THE ENVAC STORY

It’s sometimes good to take a look back. Our everyday lives are concerned largely with the present and what we will be doing in the future. Setting targets, developing visions, business plans and strategies are activities that characterize every business operation today. We hurry onward, face new challenges and make new mistakes. The mass media assess companies on the basis of their latest business results and their forecasts for the future. It’s very rare for us to look back at earlier epochs. Despite everything, however, if a company has been around awhile, the work of earlier generations is often the basis for its activities today and in the future.

When the Stena sphere acquired Envac from the Ratos investment company and 3i in April 2005, the outgoing board decided to document the company’s history. This was because the employees who had been with the company since its earliest years had either retired or would do so within a short time. The opportunity had to be taken to write Envac’s history while these early pioneers were still around. That has now been done. Envac’s history, from the first hesitant steps in the late 1950s and the first installations in Sweden in the 1960s to today’s world-spanning organisation, has now been written.

We have decided to devote this issue of Envac Concept to the history of the company. Stories about Envac describes a company that has gone through a lot: periods of inspiring optimism and periods of frustration and financial problems. It appears that the years when the pressure on the company was greatest to have been the most creative ones. We were obliged to come up with new products, either from our own resources or by buying them in from elsewhere, and rationalisations in the company led to increased efficiency. Necessity is indeed the mother of invention.

There is clearly not enough space in the limited format of Envac Concept to include everything. But the entire book, which is written in English, may be obtained from any Envac office. We wish you an interesting read!

Jonas Törnblom
Editor-in-chief
The city of Narbonne, known as a forerunner in the field of sustainable urban development, has chosen an ENVAC system for a new residential district with a total area of 13 hectares. The system will transport three separate waste fractions (paper packaging, organic waste and a residual fraction). Apart from the new residential district of du Théatre, the system is will ultimately be extended to handle the waste from the nearby historic city centre as well.

The contract was signed by Narbonne’s mayor Michel Moynier and Envac’s CEO Christer Öjdemark at a ceremony held on Monday, May 15.

Envac has received an order in Norway, obtained in cooperation with YIT, which once completed will amount to 27 million Euro (SEK 250 million). A complete waste system for 6000 apartments, offices and shops will be built together with YIT Building Systems on the old Fornebu airfield.

Commercial premises in the area will also have the option of being connected to the system.

"Our automated system has been particularly successful in new construction projects with clear environmental objectives”, says Staffan Eriksson, head of Envac North Region. "The elimination of all manual waste handling and transport via heavy trucks in residential and inner-city areas gives us clear environmental advantages.”

In the new residential area at Fornebu, three different waste fractions will be handled by the system: organic, incinerable and paper waste.
Why don't we suck up the waste with a vacuum cleaner?

It’s not quite clear who first asked the question that was to be so decisive for the waste handling system of the future. But it is quite clear who were the four people around the table in Sollefteå Hospital on that momentous occasion at the end of the 1950s. There was engineer Torsten Karefelt, responsible for the technical work at the hospital, Olle Genberg, chief architect, Sten Olsson, consultant for heating and plumbing systems, and Olof H. Hallström, proprietor and managing director of Centralsug AB.

They had decided to meet at Sollefteå Hospital to discuss a new central dust vacuum system when the discussion suddenly took another turn. “If we can suck up all the dust from every corner of the hospital with a single system, why can’t we do the same thing with the waste?”

The idea had not occurred to anyone before and no-one knew whether it was even feasible at all. But Olof Hallström rose to the challenge.

TECHNICAL OBSTACLES - A CHALLENGE

As a true believer in the power of technology, no technical problem was too difficult to solve for Hallström. A couple of years previously, with the aid of an inheritance from the sale of his family farm, he had purchased Ingvar Gustafsson AB, a company that later changed its name to Centralsug AB. It specialised in the construction and installation of central dust vacuum systems. With this experience behind him, Olof Hallström returned to Stockholm to work out an answer to a question that for many people still appears utopian today. Hallström kept his word and returned a couple of weeks later with a proposal for a vacuum waste-handling system for the hospital. The rest is history. In 1961, Centralsug AB installed the first vacuum waste system in the world at Sollefteå Hospital. The system is still in operation today with many original parts from the early 1960s.
On August 18, 1966, the world’s first underground transport system for waste was to be inaugurated in the Ör-Hallonbergen district of Sundbyberg. Rune Svensson, the project engineer for the installation, had dressed up for the big event. It was a great day for those present, a moment witnessed by representatives from both media and politics.

Rune Svensson was stationed in the valve room of the first building from which the waste was to be emptied. He heard the sound of the blowers being started up to create under-pressure in the system, when the door to the valve room suddenly slammed shut. Rune Svensson was trapped. Someone had neglected to open the transport air intake so the blowers sucked all the air from the ventilation room. The pressure quickly dropped to that typical of an altitude of 3000 meters.

As luck would have it, the floor drain equalized the low pressure when the entire contents of the outlet pipe shot up in a cascade into the valve room. “There I stood with collapsed eardrums and saw the dirty and foul-smelling outlet water spraying all over everything. Although I was completely covered with muck, I was grateful that there was a floor drain in the room. Fortunately, none of the invited guests saw me when I slipped out of the room to clean myself up and change my clothes.”

“Trial and error” was a proven method in the early days of Centralsug’s product development. The next installation that was built had an air intake in the valve room. Rune Svensson made quite sure of that.

THE FIRST RESIDENTIAL AREA

But it was dust vacuum systems that kept business going for Centralsug in the following years. Despite many attempts to convince others of this waste technology, it nevertheless took until 1965, four years after the first installation, before Fastighets AB Förvaltaren, a municipality-owned housing company in Sundbyberg, decided to give it a try. So the first vacuum system for household waste in the world was installed in the completely new residential district of Ör-Hallonbergen. This system is also still in operation today.

INVENTOR AND ENTREPRENEUR

Per-Olof Ekström, who started at Centralsug way back in 1959 and continues to help out at the company, recalls the early years well. “Olof Hallström often had unrealistic ideas that were not really practicable.” But he managed to generate a highly creative atmosphere that resulted in several unique technical solutions that are still the basis for the technology today. “Our design meetings often went on late into the night. Olof Hallström used to take us to a nearby restaurant where we could continue our discussions. It was all highly stimulating.”

In 1966, however, Hallström decided to sell the vacuum and waste-handling operations, as he saw that greater financial capacity was needed to run the development side with its heavy emphasis on technology. The new owner was Calor & Sjögren AB, the largest pipeline supplier in Scandinavia.

The Swedish newspaper Dagens Nyheter, August 19th 1966. Engineer Per-Olof Ekström explains to the members of the health department in Österhaninge how the “waste suction” facility is working.
1970s

Interest for the invention is shown by clients from abroad

After the first installation in a residential area in Ör in 1966 there followed a series of installations in Stockholm. During a period in the late 1960s and early 1970s, underground waste-transport systems for thousands of apartments were installed for Svenska Bostäder alone.

USA SHOWS INTEREST...

Interest in the technology did not grow only in Stockholm, but also abroad. In October 1971, Disney World opened in Orlando, Florida. The idea was not only to offer visitors Disney’s own attractions but also the latest technology. One of these technical innovations was the underground waste system that was supplied by Centralsug and is still in operation.

...AS DOES SOUTH AMERICA

Word had also reached South America of the first installations in Sweden. In 1970, Centralsug received an enquiry from Caracas in Venezuela. The city was planning to build a new residential district comprising 7,500 apartments and was interested in purchasing a vacuum waste system. To Bernt Hederén, who was export manager at Centralsug, this seemed too good to be true. He replied that the enquiry would be considered only if the city paid for air tickets to and from Venezuela. To everyone’s great surprise, two air tickets landed in the mail a couple of days later. In 1973, Centralsug installed the first underground waste transport system on the South American continent.

VACUUM SYSTEMS IN GERMANY

The 1972 Olympic Games were intended to present to the world the new successful Germany built on the economic miracle that had risen from the ruins of the Second World War. The ultra-modern Swedish waste transport system fitted in well with this ambition. So when the Olympic Games opened on August 26, 1972, Kenth-Åke Olofsson from Centralsug was present to make sure that start-up of the vacuum waste system in the Olympic village went off smoothly.

The installation in Munich was just the beginning of growing interest for Centralsug’s solutions in Germany. In the mid-1970s, Envac had more than 40 employees there and the market developed so well that the management even considered moving its head office from Sweden to Germany.
FIGHTING TERRORISM WITH A VACUUM WASTE SYSTEM

On the morning of September 5, 1972, with only six days left to run of the Olympic Games in Munich, eight masked Arabs forced their way into a building on Connollystrasse 31 - the Israeli apartments. The masked terrorists were heavily armed. They were absolutely ruthless, shot two Israelis and took nine hostages. They demanded the immediate release of 234 Arab terrorists from Israeli prisons and two German members of the Red Army Faction – Andreas Baader and Ulrike Meinhof.

Kenth-Åke Olofsson and Håkan Nordström, who were both on the spot to oversee the commissioning of Centralsug’s installation, heard about the attack and hostage-taking like everyone else. As they had been involved in installing the pipelines, they knew that the building where the hostages were held was connected to the vacuum waste system. So they contacted a Swedish delegate and suggested that the system could be used to enter the building unnoticed. The German police took the suggestion seriously and discussed the possibility of using the pipeline system to intervene from underground. However, it was ultimately decided not to enter the building but to make every effort to continue the negotiations. The drama ultimately finished in a bloody shoot-out at a military airbase near Munich.
Development pays off

The early 1980s were characterized by the good cooperation between Centralsug and the company’s owners Calor-Celsius. Centralsug benefited greatly from the installation expertise within the Calor-Celsius group.

**INSTALLATION IN EXISTING BUILDINGS**

For the first time, Centralsug also installed vacuum waste systems in existing buildings. The potential of this market increased greatly when Sweden introduced new legislation in 1978 aimed at improving the work environment of cleaning operatives. It allowed real-estate owners to obtain state subsidies for installing vacuum waste systems. A key technical innovation of the mid-1970s also represented a precondition for linking up existing buildings. Previously, the waste chute had been mounted directly onto the transport pipe. Because the chute had always been placed inside the building, the pipes had to be laid under the building and this could only be done before it had been built. In order to link up existing older buildings, therefore, a solution was required that allowed the waste chute to be connected up to the main pipeline outside the building via a branch pipe. That may sound simple, but several years had to pass before mastery of the entire process was achieved.

Another technical development that was important for connecting up existing residential areas was an outdoor inlet (patented for the first time in 1976).

**EXPORT THROUGH COOPERATION**

In the first half of the 1980s, Centralsug installed 50 systems in Sweden, a third of them in bilt-up residential areas. But interest also grew abroad. Individual systems were installed in Poland, Saudi Arabia, Iraq, France, Germany, Hong Kong, Italy and the USA. Despite the fact that Centralsug showed a profit in all the years between 1982 and 1989, the company was too small to maintain its own sales offices on foreign markets, with the exception of Germany. So the systems in other countries were installed in cooperation with local agents.

**SOURCE-SORTING BECOMES TOPICAL**

In the mid-1980s, politicians began to discuss the source-sorting of waste. Voices were increasingly raised against a “throwaway” society. Environmental parties appeared throughout Europe and many of them made source-sorting into a part of their political agenda. This represented a
challenge to Centralsug. Even if the company had in practice supplied a kind of source-sorting system to hospitals (dirty laundry and waste in separate pipe systems), it had no ready-made solution for residential areas. At first, Centralsug remained passive with respect to the trend towards source sorting, but when orders began to be lost, especially in Germany, it became obvious that something had to be done. Nevertheless, it took right up to the late 1990s before Centralsug achieved market acceptance for its source-sorting system. Today, with few exceptions, all the systems sold in Europe are handling multiple waste streams.

NEW PRODUCTS
In the 1980s, two products were developed that were to be important for the company’s future. One was the mobile vacuum waste system invented by Lars Wassdal from Dalarna. The other important product was the airport kitchen system that resulted from the initiative of an American dishwasher manufacturer. It later became apparent that both products were of decisive importance for Centralsug in the 1990s.

The mobile system is now a well-integrated product in Envac’s programme.
1990s

THE BIG LEAP TO THE WORLD
The 1990s were principally the decade in which Centralsug took a serious step out into the world. It was mainly the markets in Southern Europe and South-East Asia that attracted the company’s interest. In the mid 1980s, the company had begun to work up the Spanish market. This was done in the early years by a Swede, Ulf Bäckman, who lived in Madrid. The first orders were received in June 1988: the city of Cartagena in south-eastern Spain ordered an underground waste transport system for a project covering 4000 new housing units. Its installation began in 1989 and was completed in 1995. Before this, however, an order that was significantly more important for Centralsug’s future was both received and completed.

BARCELONA CREATES A MODEL FOR OTHER CITIES

The successful installation in Munich in 1972 introduced Centralsug’s underground waste transport system to Olympic circles. But more than 15 years were to pass after its inauguration in Munich before the next decision was taken. The Spanish Olympic committee and the city of Barcelona showed great interest in the vacuum waste system installed in Munich’s Olympic village. Several visits on the spot in Germany had convinced them, and the system fitted excellently into the major infrastructure changes that the city of Barcelona was planning to realise. The city was to be opened out to face the sea. The new Barcelona was to be built on the former and run-down industrial and harbour quarter along the coast. The Olympic village was merely the first phase.

The installation in the Olympic village in Barcelona was so successful that the municipality decided to build several vacuum waste systems. Ten years later, vacuum waste systems were integrated as a “common utility” in the municipality’s master plan for the city’s expansion.

The installations in Barcelona soon found an echo in the rest of Spain. Today, the Spanish market is Envac’s largest and the company has offices in six Spanish cities.

THE ASIAN TIGERS AWAKE

The 1990s were also the decade in which the Asian markets began to take off. In the mid-1990s, several large systems were installed in Hong Kong with the Hong Kong Housing Authority (HKHA) as the largest client. In the 1990s, more than ten systems were installed in densely populated residential areas of the city. For the first time, skyscrapers were connected to the vacuum waste system, buildings with more than 50 storeys accommodating several thousand apartments.

Centralsug also gained a foothold in Singapore. With its own offices in both Hong Kong and Singapore, the company worked these markets up
1990s continue

intensively with good results, although the product seemed to be ideal for the densely built, hot and humid cities of South-East Asia. As a result of the financial crises that hit the region in 1997, the SARS crisis in early 2000 as well as the opening up of the Chinese market, Hong Kong is no longer such a “hot” market for Centralsug as it was ten years ago. However, the systems installed in Hong Kong and Singapore in the 1990s have been very important for Envac’s rapid current expansion in China and South Korea.

**FINANCIAL PROBLEMS**

Despite its significant successes in Spain and South-East Asia, Centralsug had a hard job earning money. The foreign ventures were expensive. The weak construction activities in Centralsug’s home market and major problems in Germany meant that the company’s finances were very tight. For CEO Hans Ström, the situation was far from simple. The decision taken by the Swedish government in 1991 to abolish the ROT (renovation and extension) subsidies meant that the Swedish market for vacuum waste systems disappeared overnight. The German market was on ice due to the new requirements on source sorting. In such circumstances, Hans Ström was forced to develop a strategy that involved accelerating and braking at the same time - to reduce the activities in Sweden and Germany that were running at a loss and focus on new products and markets.

**NEW PRODUCTS SAVE CENTRALSUG**

The new products in which Hans Ström had such confidence were the mobile vacuum waste system and the airport kitchen system. The mobile system had been developed in the 1980s and was marketed by a company called Avfallsteknik in which Centralsug was one of three part owners. Unlike the stationary vacuum waste system developed by Centralsug, the market for the mobile version was relatively buoyant. Avfallsteknik’s CEO Staffan Eriksson was successful in selling the system for renovation projects in Sweden and Denmark and the company competed to a certain extent with Centralsug’s own operations. So Hans Ström was very keen for Centralsug to acquire the remaining two-thirds of Avfallsteknik and integrate the company in his own organisation. He succeeded in convincing Centralsug’s owner and managing board of this and Centralsug acquired all Avfallsteknik’s shares in 1993.

Hans Ström also bought back Centralsug’s service organisation, Specialservice AB, that had been sold in the 1980s to Krister Nilsson, a former service manager at Centralsug.

*Flight kitchen in Seoul, Korea. Korean Air Catering is the biggest flight kitchen in Korea. The Envac system has a capacity of 60 000 trays/day.*
INSTALLATION OF FLIGHT KITCHENS

With the development of the flight kitchen market, Centralsug benefited from a highly valuable additional source of revenue. There was considerable need for rational waste handling at airports around the world. In principle, all airlines included meals in their ticket prices. They regarded the quality of the meals served on board as a significant competitive factor. So it was obvious that the preparation and handling of the meals had to be as rational and hygienic as possible.

The first system, which was installed in 1989 in Lufthansa Service Gesellschaft’s (LSG) premises in Düsseldorf, was quickly followed by others. In the following ten years, systems were installed at airports in Buenos Aires, Sydney, Montreal, Toronto, Shanghai, Copenhagen, London, Manchester, Helsinki, Frankfurt, Munich, Hong Kong, Rome, Osaka, Tokyo, Kuala Lumpur, Amsterdam, Singapore, Stockholm, Taipei, Dallas, Miami and Harare. Airport kitchens had become a permanent feature of the company’s activities.

Shanghai Eastern Air Catering, China. The Envac system has been in operation since 1999. The system has a capacity of about 30 000 trays per day.
Sigvard Karlsson, who became CEO of Centralsug in 1999, took over a company that had been through a rough patch lasting several years. But the ventures undertaken on new markets in the 1990s, especially in Spain and South-East Asia, now began to show results.

Also the far-sighted additional business launched by Hans Ström in mobile vacuum waste systems and airport kitchen systems grew apace. So with a fast-growing order input behind him, Sigvard Karlsson could concentrate on creating an organisation capable of real growth.

One of the first changes he made was to reduce the influence of the head office on projects and sales by strengthening the organisation out in the main markets: Scandinavia, Spain and Asia.

FROM CENTRALSUG TO ENVAC

One aspect that impaired the company’s integration was the many different company names that were in use. The company had different names on its various markets. In Sweden there was Centralsug, Specialservice and Avfallsteknik, in Denmark the company was called Renovasjonteknik, in the USA it was AVAC etc.

So Centralsug’s management decided to sort out this “jungle of names” and create a single name for all the companies within the group. They were not all equally pleased by this move, especially those on the newly established markets in southern Europe and Asia. A typical comment was: “After many years, we finally managed to pronounce Centralsug, and now we’re going to change the name”.

The process of finding a new name for the company began in autumn 2001. When the decision was taken to call the company Envac, work began to design a logo and then to convert the website, brochures, letterheads, information signs and other items. In May 2002 the new company name was presented, together with the logo and the new stationery, at an internal meeting in Stockholm attended by delegates from all Envac offices around the world. The new name met with a highly positive response and within a short time all the subsidiaries had decided to change their names to Envac – even those who had a negative attitude to begin with.

NEW CEO AT THE HELM

In February 2004 Christer Öjdemark took over as head of Envac from Sigvard Karlsson. Christer’s strategy was to decentralise the company further by building up competence centres on the largest markets that were assigned regional responsibility for technology and sales. The foreign business was to focus on markets with clear growth potential for the company’s products.
NEW VENTURES IN ASIA...

The new decade witnessed the continuation of the company’s international expansion. Thanks to an order for the Jumeriah Beach Residence in December 2004, the company entered Dubai in 2003 in the fastest breakthrough into any market in Envac’s history. A sales office was opened in Shanghai in 2004, and a joint venture was set up with a local company in Guangzhou in 2005. An operation was also established in Beijing in 2006. Envac’s ventures in China have already begun to bear fruit. In Korea too, where the company has been active for several years, is now seeing positive results from the investments.

...AND IN EUROPE

Expansion in Europe took place in the first half of 2000 especially in the southern and northern parts of the continent. A sales office was opened in Lyon in France in 2004 and in Milan in Italy in 2005. In Denmark, Envac took over as majority shareholder in Envac Denmark AS in 2005 and business has developed over recent years to make this one of Envac’s most successful markets.

...AND THE FUTURE?

The future appears bright for Envac and the company is growing rapidly in both Europe and Asia. New markets demand considerable resources in the form of both capital and competence. So it is important for its international expansion to take place in a planned and controlled manner.

Jumeriah Beach Residence, Dubai. Here, the Envac underground system will solve the waste collection of what is currently the world’s largest continuous building project.