market and economic wealth in peace.

Shimadzu's first MRI system (Magnet Resonance Imaging) outside Japan is installed in a radiology clinic in Duisburg, Germany. Shimadzu Europa's revenues grow to 90 million Deutschmarks (US \$56 million), and the team consists of 80 people.

The Game Boy (Japanese: ゲームボーイ) is released. This 8-bit handheld game console was developed and manufactured by Nintendo. The Game Boy and its successor, the Game Boy Color, have sold over 118 million units worldwide.





TOC-5000/5050, a general purpose high-sensitivity Total Organic Carbon analyzer, is introduced.



FTIR-8100: The first instrument in the market to feature dynamic alignment

as a standard feature in an affordable FTIR spectrometer.



The Nobel Peace Prize is awarded to Mikhail Gorbachev, President of the Soviet Union, "for his leading role in the peace process which today characterizes important parts of the international community".



The Hubble Space Telescope is launched, a project of international collaboration between NASA and the European Space Agency (ESA). Hubble's four main instruments observe in the near ultraviolet, visible, and near infrared spectra. In 2018, it will pinpoint a star nicknamed lcarus more than halfway across the universe, the farthest individual star ever seen.



### Shimadzu expands its base in Europe

In Austria, the Shimadzu subsidiary is established in Vienna, the country's capital. In a first stage, the focus was on analytical instrumentation before it was complemented by medical technology in 1991. Target markets were Austria, Czechoslovakia (today: Czech and Slovakian Republics), Hungary, Romania, Bulgaria and Albania.

Additionally, a sales office operates in Prague. Prague, at the time Czechoslovakia's (today: Czech Republic) capital, is an important center of the country's manufacturing industry and the highest performing regional economy of the country.

Later, Shimadzu offices open in Bratislava (Slovakia), Bucharest (Romania) and Sofia (Bulgaria).

Since its reunification, Germany has grown with five new federal states due to the decline of the former German Democratic Republic. Shimadzu founded two new Technical Offices, in Berlin and Jena, each with six staff. Industry is a great tradition in Jena, and the city is also a service hub for the surrounding regions. The Berlin Technical Office covers three of the new federal states.

1991



The subsidiary Shimadzu Italia is founded in Milan, covering analytical instrumentation systems. Milan is Italy's industrial and financial heart, and the capital of Lombardy province.

a collaboration with a partner network starts in the Baltic States, in CIS (Commonwealth of Independent States) and Georgia.

Further expansion: For medical technology,

The world's first webcam shows the Trojan Room coffee pot in the old Computer Laboratory of the University of Cambridge, England. At first, it sent live pictures of the coffee pot to all desktop computers on the office network. It intended to save people working in the building the disappointment of finding the coffee machine empty after making the trip to the room. Later, the webcam was connected to the internet.





**Dublin, Ireland holds for one year the title of Europe's City of Culture.**The city is a center for education, the arts, administration, economy and industry.











**GC-17A: Milestone with Advances Flow Control (AFC)** The outstanding separation opportunities offered by capillary columns have been supported by two major GC innovations: Shimadzu's Advanced Flow Control (AFC) in combination with Electronic Pneumatics Control (EPC, Hewlett Packard Enterprise, now Agilent Technologies). Pressure and split flow are electronically controlled and can be adapted on the oven temperature program.





The Winter Olympics take place in Albertville, France. They were the last Winter Olympics to be held

the same year as the Summer Olympics, and the first where the Winter Paralympics were held at the same site.



As the political, economic and cultural center of Spain, Madrid is this year's European City of Culture.

### On the growing path

Grand Opening: After Shimadzu moves to Duisburg in 1987 into a 6,300 sqm building, an annex of 6,000 sqm is added to extend the production of analytical instrumentation as well as medical technology systems. In a first step, gas chromatographs are assembled.

Furthermore, the ShimCAT Center for Application and Training calls the new venue home for executing application tasks on-site as well as for seminars in which customers can train their technical skills for operating the instruments. Up to 70 people can be hosted in the largest space. Additionally, handbooks and computer programs are developed in the ShimCAT environment. Following the tradition of the 1987 opening, a Sake Ceremony was held with Friedel Geneder, Duisburg's Lord Mayor, Tasuka Hara, President Shimadzu Europa, Takashi Kurita, President Shimadzu Corporation,

and the Japanese consul general Ueno. The ceremony was accompanied by koto sounds (Japanese: 筝), a stringed musical instrument and the national instrument of Japan.

The new building reflects the great development of Shimadzu in the last years as well as the business expectations in the coming years. When Shimadzu moved to Duisburg, the company had 38 employees on their payroll, and now, five years later, Shimadzu has a team of 147 people based in the European headquarters. In the same period of time, the revenues have grown from 71 to 120 million Deutschmarks. Shimadzu invested 20 million Deutschmarks in the new building.

Not only the site of the European Headquarters is on the growing path, Shimadzu also relocates in new geographic markets, particularly in Eastern Europe. In consecutive steps,

the analytical instrumentation divisions focus the markets in the Baltic States and some former Soviet republics. New offices are opened in Vilnius, the capital of Lithuania, in Russian cities such as Moscow, St. Petersburg, Oryol on the Oka River, Yekaterinburg on the Iset River east of the Ural Mountains, Novosibirsk on the banks of the Ob River in Siberia and Irkutsk, close to the only outflow of Lake Baikal. In the future, Vladivostok on the Pacific Ocean will be added. Furthermore, offices were opened in Minsk, the capital of Belarus, and in Sievierodonetsk, Ukraine.

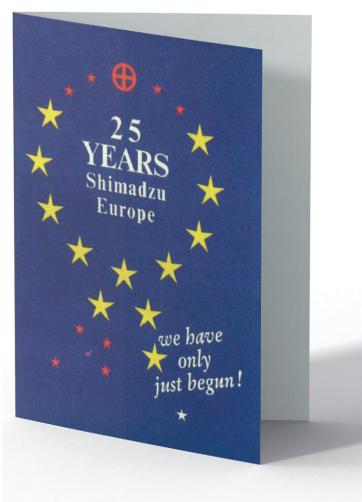
Shimadzu also extends its presence in Western European countries. The locations of Antwerp (Belgium) and s'Hertogenbosch (Netherlands) are dedicated to analytical instrumentation solutions and become own entities in 2006 as subsidiary Shimadzu Benelux.



The Summer Olympic Games are celebrated in Barcelona, Spain. The games were the first to be unaffected by boycotts since 1972 and the first summer games since the end of the Cold War. Following its reunification in 1990, Germany sent a single, unified Olympic team for the first time since the 1964 Summer Olympics. As the Soviet Union was dissolved in 1991, the Baltic nations of Estonia, Latvia and Lithuania sent their own teams for the first time since 1936. Other former Soviet republics competed as the Unified Team.

'Unforgiven' is a Western film on an aging outlaw. It achieved four Academy Awards, including Best Picture.













The Maastricht Treaty establishes the European Union by merging EURATOM (European Atomic Energy Community), European Coal and Steel Community (ECSC) and European Economic Community (EEC).



### 25<sup>th</sup> anniversary of Shimadzu Europa

The first 25 years were dedicated to progressing the business and expanding the network. In the beginning, Western European states were in the business focus, but first approaches were made to East German, Russian and Yugoslavian markets.

The business was growing steadily, and an important milestone was the move from Düsseldorf to Duisburg, Germany in newly erected buildings hosting the European headquarters, at the time with 170 employees headcount. An own R&D department and production facilities built the basis for evolution in the next 25 years.

Growth has been influenced by three developments:

- raising of the iron curtain and access to new markets and their opportunities
- technological progress and continuous digitalization
- adapting Shimadzu with its portfolio, services, and organizational structure successfully to societal, political, economic and technological changes.



First in the world, Shimadzu releases the MAGNEX special superconducting MRI systems with less-helium magnet.

For the first time, a gas chromatograph is fully digitally controlled, including digital control of the split ratio: the GC-17. It is also used in the GCMS-TQ5000 system.

The EU introduces the internal market through a standardized system of laws that apply in all member states, ensuring the free movement of people, goods, services, and capital.



A major trade and cultural center, also known as 'the diamond capital of the world' for its large diamond district, **Antwerp, Belgium is European City of Culture.** 



Nichia Corp., Japan, releases the first commercially available high luminance blue LEDs on gallium nitride basis. In 2014, the inventors will be awarded with the Nobel Prize.



The IBM Simon Personal Communicator is the first PDA to include telephony features. Retrospectively, Simon can be called the first 'smartphone', although this name has not been coined at that time. The battery lasted only an hour.

**Sony releases the PlayStation, a home video game console.** Before it was officially discontinued in 2006, over 100 million units were shipped.



### Impact of the political paradigm shift in Europe

The raising of the iron curtain lead to

- political change and economic progress in the Eastern parts of Europe, and to a common market of 500 million consumers
- the democratization of the continent, strengthening the selfconception and the civil society
- the expansion of the EEC and the EU as the basis for the development of national markets, a common European market and economic wealth in peace.

According to the comparison of GDPs worldwide, the European Single Market is the largest economic area. The free movement of goods, capital, services and labor as well as the European Union Customs Union and the harmonization of technical norms are drivers of an economic success story regarding growth, prosperity and income per capita.



1995



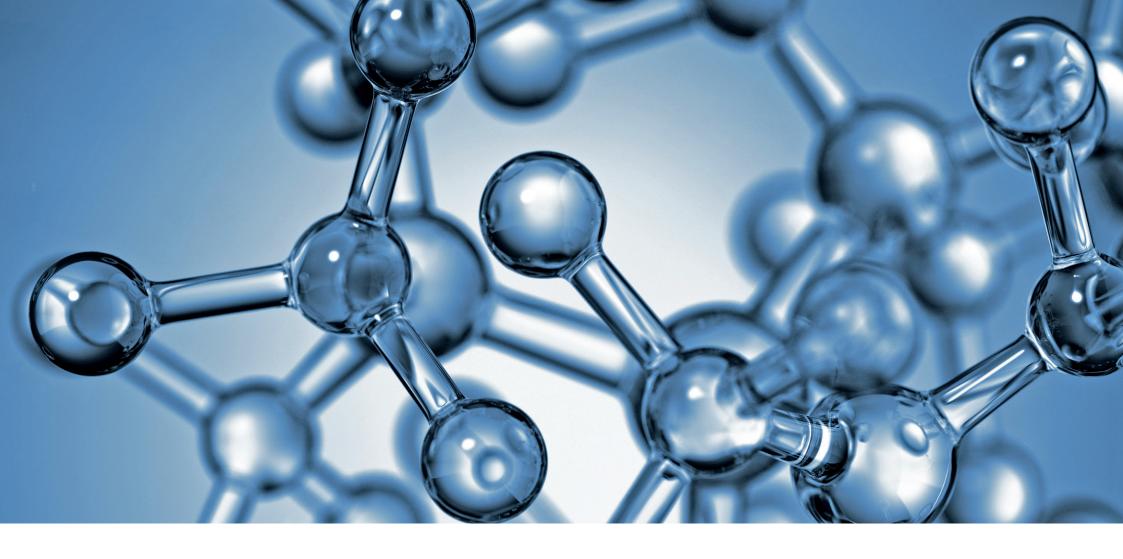
German-born Hans-Dieter Bätz becomes Shimadzu Europa's first Managing Director of local heritage. Under his aegis, Shimadzu's expansion in Western, and later Eastern European countries has been pushed. Many entities in several countries were founded. Hans-Dieter Bätz joined Shimadzu in 1988 and served until 2005 as Managing Director.



Within the fourth enlargement of the European Union, Austria, Sweden and Finland join the EU which now counts 15 member states.

"Houston, we've had a problem" –
'Apollo 13' is released and was nominated for nine Academy Awards, including Best Picture.





Shimadzu launches the Cvision multi-functional digital R/F C-arm table. Due to its compactness, Cvision provides maximum productivity even in small spaces, and serves particularly in middle sized hospitals or clinics as a multi-purpose system.

Shimadzu's TOC-5000A total organic carbon analyzer has sold over 1000 units since being introduced on the European market place.



199



Characterized by parks, promenades and waterfronts, Copenhagen is named European City of Culture, hosting the cultural, economic and governmental center of Denmark.

'The English Patient' is a romantic war drama film. Nine Academy Awards wins support the recovery process.



## Technological progress and digital transition

Besides the framework conditions of economics and politics, technological developments have also driven success in the second half of Shimadzu's presence in the European market. There are general trends such as miniaturization of instruments and automatization, e.g. from pretreatment of the sample to analysis. They push efficiency and productivity in clients's labs and hospitals.

Particularly coupling technologies drive the sensitivity and accuracy of analysis and measurements, for example in chromatography and mass spectrometry, or microscopy and spectroscopy. The potential of these segments and other combinations to come, together with new scientific approaches, e.g. near-

infrared spectroscopy examining brain functions, will give access to new applications, diagnoses and therapies.

Many of these innovations have been hardwarerelated, such as UHPLC technologies, but there also have been many novelties from the software side. These are application, method and data management solutions, completed by libraries facilitating evaluation. Also in medical technology, new diagnoses are based on software functions.

This leads to the second powerful driver of the future, the digital transition. It provides seamless processes, more accurate and faster measurements and examinations, and it has revolutionized the

way of working in analytical instrumentation and medical technology. Digitalization is a driver for creativity and opportunities. It changes the ways of human to human communication, human to machines, and machines to machines.

In medical technology, the digital flat-panel detector replacing conventional x-ray film technology, allows for less x-ray exposure and also supports the concept of a digital hospital. HPV high-speed cameras observe phenomena which could not be recorded using analog technologies. Digitalization totally changed the weighing technology. Like the industrial revolution, digitalization will change the ways our economies and societies and everyday lives work.



Shimadzu UK is founded and starts business.

1997

Shimadzu develops the DIGITEX PRO series digital radiography system. It complements the flexible design of the Cvision to perform

many kinds of digital imaging from gastrointestinal examinations to angiographic studies with high quality images.



Thessaloniki, Greece achieves the title of European City of Culture.

The city has a rich ancient culture and is today renowned for its festivals, events and vibrant cultural life in general. It is the country's second major economic, industrial, commercial and political hub.

Dolly the sheep is the first clone produced from a cell taken from an adult mammal. Will cloning have uses in preserving endangered species, may it become a viable tool for reviving extinct species? Or has the main legacy of Dolly the sheep not been cloning of animals but advances into stem cell research?



### A networked business community

In 1990, the British CERN physicist Tim Berners-Lee creates the World Wide Web (WWW). Three years later, CERN (the European Organization for Nuclear Research, Switzerland) announced that the World Wide Web would be free to use for anyone, which accelerated its breakthrough. Berners-Lee intended to develop a network for the exchange of information over long distances. He built the platform for the Internet as we know it today and provided the components such as URL (Uniform Resource Locator), HTML (Hypertext Markup Language) and HTTP (Hypertext Transfer Protocol).

In 1995, the three companies Yahoo, Ebay and Amazon started business and later became big internet players. Google started in 1998. The introduction of smartphone technologies makes mobile internet applications mainstream. In 2018, terms such as Internet of Things, Industrial Internet of Things, or Industry 4.0 stand for a continuously networked society and industries which are not necessarily always dependent on the WWW.

In 1998, Shimadzu Europa launches its first website. Regarding analytical instrumentation, Shimadzu has frequently embraced the opportunities the WWW offers since then and has applied browser-based technologies, e.g. for wireless instruments monitoring and control (for instance HPLC systems), for enhanced customer service such as the interactive "TOC Virtual Advisor", and apps for convenient communication with target groups and professional communities.

1998

The first component of the International Space Station (ISS) is launched into orbit. The station is expected to be in operation until 2028. The ISS program is a joint project among five participating space agencies from the U.S., Russia, Japan, Canada and Europe





The Winter Olympics take place in Nagano, Japan, with 72 nations participating. The Games saw the introduction of women's ice hockey, curling and snowboarding.





The Nokia 3210 is the first GSM cellular phone in volume production without external antenna. With 160 million units sold, it is one of the most popular and successful phones in history.



**:** 

**The Shimadzu subsidiary in Switzerland is founded.** It is located in the outskirts of Basel where the Swiss, French and German borders meet. The region is one of the most dynamic economic regions of Switzerland. Pharmaceuticals and specialty chemicals have become the modern focus of the city's industrial production.

Doctors Without Borders (Médecins Sans Frontières) are awarded the Nobel Peace Prize "in recognition of the organization's pioneering humanitarian work on several continents".

This international humanitarian medical non-governmental organization (NGO) of French origin is known for its projects in conflict zones and in countries affected by endemic diseases.



The GC-2010 is Shimadzu's first gas chromatograph dedicated to fast GC. Many improvements and innovations make the GC-2010 a trendsetter for excellence in precision and sensitivity.



Shimadzu introduces its first European Exhibition Concept applying modules that can be combined flexibly, thus creating efficiencies.



Regarding the European Capital of Culture, the EU acknowledges the special millennium year and awards nine cities as European Capitals of Culture: Avignon/France, Bergen/Norway, Bologna/Italy, Brussels/Belgium, Helsinki/Finland, Krakow/Poland, Prague/Czech Republic, Reykjavik/Iceland and Santiago de Compostela/Spain. In this way, the EU emphasizes the contribution of European cities to the achievements of world culture and civilization.





For the first time, the European Football Championships are co-hosted: by Belgium and the Netherlands. France won the tournament by defeating Italy 2-1 in the final, via a golden goal.



#### Sports, anti-doping, anti-drugs

Contests, physical exercises and education date back millennia and have been sociocultural phenomena all over the globe during many ages and in many cultures. Today, we call it sports. It overcomes borders, connects cultures, gives individuals self-fulfillment. Sport is also entertainment and an economic factor through global events, mass media and worldwide sponsors.

The fascination of sport can also show its downside, when it comes to cheating, e.g. through performance-enhancing substances applied by individuals, teams, groups or sometimes states. The list of systematic doping is long and dates back for decades. But drugs and doping are not always about short-term winning, they also involve long-term damage to athlete health. Due to mindshift and sets of action, cases of doping are pursued, handled and punished more stringently today, and doping is no longer marginalized.

But it takes sophisticated technologies and scientific methodologies to be able to uncover doping scandals. Through fast and high-throughput analysis, drugs and illegal substances can now be detected with cutting-edge instruments and analysis. Based on continuous pursuing and resolute action, victories can be deprived even after years, and in some countries cheating athletes can be convicted.

In 1999, the World Anti-Doping Agency (WADA) was founded based on the Lausanne Declaration on Doping in Sport. WADA publishes lists of prohibited substances which include anabolic androgenic steroids, stimulants, narcotics and many others. The analytical possibilities of the different labs are therefore crucial for the detection of substances. It is important to be able to identify low levels of performance-enhancing drugs. Chromatography and mass spectrometry, both gas and liquid, provide simple, accurate and sensitive results for the anti-doping community.

2001



In Sarajevo, Bosnia and Herzegovina, Shimadzu opens a new office. It is the country's strongest economic region based on manufacturing, administrative and tourism sectors.

Introduction of the new TOC-/TNb series, consisting of five instruments covering the entire range of water analyses.



Middle-Earth and Platform 9 3/4: the year 2001 sees the introduction of two fantasy movies,

based on the novels of two great writers: Tolkien's 'Lord of the Rings', and Rowland's 'Harry Potter'.



The Human Genome Project publishes a working draft of the genome, after it was announced one year before. A more complete draft was published in 2003, and genome "finishing" work continued for more than a decade. The Human Genome Project, through its sequencing of DNA, can help to understand diseases better.



### Kōichi Tanaka awarded Nobel Prize for Chemistry

On October 9, the Royal Swedish Academy of Sciences announces that Shimadzu scientist Kōichi Tanaka has been awarded the Nobel Prize in Chemistry along with two other pioneering scientists. Kōichi Tanaka was rewarded for revolutionary mass spectrometry techniques.

Kōichi Tanaka was jointly awarded one half of the prize together with John B. Fenn of Virginia Commonwealth University for their development of soft desorption ionization methods in mass spectrometric analyses of biological macromolecules. Tanaka's approach has become fundamental in the standard methods (MALDI, SELDI and DIOS) for structural analyses of proteins, DNA and carbohydrates which make it possible to characterize

the components of biological systems. Many of the laser desorption technologies have their foundations in his work. MALDI mass spectrometry is used in almost all research areas, e.g. in drug development, early detection of malaria, breast and prostate cancer as well as in food analysis.

Kōichi Tanaka joined the Central Research Laboratory of Shimadzu Corp in 1983 as an R&D engineer. In 1992, he stayed for one year in the UK at Kratos Analytical Ltd., a Shimadzu Group Company. In 1997, he returned for period of five years. His discoveries were critical to the commercial development of the Axima and Kompact series of MALDI mass spectrometers.

2002

Shimadzu presents CLASS-Agent, an FDA 21 CFR Part 11 compliant data management software package for Shimadzu's analytical instruments. The launch of the IRPrestige-21 propells Shimadzu's FTIR product range into the 21st century. This instrument was the first to feature the Shimadzu patented 'Autodryer' mechanism.





The Shimadzu subsidiary in France is founded.

Physical Euro currency coins and banknotes enter into circulation, making it the day-to-day operating currency of the Eurozone and completely replacing the former currencies. It is the second most traded currency in the foreign exchange market after the United States dollar.



'Spider-Man', a superhero film, becomes the most successful film based on a comic book. Two sequels will be released in 2004 and 2007.





**HeartSPEED is introduced:** the world's first diagnostic x-ray imaging system equipped with a direct-conversion flat panel detector (FPD).



35<sup>th</sup> anniversary of AAS spectroscopy.

**World's first:** Shimadzu has been a pioneer in the development of the OPF sensor (One-Piece Forecell) for use in weighing technology. With the so-called 'UniBloc', the company presents a high-performance measuring cell as the centerpiece of every Shimadzu balance.





The EU awards Graz, Austria the title European Capital of Culture. Graz hosts six universities. The city's center is said to be one of the best-preserved places in Central Europe.





The European Union is enlarged through new member states: Slovenia, Hungary, the Czech Republic, Slovakia, Poland, Lithuania, Latvia, Estonia, Cyprus and Malta join the EU. The 'Energy United' program is launched, the first of its kind in business growth and development plan. From now on, in steps of three years, this business approach will be rewritten and adapted to future client and market needs.



The Summer Olympic Games in
Athens mark the return of the games to
the city where they began in 1896. More
than 10,000 athletes competed.



#### 'Strategy of the Future'

This European business restructuring strategy focuses on establishing independent companies in major markets and countries all over Europe in order to better support new trends and markets. In this way, the Shimadzu branch offices are transformed into independent entities and subsidiaries.

Local subsidiaries benefit from this strategy as it enables more freedom to better adjust their business processes to customer requirements and markets, and respond to local cultural conditions and traditions. The second pillars representing Shimadzu in Europe are the branch offices and the distributors. Already in 1968, when Shimadzu started business in Germany and Europe, a few distributors were part of the business set-up and have been a link to customers, markets and trends in order to serve needs and learn about future requirements.

Today, branch offices and distributors help to give Shimadzu a face in every single country in Europe between the Arctic Ocean in the North and the Mediterranean Sea in the South, from the Atlantic Ocean and the North Sea in the West to the Black and Caspian Seas in the East. As the country of Russia spans from Europe to Asia, Shimadzu's office in Vladivostok on the Pacific Ocean is part of the European organization.

Nearly 30 distributors cover Shimadzu's portfolio in analytical instrumentation as well as medical technology. Many of them are long-time partners of Shimadzu Europa, and some of them are even in the second management generation. There is no place on Earth they can not serve, and one of the most exotic destinations for deliveries may have been the Antarctica, when ShimPol (Shimadzu Poland) shipped equipment to the Polish polar research station.

Shimadzu's MobileArt mobile x-ray series is acknowledged with the Frost & Sullivan '2004 Growth Strategy Leadership' award. Since their introduction in 2001, sold units have quadrupled.





**Genoa, Italy and Lille, France are Europe's Capitals of Culture.** Genoa is famous for its glorious past and impressive landmarks and hosts the busiest port in the Mediterranean Sea. Lille, close to the border of Belgium, is known for its use of brown and red brick in architecture, which is quite uncommon in France.

**ASIMO**, a multi-functional humanoid robot, is inducted into the Robot Hall of Fame. It has been created by Honda in 2000. Its name comes from the initials of its English name Advanced Step in Innovative Mobility. ASIMO has the ability to recognize moving objects, postures, its surrounding environment and sounds and faces, enabling it to interact with humans.







The World Games are held in Duisburg, Germany. This international multi-sport event covers 25 to 30 sports and disciplines that are not contested in the Olympic Games. Shimadzu sponsors the Japanese Sumo Wrestling team.

### Breakthrough in Flat Panel technology

Shimadzu introduces a new milestone in its x-ray technology program. The 'Safire' flat-panel detector is the world's first large-field FPD with direct-conversion technology. It offers distinct advantages in image quality and dose efficiency compared with indirect-conversion flat-panel. In the following years, this technology will be applied in many Shimadzu products such as the angiographic system 'BRANSIST safire', the R/F solution 'Sonialvision safire' and the RAD room 'RADspeed safire'.

Historically, x-ray film has been used for medical diagnostics. But with the increasing implementation of digital and information technology in the medical field, a high-resolution, high-sensitivity direct-conversion FPD has been keenly awaited as an appropriate x-ray detector for high-tech medical practices.

The direct-conversion flat-panel detector is far more sensitive than conventional x-ray films. Even when the x-ray radiation emitted is reduced by one half to one third of conventional x-ray examination, the image quality is qualitatively equal to or better than film. This dramatically reduces the dosage exposure to the patient.

Launch of MobileDaRt, the first fully digital mobile x-ray system in the world, equipped with a portable flat panel detector.



The first Shimadzu EXPAND Meeting takes place in Essen, Germany.

EXPAND stands for European Expansion and new Development.

Release of the Hypervision HPV-1 high speed video camera





Cork, Ireland is European Capital of Culture. The country's second largest city is known for the Cork Film Festival as well as the Cork Jazz Festival.





**Germany is the host nation of the Football World Cup.** Italy wins the tournament, claiming their fourth World Cup title. In the final, they defeat France 5–3 in a penalty shoot-out.





#### Patras, Greece is Capital of Culture for one year.

Greece's third-largest city dates back to four millennia. Patras is a commercial hub with a busy port and known for one of Europe's largest carnivals.

## Technological driver and market leader in IR spectroscopy

Shimadzu celebrates its 50<sup>th</sup> anniversary of IR spectroscopy. Since the middle of the 20<sup>th</sup> century, spectroscopy has been at the core of Shimadzu's analytical business unit and a main driving force in the company's growth and reputation. Know-how, technological skills and innovative power, have brought Shimadzu to a leading position in spectroscopy.

In the first half of the 20<sup>th</sup> century, Shimadzu grew significantly, hand-in-hand with science, building itself into a leader in technology. In this spirit, Shimadzu developed its first double beam self-recording infrared spectrophotometer: the AR-275. The instru-

ment became commercially available in 1956 and was robust enough even for export overseas.

Shimadzu's history in IR spans many technological eras. Today in 2018, the Shimadzu spectroscopy portfolio includes software and hardware solutions such as UV-Vis spectrophotometers, FTIR spectrophotometers & microscope systems, fluorescence spectrophotometers, energy dispersive x-ray fluorescence spectrometers, Atomic Absorption Systems (AAS) and ICP-OES as well as ICP-MS instruments.



The subsidiary in Croatia is founded. Based in Zagreb, the capital of the country, Shimadzu covers analytical instrumentation as well as medical technology. Zagreb is an international trade and business center hosting industries of electrical machines and devices, chemical, pharmaceutical, textile, and food and drink processing.

With 'Casino Royale', the character of James Bond 007 is reinvented and becomes the highest-grossing James Bond film until the release of Skyfall in 2012.



The New Horizons interplanetary space probe is launched with the primary mission to perform a flyby study of the Pluto system in 2015.





Shimadzu's outstanding solution in Comprehensive Chromatography provides GCxGC (qMS) technology and enters a new dimension in the evaluation of complex samples.

Introduction of a high-speed digital image processing engine called SUREengine. This new cutting-edge technology generates a new level of fluoroscopic image quality.



Romania and Bulgaria join the European Union. EU citizenship increases to 500 million, and with 4.4 million sq km is nearly half the size of the U.S.. Both countries are not yet members of the Schengen area, however their citizens can travel visa-free within the other EU countries.



As Europe's Capitals of Culture, Sibiu/Romania and Luxembourg are chosen, Luxembourg for the second time. Sibiu is one of the most important cultural places of Romania. In 2008, Forbes ranked the old city of Sibiu as "Europe's 8th-most idyllic place to live".

## Developing the Shimadzu organization

The Shimadzu Europa organization in Duisburg has grown to almost 80 employees in 2007, working to maintain and extend the European business structure and the commercialization of new products in Europe as well as marketing and communication. In this context, a new software has been introduced for enterprise resource planning purposes. It incorporates the key business functions of the company. It provides deeper insights and transparent processes making the Shimadzu organization more efficient.

By integrating Shimadzu Germany into the new European business structure, Shimadzu adds another milestone in completing step by step its European business restructuring process. It focuses on

establishing companies in major markets and countries all over Europe. This structure forms part of the 'Strategy of the Future'. It is also applied on a national level, e.g. when seven Technical Offices in Germany are made an integral part of the local Shimadzu organization.

Based on the Sarbanes-Oxley Act (SOX), a United States federal law on accuracy of corporate financial statements, Shimadzu Europe introduces the J-SOX compliance law, Japan's financial instruments and exchange law. J-SOX applies strict rules for the internal control of financial reporting in order to protect investors by improving the accuracy and reliability of corporate disclosures.

Shimadzu launches Cardiology systems, General Rad rooms and R/F rooms applying 43 x 43 cm (17 inch) flat-panel detectors (FPD). For these modalities, Shimadzu has developed cutting-edge technologies such as Tomosynthesis, Dual-Energy Subtraction and Slot Radiography. Since its introduction in 2005, several hundred clinical 'Safire' installations are already in operation world-wide.

The Prominence UFLC offers ultra-fast HPLC combining dedicated modules with specifically developed columns.



After years of rumors and speculation, the first generation iPhone is launched in the U.S., and later in Europe. It features quad-band GSM cellular connectivity with GPRS and EDGE support for data transfer.



## Shimadzu Europa 40<sup>th</sup> anniversary



Since the start of the new millennium, Shimadzu has scored each year with innovations or world-premieres including systems that are the most sensitive in the market today such as a quadrupole-GC-MS system. New conceptual areas were opened up by the LC-20A Prominence liquid chromatograph featuring complete browser-based instrument control.

Besides the technological aspects of Shimadzu's business approach, it is important to have an organizational structure that meets the needs of clients, and which sets it apart from the competitors. Reflecting clients' structures of international and transcontinental collaboration in work and project groups, Shimadzu establishes START (Shimadzu Strategic TransAtlantic Round Table) as a forum to specify competitiveness and performance. Furthermore, PATF (Pharma Account Task Force) is

introduced to develop global accounts systematically in order to increase Shimadzu's business worldwide. This first practice group focuses on understanding and better serving the needs of clients, and also anticipating future challenges especially in the U.S. and Europe.

In its 40<sup>th</sup> anniversary year, Shimadzu is awarded the European Frost & Sullivan 'Product Line Strategy Award' for its mass spectrometry segment covering advanced MALDI-TOF, LC/MS and GC/MS systems. Over the last years, Shimadzu has grown in all these segments, and expanded its market share through hardware and software developments as well as interdisciplinary approaches. For example: since 2003, Shimadzu has doubled its market share in the GC/MS business.

2008

#### The new Prominence UFLC-XR is released.

a system with ultrafast separations at ultrahigh resolution providing highest data quality under extreme conditions.







Alongside Liverpool (England), the city of Stavanger, Norway is named European Capital of Culture. Stavanger is the third-largest city in the country and one of the nation's premier culinary locations. Liverpool celebrated its 800<sup>th</sup> anniversary the year before. In 2004, several areas of the city were granted World Heritage Site status by UNESCO.

The first beam is circulated through the Large Hadron Collider (LHC) at the CERN research facility. The most complex experimental facility ever built, it is the world's largest and most powerful particle collider, and the largest single machine in the world. Physicists hope that the LHC will help answer some fundamental open questions in physics.



## Shimadzu Europa from an Human Resources perspective

Shimadzu started business in Europe with five employees. In 1987, when Shimadzu moved to Duisburg into the new headquarters building, the staff had increased to 38 employees, and five years later with an own manufacturing site, it had grown to 147 employees. After establishing legal local entities in major markets in Europe, Shimadzu currently counts approx. 750 employees in 47 countries, 172 employees of which are in the Shimadzu European Headquarters in Duisburg.

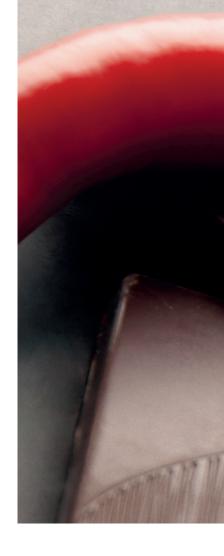
### **International Headquarters**

Just as business in Europe is internationalized, Shimadzu also internationalizes the European Headquarters in order to reflect diversity and to add perspectives from different countries and cultures. In 2018, approx. 30 employees from countries abroad are working in Duisburg. These colleagues come from subsidiaries as well as from distributors. Together with them, their

subsidiaries and all employees in the Headquarter, Shimadzu shapes the future of the company through progressing the organization and offering opportunities for personal development and career planning.

### Employer branding and Shimadzu members as brand ambassadors

The combination of flat hierarchies, individual responsibility and operational flexibility supports continuity and loyalty and is one of the reasons for minimum staff fluctuation. Furthermore, a trusting relationship between executive board and works council leads to a positive environment with fair working conditions, equal treatment and fast solutions in cases of conflicts. A barbecue event in summer and the Christmas party promote teambuilding, team spirit and identification with the company.



The new compact LCMS-2020 single quadrupole mass spectrometer features the world's fastest scanning capability and significantly higher sensitivity than any other single quad. This provides more accurate detection of trace impurities in pharmaceuticals, environmental pollutants and other contaminants.

The new HPV-2 high-speed video camera provides synchronous recordings with up to 4 cameras, thereby obtaining 3D images.



The MCE-202 'MultiNA', a microchip electrophoresis system for DNA/RNA analysis, provides completely automated, high-speed microchip electrophoresis with lower running costs.

Willard Boyle and George Smith are awarded the Nobel Prize in Physics

"for the invention of an imaging semiconductor circuit – the CCD sensor".



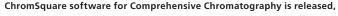


Attracting talent and retaining employees are keys for future growth. In terms of finding new talent, Shimadzu attends graduates congresses and for example promotes the lab4you program. In the same way, the company relies on staff members as brand ambassadors to contact potential employees who have the fitting skills and the right chemistry.

### **Future development**

Skilled and motivated employees as well as outstanding products are the basis for a successful and prosperous future. There are small teams who drive, develop and adjust the processes and the workflows. Other teams introduce new products, develop applications and methods, offer trainings, education and trouble shooting. Sales administration and logistics support seamless interaction. In a nutshell: Shimadzu is ready to meet the future.

2010



where all compounds of a sample are analyzed by two columns with different separation mechanisms. At any point in the process, ChromSquare is capable of delivering in-depth insights on the sample.







Pécs, Hungary is selected to be the European Capital of Culture sharing the title together with Essen, Germany and Istanbul, Turkey. The city of Pécs, close to the Croatian border, has a two millennia tradition of multiculture. Essen receives the title on behalf of the whole Ruhr River area with its 13 million population in Germany's industrial heartland. Istanbul is the most populous city in Turkey and the country's economic,

cultural and historic center. It is a transcontinental city in Eurasia and is viewed as a bridge between the East and West.



The new LabSolutions 5 chromatography software unites the complete HPLC family as well as the LCMS-2020 under one roof in order to increase user-friendliness and ease-of-use.

LC-30A Nexera: the new UHPLC is unsurpassed in high-speed and high-resolution analysis and productivity. It is the cleanest and fastest system ever to date.



2011

Shimadzu introduces the new series of combustion type TOC analyzers. The TOC-L Series systems target wastewater, brine water, seawater, drinking water and pharmaceutical water applications.



**Apple introduces the first generation iPad.** Applying the iOS operating system, the iPad can play music, send and receive emails and browse the web. Other functions can be enabled by downloading apps.



## Eco-label for exceptionally ecofriendly systems



Since the mid 1990's, Shimadzu has specified 'environmental protection and harmony with nature' in its 'Cubic Heart' symbol as part of its corporate philosophy. Shimadzu's analytical instruments contribute to the protection of human health and the environment.

Combatting global warming is one of the most urgent tasks of the future. Shimadzu has therefore issued an energy-saving program. Through energy-friendly manufacturing processes, CO<sub>2</sub> emissions have been reduced in its production facilities – for instance by use of solar energy. The rate of consumption of composite materials has also been reduced. Technical improvements of air conditioning systems

as well as wastewater treatment also contribute to environmental protection.

Shimadzu has created its own eco-label under which new products have been developed which generate less CO<sub>2</sub> emissions during operation. These new products use at least 25 % less energy compared to their predecessor models, thereby reducing running costs.

In addition to lower materials and lower energy consumption, eco-labelled instruments also feature an eco-mode for standby operation. Furthermore, environmentally friendly materials in accordance with RoHS guidelines were used in the manufacture

while savings in the operation of these instruments, e.g. reduction of consumables or an extension of maintenance interval, also have an effect on the supply chain. This reduces the need for on-site service and contributes to energy saving at customer service departments.

In Japan, where Shimadzu also offers other product segments (e.g. semiconductors) next to analytical instrumentation systems, many instruments already carry the new eco-label. In Europe, four eco-label instruments have been introduced to the market and others will follow.



Shimadzu breaks new grounds with the introduction of its Shimadzu-News customer magazine App for iPhone and iPod touch, after a WebApp has been launched earlier for most common mobile platforms such as Android, Blackberry and iOS smartphones.

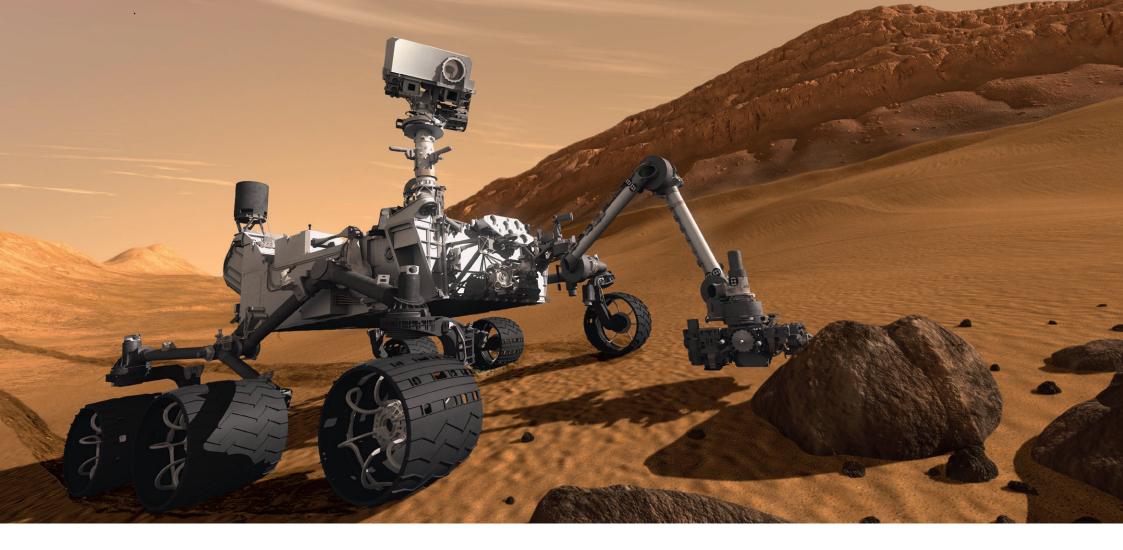
Shimadzu launches the next generation of mobile x-ray systems using the first wireless flat panel detector series. The MobileDaRt Evolution enables x-ray personnel to act even more independently when taking x-ray images on site, in emergency rooms or in paediatrics.





Along with Tallinn, the capital city of Estonia, the Finnish city of Turku is designated the European Capital of Culture.

Tallinn is the major political, financial, cultural and educational center of Estonia. Its Old Town is one of the best preserved medieval cities in Europe and is listed as a UNESCO World Heritage Site. Turku is the oldest city in Finland and has extensively influenced Finnish history. Today, it is a regional capital and an important business and cultural center with a notable commercial and passenger seaport.





The Nobel Peace Prize is awarded to the European Union "for over six decades contributing to the advancement of peace and reconciliation, democracy and human rights in Europe."



#### LCMS-8040, LCMS-8080 and GCMS-TQ8030 triple quadrupoles are launched

with best in class sensitivities, as well as the TOC-4200 providing online-TOC analysis with new communication modes. Furthermore Shimadzu introduces its very demanding eco-label standard for new products with reduced CO, emissions during operation.

The Mars Curiosity rover lands successfully on the red planet. It is described as one of the greatest technological accomplishments of human history.

### 'Excellence in Science'

New corporate claim represents new mission statement

From 2012 on, Shimadzu's brand value proposition is expressed through the new claim 'Excellence in Science' representing Shimadzu's scientific and technological approach to always provide business and research solutions with the most modern analytical and diagnostic systems, ensuring better product, consumer and patient safety. Numerous 'world's firsts' which meanwhile have become industrial standards as well as increasingly sensitive measuring methods substantiate this claim.

With its technologies, Shimadzu enables its customers from the most diverse industries as well as in the medical field to develop new products and solutions to promote and protect people's health and lives and to support the protection of the environment worldwide. Since the foundation of the company in 1875, this philosophy has been the driving and innovative force for Shimadzu's product development and business activities.

Compared to the earlier 'Solutions for Science' approach, 'Excellence in Science' proclaims outstanding quality in technology and services and in every single aspect of working with clients. From a psychological perspective, 'Excellence in Science' elevates the brand promise to the next level of client relationship.



CERN scientists announce the discovery of a new sub-atomic particle that was later confirmed to be the Higgs boson.







The European Capitals of Culture are Guimarães, Portugal and Maribor, Slovenia. Guimarães is often called the "birthplace of the Portuguese nationality" and has a significant historical importance for the country. Maribor is the second-largest city in Slovenia. It is known for architecture and culture as well as wine and culinary specialties. The world's oldest grapevine grows in Maribor.











With the EU's seventh enlargement, **Croatia joins the European Union** and becomes the 28<sup>th</sup> member state.

## Grand Opening of new Laboratory World

It could not have been planned better: 150 guests from all over Europe were greeted by bright sunshine and luminous cherry blossoms at the opening of Shimadzu's new Laboratory World. According to Japanese culture, flowering cherries symbolize an awakening — the theme for this day that included an opening ceremony with representatives from business and politics, a Japanese Kagamiwari ceremony, a guided tour through the laboratories as well as world and European premieres of new products.

The new Laboratory World is located at Shimadzu's European headquarters in Duisburg, Germany. With an area greater than 1,500 sqm, testing facilities are available for Shimadzu's entire product range in Europe – from chromatographs, spectrophotometers, TOC analyzers, mass spectrometers and life science up to material testing machines.

In the cutting-edge Laboratory World, Shimadzu develops solutions that are geared primarily to the growing needs of industries and science. The Laboratory World provides even better demonstration facilities to help customers experience daily operation as realistically as possible. In addition, the company offers continuing education and training to customers as well as staff members.

The Grand Opening is attended by Akira Nakamoto, President and CEO of Shimadzu Corporation, the Japanese Consul Kiyoshi Koinuma and Duisburg's Lord Mayor Sören Link.





Marseille, France is European Capital of Culture, together with Košice, Slovakia. Marseille is now France's largest city on the Mediterranean coast and the largest port for commerce, freight and cruise ships. The city is known for its popular events and festivals, is famous for food and has been the setting for many movies. Košice, Slovakia's second-largest city hosts a well-preserved historical center with many heritage protected buildings. It is the economic and cultural place of eastern Slovakia.













With best in world features, the iMScope TRIO is a revolutionary tool combining an optical microscope with a mass spectrometer. It targets R&D in many industries.







**Riga, Latvia and Umeå in Sweden are designated European Capitals of Culture.** A former Hanseatic League member, Riga is known for its Art Nouveau architecture and 19<sup>th</sup> century wooden architecture. Riga's historical center is a UNESCO World Heritage Site. Umeå is famous for its music scene, and it is a place of universities, education and technical and medical research in Sweden. Nearly one third of the population are students.

## Corporate Social Responsibility – Social Days and Wishing Tree

As a company, Shimadzu's business approach is consumer and patient safety as well as environmental, product and production site protection. Being part of the social communities where the subsidiaries are located, Shimadzu employees also engage in responsibility for people and the local environment. This is why the company has started various projects benefitting needy individuals and institutions, while also giving the colleagues a platform for individual social engagement.

Already in 2013, Shimadzu organized for the first time a Social Day together with the Order of Malta volunteers. 25 team members committed to the "Maltese Social Day" in

and economic efficiency.

different cities around Germany. The largest group gathered in Duisburg to work on the renovation of the 'little rascals' kindergarden. Together, they painted walls and furniture, repaired broken toys and planted flowers. Within a day, the Shimadzu colleagues created a good environment again. This only works with a committed team.

In 2014, Shimadzu focuses on an animal rescue organization, again in Duisburg.

18 colleagues spent time for repair, paint and decoration works. They cut down a tree and built a wooden hut, cleaned up the storage room and painted the dog swimming pool. They gave their best to

make animals feel good again, and supported their care workers. Tired and proud, the Shimadzu colleagues could look back on a really exciting team project.

### Sparkles in kids eyes — Shimadzu Wishing Tree

This tradition was set up two years before, when Shimadzu started to work with a social welfare organization. Duisburg kids are invited to post their wishes on the Shimadzu Christmas tree in the company's restaurant. From there, the Shimadzu colleagues pick up the wishes they would like to fulfil. During a get-together with drinks and cookies in the headquarters,

the gifts are presented to the children. These are always exciting moments for the children, and also for the colleagues to see the sparkle in the kids' eyes.

In 2014, Shimadzu donates Christmas gifts to children living in Duisburg's largest refugee home, hosting 200 people. The children come from Syria and the employees help them to forget the war for a few moments. Shimadzu also brought items necessary for everyday life, such as towels and bed linen. The employees felt most welcome and spent a joyful time with the kids and their families.

Integrating HPLC and UHPLC technology, the i-series concept meets the needs of the analytical environment with high speed, outstanding performance, maintainability



Product release of a new
Opescope Acteno mobile
surgical C-arm system with high
operability and image quality.



### 140<sup>th</sup> anniversary

## Genzo Shimadzu's trip around the world



On the occasion of its 140<sup>th</sup> anniversary, Shimadzu Corporation creates an event involving all of its employees worldwide. The company founder Genzo Shimadzu, in the form of a traditional Japanese doll, travels to Shimadzu's locations on five continents. The goal is to have every employee sign a book of traditional Japanese rice paper as a sign of their affiliation with the Shimadzu family. In this way, every employee can take part in the journey. Without its valuable employees, Shimadzu could not have written its history.

Founded in 1875 in the Japanese city of Kyoto, Shimadzu has evolved from a 'local workshop' to a global player. 140 years later, it has become one of the worldwide leading manufacturers of analytical instrumentation and diagnostic imaging systems. Shimadzu currently operates production facilities and distribution centers in 76 countries and employs more than 11,000 people.













2015

Launched in 2006, the New Horizons interplanetary space probe reaches Pluto, 5.9 billion kilometers away from Earth. It is the first spacecraft to explore the so-called dwarf planet.



**Shimadzu releases the new Nexera UC SFE/SFC/MS platform** for a wide range of applications, e.g. monitoring of pesticides in food products and investigation of biomarkers. For the first time ever, it showcases complete automation of SFE sample pre-treatment and analysis by liquid or supercritical fluid chromatography.





Over 197 million viewers worldwide watch the 60th edition of the European Song Contest. Sweden won for the sixth time, with Måns Zelmerlöw's song "Heroes". Australia was making a guest appearance.



### Wanted: clever minds!

Shimadzu has released its 'lab4you' student program for young scientists from all over Europe. They can apply for laboratory bench space for their own research in the Laboratory World. The quality of applications was so high that Shimadzu spontaneously provided lab space for two students rather than one. The 'lab4you' program runs on a yearly basis.



The Shimadzu location in Skopje, Republic of Macedonia is opened. Being the capital and largest city in the country, Skopje generates a large share of the national economy.

Release of the RADspeed Pro EDGE digital radiographic system with innovative image techniques like Tomosynthesis, Auto-Stitching and Dual Energy Subtraction.





Together with the Czech city of Pilsen, Mons/Belgium is named by EU as the European Capital of Culture.

Mons' architectural heritage is known for its red brick houses of two or three storeys. The city's belfry is the only baroque style building in Belgium and a UNESCO World Heritage site. Pilsen is a commercial center in the Western part of the Czech Republic and one of the country's most prosperous cities. It is world-famous for its Pilsner beer.







San Sebastián, Spain and Wrocław, Poland are awarded the European Capitals of Culture. Wrocław is the largest city in Western Poland and the region's financial, cultural and commercial hub with a wide variety of cultural and sport events. San Sebastián on the coast of the Bay of Biscay has a dynamic cultural scene, with events all year round, ranging from traditional city festivals to music, theatre or cinema. The city is one of the most famous tourist destinations in Spain.

## GC pioneers of the first hour

Shimadzu celebrates its 60<sup>th</sup> GC anniversary. In Shimadzu's history, chromatography has set many milestones that have meanwhile become technical standards serving consumer protection, environmental protection and product safety today.

Since its commercial introduction, gas chromatography has evolved into an important analytical technology. At this time, tens of thousands of GC systems are in use in all areas of industrial and pharmaceutical development, basic research as well as in quality control. The separation of complex mixtures as well as identification and quantification of the individual components is still considered to be one of the most important tasks in instrumental analysis.

The practical implementation of the first gas chromatograph for the separation of complex mixtures via partition chromatography is generally attributed to the British scientists A.J. Martin and A.T. James, and Martin was awarded the Nobel Prize in 1952 for this. Shortly after, Shimadzu embarked on this technology and in 1956 developed the first gas chromatograph in Japan, leading to series production of the GC-1A in 1957. At 120 kg, it was a giant compared to today's much smaller, more powerful and more versatile instruments.

**Shimadzu releases the CLAM-2000,** the world's first system able to perform all steps fully automated from pretreatment of the sample to LC-MS analysis.



Shimadzu has marketed over 5,000 TOC systems for laboratory use and is market leader in Europe.

**'La La Land'**, a musical romantic comedy film, about the love of a jazz pianist and an aspiring actress receives 14 nominations at the Academy Awards and wins six.





The winner of the Eurovision Song Contest is Ukraine with the song '1944', written and performed by Jamala.









the fall of the Berlin Wall.

60th anniversary of the Trabant, the iconic car from East Germany. It was a sought-after car in East Germany before



Shimadzu achieved the 'Global General Radiography Product Line Strategy Leadership Award 2017' from Frost & Sullivan. It is awarded for the highest leadership in the global market for diagnostic x-ray imaging systems.



## New solutions for tomorrow



On March 3, the Shimadzu European Innovation Center (EUIC) has been launched in Duisburg, Germany. Clients, partners and journalists from all over Europe attended the Grand Opening led by Dr. Teruhisa Ueda, President and CEO of Shimadzu Corporation.

The EUIC underlines Shimadzu's commitment to "offer even more outstanding technologies, products and services, so as to be recognized for excellence in the field of science", said Dr. Ueda. The EUIC combines academic-scientific know-how from universities with Shimadzu's technological expertise to provide even more

customer-focused service on the next level and to create new solutions for tomorrow.

The homebase of opinion leaders, strategic thinkers and scientific experts are universities in Europe. Their scientific focus areas include clinical applications, imaging technology, food and composites, with an emphasis on new methods, tools, techniques, diagnostics and solutions. First products used in EUIC applications are Nexera UC, CLAM-2000, iMScope and USF-2000.



100<sup>th</sup> anniversary of the manufacturing of Shimadzu testing machines. The program started with fiber and cement testing machines, and today covers high precision technologies based on digital, electronic and optical components and sensors.

'Star Wars: Episode VIII – The Last Jedi' is released. It is the second installment of the Star Wars sequel trilogy. It received four nominations at the Academy Awards.



### ALSACHIM

### Shimadzu completes its product and solution portfolio in the clinical market

Through the acquisition of ALSACHIM, Shimadzu Europa also adds value to its European Innovation Center (EUIC), particularly for the clinical segment as one of the focus areas.



ALSACHIM, a France-based company is an independent contract research and development organization specializing in stable isotope-labelled compounds, metabolites and pharmaceutical related substances. The stable isotopes in particular are key differentiators for customers in the clinical and diagnostic fields.

Shimadzu is now able to enter the market with complete solutions consisting of hardware and software as well as application kits. For example, for the LCMS-triple quadrupole instruments and the CLAM-2000 automated sample pretreatment system, Shimadzu will be able to complete the application

packages by standards and kits. ALSACHIM's brand name will be kept for the future complemented by the subtitle 'a Shimadzu Group Company'.

Within the following 12 months, Shimadzu and ALSACHIM present a joint method, a fully automated sensitive quantification of immunosuppressant drugs in whole blood using high quality <sup>13</sup>C labelled internal standards. The Dosimmune Kit consists of a CLAM-2000 sample preparation system, the Nexera X2 HPLC and the LCMS-8050 triple quadrupole mass spectrometer, providing increased data quality, throughput and safety.





Together with Paphos in Cyprus, the Danish city Aarhus is selected as European Capital of Culture. Aarhus is the second-largest city in the country, and in its region the largest place for trade, services and industry. The city Aarhus is also known for its musical history. Paphos on the Mediterranean coast is famous for its spectacular ancient remains. The entire town was added by UNESCO to its World Cultural Heritage List.



# ALSACHIM

a Shimadzu Graup Company



Identification and quantitation of more compounds with greater confidence: Shimadzu enhances its mass spectrometry platform with the launch of the LCMS-9030 system (Q-TOF)

German-born Alexander Gerst is the second European Space Agency astronaut to command the ISS station, after the Belgian Frank de Winne in 2009. The 'Horizons' mission lasts from June to December. **100**<sup>th</sup> **anniversary of balances**. Throughout its history, Shimadzu has been at the forefront of providing precision, quality solutions for the most challenging R&D and QA/QC requirements.

The AIM-9000 infrared microscope and the IRSpirit series of FTIR spectrophotometers have been awarded the Red Dot Design Award for Product Design 2018, a prestigious and internationally recognized German design award.





The winner of the 62. Eurovision Song Contest Eurovision Song Contest is Portugal with the song 'Amar pelos dois' (Loving For Both of Us), performed by Salvador Sobral.



From 1968 with 5 employees and a small network of distributors, Shimadzu Europa has developed into a large European network with offices and trade partners in 81 cities in 47 countries. Today, Shimadzu employs approx. 750 people in Europe.

We as a team and a company benefit from everyone's commitment, work, creativity, performance and inspiration. Together as a worldwide Shimadzu family with world-leading products, we made Shimadzu Europa a success story. We can be proud of ourselves and of each other, and everyone can be proud of himorr herself.

We live in a culture of mutual appreciation, which is proved through teamwork, mutual support and a low rate of fluctuation. For the future, we have ambitious goals. We are prepared to reach them through our organizational structure, our product portfolio and services and our team spirit. And in particular, we are prepared through the talent and skills of every single colleague.

Thank you very much, that you are part of the team! In the next years, let's add new chapters to the Shimadzu success story in Europe!

#### Shimadzu launches the MobileDaRt Evolution

**MX8**, the 8<sup>th</sup> generation of mobile x-ray systems. The new system concept offers innovations in mobility, functionality and digital imaging.

Shimadzu Europa is awarded with the NRWInvest Award, Germany for continuous engagement in the German federal state of North Rhine-Westphalia, Shimadzu's homebase for the European headquarters.



**Since Shimadzu introduced** its first AAS system in 1968, the company achieved a leading technological and market share position. In ICP, Shimadzu provides unique systems, e.g. for trace element analysis.







Leeuwarden, Netherlands and Valletta, Malta are named as European Capitals of Culture. Leeuwarden is a former royal residence and has a historic city center with over 800 national heritage sites in the municipality. Valletta is the capital city of Malta, and was recognized as a World Heritage Site by UNESCO in 1980. Valletta is essentially Baroque in character and hosts buildings from the 16<sup>th</sup> century onwards.

## Resident Presidents, Vice Presidents and Managing Directors

	Time
Kozo Mori	1968 – 1972
Toyotaku Onimaru	1972 – 1975
Eiji Nishimura	1975 – 1977
Teruhisa Yasuda	1977 – 1980
Toshiaki Udagawa	1980 – 1984
Yasutsugu Kawabe	1984 – 1989
Tasuku Hara	1989 – 1993
Fumio Kawashima	1992 – 1995
Shigetsugu Tanaka	1995 – 1998
Tetsuo Ichikawa	1995 – 2000
Hans-Dieter Bätz	1995 – 2005
Masakazu Hineno	1998 – 2000
Hiroshi Fujino	2000 – 2004
Yasunori Tokumasu	2004 – 2009
Jürgen Kwass	2003 –
Yasuo Miura	2009 – 2013
Yasunori Yamamoto	2013 – 2017
Masumi Kawai	2012 – 2017
Kiyohito Sonoki	2017 –
Jiro Takashima	2017 –

## Sources

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