Annual Report 1998

Telelogic

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Telelogic in brief

Telelogic's products consist of tools that promote the development of software used in the communication industry and other communication-intensive industries. The Company has:

- *a leading position in the market for visual tools used for the development of real-time applications within the communication industry.*
- *commercially established products that optimize the development process of real-time applications.*
- *a global customer base that includes the majority of the world's leading communications suppliers.*

Telelogic develops and licenses integrated visual software development tools . The Company's product group, Telelogic Tau, is an aid for software development based on standardized modeling languages such as SDL, TTCN and UML. As a complement to Telelogic Tau, the Company supplies a number of professional services aimed at ensuring the effective usage of its products.

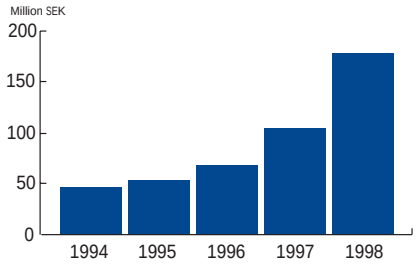
Telelogic Tau makes it possible to use the new generation of graphical modeling languages on a large scale and to automate the most time-demanding elements of software development. The usage of Telelogic Tau shortens the development process significantly while simultaneously increasing the reliability of the end product. Together, this leads to considerable cost savings for the Company's customers.

The development of Telelogic's tools began in 1983 within Televerket (Swedish Telecom) and was taken over by the Company in 1991. Today, Telelogic Tau is marketed through the Company's own subsidiary companies in 7 countries and through distributors and direct sales in a further 20 countries. Telelogic's customers consist primarily of the larger communications suppliers, such as Alcatel, Ericsson, Fujitsu, Hewlett-Packard, Lucent Technologies, Motorola, NEC, Nokia, Nortel and Siemens. However, companies within other communication-intensive industries are also among our customers.

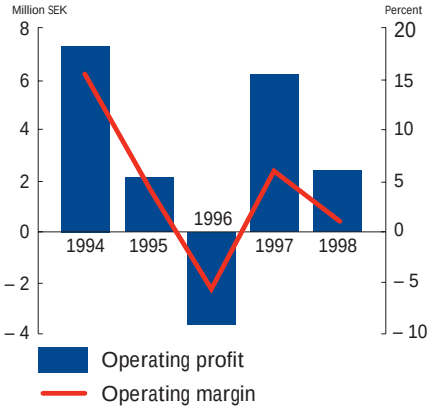
In view of the Company's established relationship with the large communication companies around the world, the Company's short term growth is not dependent on the gaining of new customers, but rather on the increased usage of Telelogic Tau by its existing customers.

It is the Company's view that such business development is a natural result of the increased rationalization and efficiency programs carried out within communication companies, which is driving the transition from traditional programming languages to visual languages and development tools like Telelogic Tau. This transition is the single most important driving force for the Company's future growth.

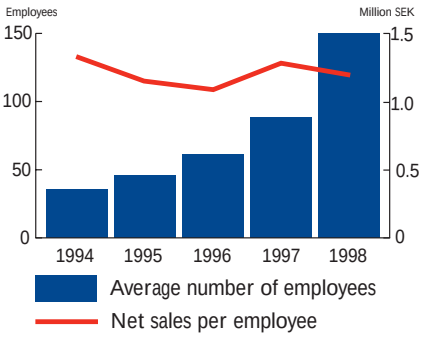
Net sales



Operating profit and operating margin



Average number of employees and net sales per employee



Telelogic key ratios

SEK Million	1994[1)]	1995[1)]	1996[1)]	1997	1998
Net sales	47.6	53.0	66.4	105.5	178.4
Operating profit	7.4	2.1	-3.8	6.2	2.3
Product development expenses	n/a	17.1	20.8	26.7	42.3
Total capital employed	24.3	28.7	40.4	54.7	111.3
Equity	9.0	10.4	11.3	3.7	12.2
Average no. employees	35	46	61	83	150
Net sales per employee	1.360	1.152	1.088	1.271	1.190
Value added per employee	0.777	0.593	0.478	0.616	0.733

[1)] *The Telelogic Group was first established in 1997, therefore the results for 1994-96 refer to Telelogic AB.*

Capital stock and ownership structure

Capital stock

The capital stock in Telelogic AB on December 31, 1998, was SEK 600 000, distributed between 6 000 000 shares, each of a nominal value of SEK 0.10. One share is entitled to one vote at the annual general meeting and all shares have an equal right to a share of the Company's profit and assets.

Development of capital stock

The capital stock in Telelogic AB has changed since 1990 according to the following table.

Year	Transaction	Change in no. of units	Nominal value	Change in capital capital	Total capital stock	Total no. of shares
Opening balance			100		600 000	6 000
1998	Split 1:1000	5 994 000	0.10		600 000	6 000 000
1999	New issue	2 000 000	0.10	200 000	800 000	8 000 000

Ownership structure

The stockholdings in Telelogic AB, based on the information from VPC as of December 31, 1998, are divided according to the following table.

No. of shares	No. of shares	Amount of total stock, %	No. of owners	Amount of total ownership %
1–10 000	107 672	1.8	19	33.9
10 001–20 000	183 000	3.1	14	25.0
20 001–50 000	266 000	4.4	9	16.1
50 001–100 000	367 328	6.1	6	10.7
100 001–200 000	5 076 000	84.6	8	14.3
Total	**6 000 000**	**100.0**	**56**	**100.0**

The major stockholders

After the completion of the new issue, the stockholdings in Telelogic AB, according to the information from VPC as of December 31, 1998 and known changes thereafter, will be distributed between the major stockholders according to the table below. Kjell Spångberg, Bo Wahlström and Lars Ahlman have committed themselves to subscribe for a total of 151 600 stocks in the new issue, which is not taken into consideration in the following table.

Owner	No. of shares	Amount of capital and voting rights, %
Förvaltnings AB Ratos	1 612 000	20.2
Spångberg, Kjell[1)]	1 473 000	18.4
Wahlström, Bo[1)]	638 000	8.0
Ahlman, Lars[1)]	163 000	2.0
Törnquist, Peter	108 000	1.4
Westerdahl, Sven	108 000	1.4
Globinvest Inc.	98 328	1.2
Other	3 799 672	47.4
Total	**8 000 000**	**100.0**

[1)] *Including family and company.*

Mission, goals and strategies

Mission

To help our customers become leaders in product reliability and time-to-market by providing complete state-of-the-art solutions for visual software development.

Goals

The Company's goals are:

- To achieve a growth rate that will maintain or increase the Company's current market share for integrated visual tools for the development of real-time applications within the communications industry.
- To maintain its position as a world leader in the development of integrated development tools.
- To extend its customer base within the communication industry.
- To combine strong growth with a positive earnings trend during the coming years.

Strategies

Extend the user base

The development environment based on Telelogic's tools has shown itself to be very competitive regarding both development time and the quality of code. The Company still finds itself at the beginning of market development where its customers comprise technically-oriented users who use Telelogic's products on a smaller scale. Telelogic's strategic objective is now aimed at extending the application of its graphical development tools.

A focus on the communication industry

Telelogic's products are widely used for the development of real-time applications. The Company has chosen to concentrate its activities on customers within the communications industry. The main reason for this, apart from Telelogic's historical strength and expertise within the telecom sector, is that the communications industry is considered to be the industry that currently places the highest demands on new development environments.

Total solutions

Within the communications industry it is Telelogic's strategy to offer total solutions tailored to the different requirements which exist for the different types of products manufactured by the industry. The Company's own products are complemented with products from external partners and the development of specific customer solutions.

Product development

In order to supply integrated visual development tools for the complete development process and to attract customers from within the whole communications industry, Telelogic is further increasing its support for object-oriented analysis and design. This means greater support for the UML modeling language and the C++ and Java programming languages.

At the same time continuous updating of the existing systems structure is being carried out with the aim of enabling integration of new functions while maintaining product quality.

Extended service packages

A decisive selection criterion when buying development tools is ready access to support and consultancy resources, which must be available locally. Apart from software and services related to its products, Telelogic's operations primarily cover method support, development of special functions, integration and staff training. The Company aims to strengthen its range of services during the coming years.

Geographic presence

As the Company's customers are international, Telelogic must be near their development centers and able to provide the required degree of expertise. Therefore Telelogic is establishing local representation with the responsibility for customer contact and services in every geographical market where the Company's customers are carrying out larger development projects.

Expertise and personnel

Most of the Company's employees have a very high level of education. About 88 percent of personnel are academically educated, of which 92 percent are graduate engineers or equivalent, and 2 percent have a Ph.D. or Masters degree.

A continued high degree of expertise and education together with low staff turnover forms an important part of the Company's growth strategy. This will be achieved through active recruiting and educational measures. Moreover, the ongoing market-orientation of the Company's operations will entail an increase in the number of business graduates within the company.

We are creating a large and profitable Swedish company

Anders Lidbeck
Chief Executive Officer

Telelogic is a world-leading Swedish growth company. By using our computer programs, our customers can greatly improve the development of their technical software.

We develop and market integrated visual development tools for real-time applications. Our market is the communications industry, which we define as the telecom and datacom industries. We estimate that our global market share is up to 50 percent.

Our success is based upon our own Telelogic Tau product group. This is a series of standardized products that are used for describing, developing and testing software systems. Telelogic Tau has been used for several years in a demanding industrial and commercial environment within large global communications companies. By using Telelogic Tau, the development of software becomes quicker, more reliable and less labor-intensive.

Everyone involved in developing real-time applications can use our products. We also provide services associated with our product group.

Customer applications are well-documented, and many customers can show much shorter development times, higher product quality and less complexity in their development processes. Efficiency rises and costs fall drastically. We work closely with, among others, Alcatel, Ericsson, Fujitsu, Hewlett-Packard, Lucent Technologies, Motorola, NEC, Nokia, Northern Telecom and Siemens. Today, all of these companies use Telelogic's products.

A focus on the communications industry

Visual development tools stand on the threshold of a bigger market breakthrough. Already in the middle of the 1980's, the players within the telecom industry saw that manual design and programming would not be sufficiently effective or of high enough quality to meet future demands. The development process would become far too complicated. Indeed, these predictions were experienced during the 1990's. As a result, a faster and more extensive transition is taking place towards using standardized graphical software development tools within different industries. The telecom industry is leading this trend.

The transition to visual development tools is also driven by the convergence between the telecom and datacom branches, and the rapid development of mobile telephony, with consequent ever-shorter production life cycles. Moreover, the demands on rational product development are continuously increasing. Speed, efficiency and reliability are all priorities. Today, Telelogic has several projects within the areas of mobile telephony and datacom.

Telelogic's market will expand further as communication devices become increasingly important elements of products within other branches of industry. A number of such products can be found in the automotive industry, including ABS brakes and GPS navigation. The number of communication devices is also rising in the medical technology, aviation and process industries, which augurs well for Telelogic's growth potential. Volvo, Kodak and Gambro are among our customers in these branches.

Several of our potential customers still develop and manufacture their own software development tools. Our other competitors are mainly a few global development tool suppliers and also a number of smaller players. However, we now see a clear structural change where potential customers' in-house tools will probably disappear and the smaller manufacturers will finder it harder to survive. Telelogic will play an active role in channeling this structural change into strengthening its own market position.

1998

During 1998 Telelogic's sales increased by 69 percent to SEK 178.4 million. Our organic growth was 46 percent.

The result after net financial income was SEK 1.0 million for 1998 compared with SEK 6.2 million for 1997. This reduction can be mainly explained by the large investments made to strengthen Telelogic's organization and products in order to sustain market growth.

Our expertise and capacity was greatly increased during 1998 with more than a doubling of the number of employees to 220, of which 100 were outside Sweden. At the beginning of 1998, we employed 87 persons, of whom 17 worked abroad.

An important aim of our increased activities is to strengthen our international organization. At the start of the year, in addition to Sweden, we had subsidiaries in France, the UK and USA. During 1998 we established new subsidiaries in Japan, Italy and Germany. The German business was gained through the acquisition of the S&P Media Group.

1999

We are focusing on four main areas during 1999 in order to:

- develop and strengthen our local presence with our key global customers;
- develop Telelogic Tau, primarily through greater UML integration, increased support for C++ and Java, and by translating the program into Japanese;
- develop and expand our service operations;
- become more effective operationally by advancing our processes for product development, marketing, servicing and delivery, as well as for administration and staff recruitment.

Growth

The development of Telelogic's market position is considered sufficient for providing the conditions necessary for our continued rapid expansion. We look forward to continued profitable growth, with an annual average increase in sales of over 50 percent up to year 2001.

Expectations of strong growth are based on three factors:

- The usage of graphical development tools is increasing. We estimate that today about 20–25 percent of software developers within the communications industry use graphical development tools in their work. An independent analysis institute[1)] anticipates that 80 percent of all software developers within the communication industry will use visual development tools within five years.
- Within the communications industry we expect to see an increase in R&D resources with an accompanying increase in development engineers.
- The need for associated services is also increasing. For each Swedish krona spent on a license to use a software program, approx. one krona is spent on some form of consultancy service. We are striving to obtain 70 percent of that krona compared with the figure of 30 percent at present.

Seasonal variations

When considering Telelogic, it is important to take into account the seasonal variation in our operations. Revenues during the first quarter are usually low, followed by an increase in the second and third quarters. A large part of our sales then occur during the fourth quarter. However, our expenditure remains constant over the year.

The expansion of our organization carried out during 1998 will greatly affect our cost situation during the earlier part of 1999, whereas its full effect on our revenue is expected to be seen during the second half of the year. For 1999 this means that the results for the first quarter will be negative. The result for the whole of 1999 is expected to be positive.

The future

At present we are the leading supplier of visual development tools to the communications industry. By means of continued strong development of our organization, products and services, we will further reinforce our position in the expansive market in which we operate. The financial strength gained from the new capital issue, and the position we have attained after more than a decade provide us with good opportunities to create an expanding and profitable company.

Anders Lidbeck

Chief Executive officer

[1)] *Venture Development Corporation*

An organization in change

At the end of 1998 the number of employees amounted to 220. Telelogic has tailored its organization to handle the growth in sales and obligations expected to accompany market developments. The way forward for the organization is to take care of growth by decentralization and well-defined roles, as well as close co-operation between the different parts of the organization. The diagram below outlines Telelogic's operational organization.

Management

Apart from the President and Vice-President, the Company's central management group consists of the heads of the following departments: Marketing, Finance and Administration, Business Support and Product Development. In addition, the management group includes the managers of the respective market units.

Market units

Direct business responsibility within Telelogic lies with the market units, which are accountable for their own geographical area. In order to provide expertise close at hand to customers, each market unit offers extensive training and consultative services. The range of services are now being further developed.

Sales are mainly achieved through our own sales representatives, but in certain situations also through distributors.

Global Account Managers have been appointed to maximize all business opportunities presented by the large global customers. These managers have an overall co-ordination responsibility for the respective key accounts.

Marketing department

The central marketing department is responsible for ensuring that total solutions can be provided to customers within prioritized segments. These cover Infrastructure, Terminals, Network Services, Traditional Switching, Network Management and Datacom. The marketing department is also responsible for the global co-ordination of marketing.

Finance and Administration

As a subsidiary of various industrial groups, Telelogic has had a limited administrative function. In association with the sale of Telelogic AB by Saab AB in the beginning of 1998, the need arose for an increase in administrative personnel. This was required in order to take care of company growth, partly those duties related to finance, personnel and quality control which had previously been handled by Saab. Today there is a complete organization for company accounting and financial matters. A personnel function has been created and quality control is being strengthened.

Business support

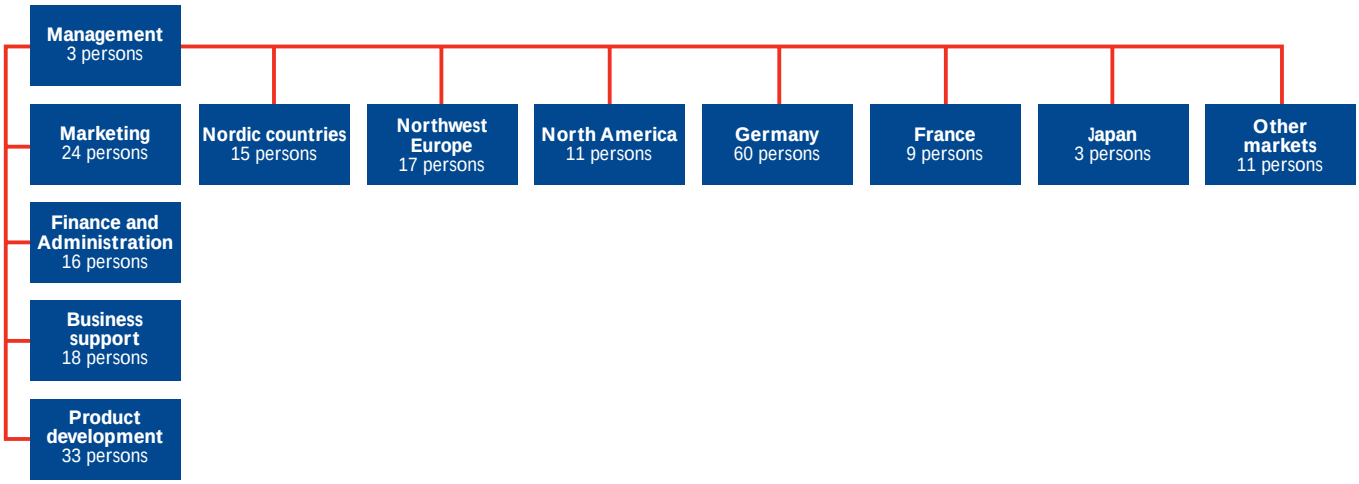
Along with Telelogic's products becoming all the more central to our customers' development processes, the increasing demand for rapid and high-quality support is anticipated. The customer service function has a central role in the Company, and it will be strengthened even further. The central customer service function, located in Malmö, supplies customer services either directly to the customer or through the market units or distributors.

Business support is also responsible for the development of product training and providing training staff to complement and assist the market units' own resources.

Product development

Development of Telelogic's core product SDT (SDL Design Tool) is based in Malmö and carried out by five development groups. The front-end group develops all the products' graphical editors. The simulation group develops tools for simulation and test-case generation. The back-end group develops tools for syntactic and semantic analysis, and for code generation.

Operational organization



Information in the diagram is based on the number of employees on December 31, 1998.

A fourth group, the framework group, develops common functions for Telelogic Tau applications. Finally, the methodology group in Malmö works out methods for using Telelogic Tau as well as ensuring further development of, among other things, the modeling languages SDL, UML and MSC.

Development groups are also located in Uppsala, where development of the product ITEX (Interactive TTCN Editor and eXecutor) is carried out, and in Linköping, where the technical product handbooks are written.

A further development unit in Bielefeld, Germany, has been incorporated into the organization through the acquisition of the S&P Media Group. This unit develops the C-micro code generator, which is specific to terminals and other small systems. Some development projects within the S&P Media Group are aimed at the German automotive industry.

Alongside our own development organization, Telelogic works with external R&D organizations. These work independently within the framework of defined development projects. An example of this is the cooperation between Telelogic and the University of Moscow, where three people are currently working on research related to Telelogic's next product generation.

Quality assurance of Telelogic's products is carried out partly through continuous and methodical quality control, and partly through comprehensive testing of new product releases before they are launched on the market.

Personnel with leading-edge expertise

To a large extent, Telelogic's success is based on its ability to attract and keep personnel with leading-edge expertise within the product area. The Company's core knowledge has been built up during the fifteen years that SDL-based devlopment has taken place in Sweden. The original group of university educated engineers, of which a few still remain with the Company, has continuously been added to. The division of personnel according to educational level is presented in the pie chart below. The average age of employees was 32 years at the end of 1998.

Marketing and sales personnel were initially recruited internally from the technical engineers, which has resulted in a marketing organization with great technical expertise.

The powerful growth of the Company during the past few years has led to increased recruitment within new categories of staff, and with the increased market-orientation of Company operations the number of business graduates in the Company will rise.

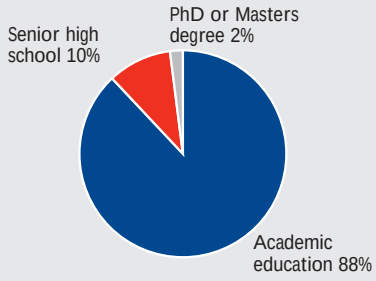
In view of this demand for high level expertise, the Company estimates that the salary costs are higher than the average value for equivalent education levels found within other companies.

The annual increase in Telelogic staff during the period 1994-98 has on average been about 44 percent. The average annual staff sales for the same period is below 4 percent.

In order to motivate personnel to actively take part in the Company's development, different bonus schemes have been implemented. With the marketing organization, part of the salary of all those responsible for sales is based upon achieving sales quotas. In respect of the management group, including the managers for the different market units, up to 30 percent of their salary is based on the Company's growth and profitability.

In connection with the change of ownership at the beginning of 1998, a number of senior executives acquired shares in the Company equivalent to 3 percent of the total outstanding stocks before the new issue. Moreover, during the summer all the employees were offered the opportunity to take part in an options scheme, which in total can result in a subscription of 522 000 new stocks. On December 31, 1998, 184 persons, equivalent to 84 percent of the total employees in the Company, had notified their participation in the options scheme.

Educational level



The market units are expanding

At present, Telelogic has seven market units, which are described briefly below. The figures in the tables below are rounded off to one decimal point, which is the reason why certain columns do not seem to add up.

Nordic Countries

SEK million	1996	1997	1998
License and maintenance income	11.4	21.4	29.1
Consulting and other income	4.5	10.4	16.6
Total revenues	**15.9**	**31.8**	**45.7**

The Nordic Countries market unit covers operations in Sweden, Finland Norway and Denmark. Since January 1, 1998, the Nordic Countries market unit has been an individual profit center within the parent company.

On December 31, 1998, the number of employees was 15, of whom 7 worked with direct consultancy assignments or customer training.

The Nordic Countries are Telelogic's home market and therefore quickly became the biggest market for the Company. The large number of active licenses generated in the Nordic Countries mean that a continuous flow of revenue is generated from upgrades. The year 1996 was characterized by a number of pilot projects for major customers. During the time period of the pilot projects, the requirement for further licenses was limited among the majority of the Company's customers, which led to decreased revenue from new licenses during 1996. The effect of the pilot projects' completion was reflected in a strong upswing in license revenue during 1997.

Our largest customers in the Nordic Countries are Ericsson and Nokia. Other users outside of the communications industry, such as Gambro and Volvo, have also signed a number of licensing agreements for Telelogic Tau.

Since 1995, a development project has been carried out in conjunction with Ericsson that is expected to extend the application of Telelogic's software tools for the further development of AXE exchanges within Ericsson. The development work has progressed to the point that the use of Telelogic Tau on a large scale began during autumn 1998.

Telelogic is the dominant supplier of integrated visual development tools for the SDL modeling language in the Nordic Countries. Ericsson has an extensive cooperation with Rational with regard to development tools other than Telelogic Tau, but this is not expected to directly affect Telelogic's sales to Ericsson.

Marketing activities, particularly within the communications industry, were greatly increased during 1998. The Nordic Countries are expected to remain an important market for Telelogic in the future.

Northwest Europe

SEK million	1996	1997	1998
License and maintenance income	9.4	16.8	18.7
Consulting and other income	1.7	1.9	5.3
Total revenues	**11.1**	**18.7**	**24.0**

The Northwest Europe market unit covers operations in Great Britain and Holland, and is managed through our subsidiary in Great Britain. The office in London was established in 1996 as part of a division within Saab, and its operations were transferred to one of Telelogic's wholly-owned subsidiaries during 1997.

On December 31, 1998, the number of employees was 17, of whom 8 worked with direct consultancy assignments or customer training.

Telelogic started developing the UK market at an early stage of its own development, which has resulted in continuous growth. Our biggest customers are found within the communications industry, with a large number of licenses granted to Lucent Technologies, Ericsson, GPT and Hewlett Packard.

Traditionally, SDL has held a strong position within the UK communications industry, and Telelogic is a leading supplier of visual development tools for real-time applications.

Local competitors with alternative technologies are present in the market but have only a marginal market share, according to the Company's estimation.

The strong growth in the market is expected to continue over the coming years. The service section of the organization is currently being expanded to enable the Company to satisfy the increasing demand for services.

During 1999, the market unit will concentrate on operations in Great Britain, while activities in Holland will be carried out by the market unit Other Markets.

North America

SEK million	1996	1997	1998
License and maintenance income	9.8	14.7	19.9
Consulting and other income	0.4	1.4	3.2
Total revenues	**10.1**	**16.1**	**23.1**

The North America market unit covers operations in the USA and Canada, and is managed through our own subsidiary in the USA. The office was established in the USA in 1995 as part of a division within Saab, and its operations were transferred to one of Telelogic's wholly-owned and newly-formed subsidiaries during 1997.

On December 31, 1998, the number of employees was 11, 2 of whom worked with direct consultancy assignments or customer training.

Establishing business in the North American market began in 1995 and in the Company's view increased rapidly when considering the fact that SDL as a modeling language was relatively unknown in the USA.

Our largest customer in the USA is Motorola, which has an extensive program for implementing Telelogic Tau in its development environment. Other large customers in the USA are Hughes Networks Systems and Sprint, and in Canada, Northern Telecom.

Competition in the North American market is keen, primarily from suppliers of development tools based on UML and C++ (particularly Rational and ObjecTime). The French company Verilog is also established in the USA with its own sales company.

In order to achieve greater market share, compatibility between Telelogic's products and UML and C++ is necessary, which is a priority in Telelogic's product development.

The North American market is vital for Telelogic and therefore necessitates a high priority. Cultivation of the large communication companies will be strengthened during 1999.

Germany

SEK million	1996	1997	1998[1)]
License and maintenance income	7.8	10.4	18.7
Consulting and other income	0.3	0.3	14.6
Total revenues	**8.0**	**10.7**	**33.3**

[1)] The S&P Media Group was consolidated as of May 1, 1998.

Up until May 1, 1998, when Telelogic acquired the S&P Media Group, the latter company was an independent distributor responsible for the marketing of Telelogic's products in Germany.

On December 31, 1998, the number of employees was 60, of whom 25 worked with direct consultancy assignments or customer training, and 2 stationed in Ireland are involved with an EU project within the automotive industry.

In the above table, the recorded sales refers to sales after deduction of the S&P Media Group's commission for selling Telelogic's products. This commission was SEK 5.2, 6.9, and 2.2 million for 1996, 1997 and the first four months of 1998 respectively. From 1 May, 1998, the S&P Media Group was consolidated into the Telelogic Group.

From Telelogic's view, the German market has had a slower development than, for example, markets in the Nordic Countries and Great Britain, which probably results from sales being carried out via a distributor. Provision of services, which up until 1998 was handled completely by the S&P Media Group, increased to SEK 19.1 million for the whole of 1998, of which SEK 13.1 million was consolidated in Telelogic's accounts.

The largest customers in Germany are Siemens, Bosch and Alcatel, all major players in the communications industry. Telelogic has also had certain success in Germany within the automotive industry, which has led to the recruitment of a number of major customers, including BMW and Siemens Automotive.

The competition in Germany is divided and most of the foreign suppliers of software development tools are present.

Within the communications industry as it exists today, there is no clear market leader in Germany. Apart from commercial tools, Siemens has its own in-house development tool for SDL, Sicat, which has also been used by other players within the German communications industry.

Apart from Telelogic's products, our German subsidiary has the distribution rights for a number of third-party products, including Orbix from Iona. Third-party sales increased to SEK 5.2 million during 1998.

SDL has significant penetration within universities and other educational institutions in Germany, which gives reason for the Company to believe that conditions are good for a strong market position in the future.

Now that Telelogic has acquired the S&P Media Group, market activities will increase and be concentrated on the major customers within the communications and automotive industries. This is expected to lead to greater growth during the coming years.

France

SEK million	1996	1997	1998
License and maintenance income	4.8	7.9	12.8
Consulting and other income	1.1	1.1	2.7
Total revenues	**5.9**	**9.0**	**15.5**

Up until 1996, a distributor was responsible for the sales of Telelogic's products in France. During 1996 we established our own representation in the form of a branch office, which is currently being operated in the same way as a subsidiary. The provision of services started during 1998.

On December 31, 1998, the number of employees was 9, of whom 1 worked with direct consultancy assignments or customer training.

Our largest customers in France are Lucent Technologies, Alcatel and Ericsson. One of Telelogic's main competitors, Verilog, has France as its home market. Therefore Verilog has traditionally had a strong market position in France, particularly within Alcatel and the space and aircraft industries. Nevertheless, it has proved possible for Telelogic to achieve market penetration in the French market. The Company estimates that its market share has increased successively since its French branch office was established in 1996.

By strengthening its marketing organization, the Company expects to see continued good growth in France.

Japan

SEK million	1996	1997	1998
License and maintenance income	1.0	2.8	11.4
Consulting and other income	0.0	0.3	1.2
Total revenues	**1.0**	**3.1**	**12.6**

Up until the end of 1998, two distributors without exclusive sales rights have represented Telelogic in Japan. During 1998 a subsidiary was established in Japan. It is the intention that cooperation with one distributor will be further developed.

On December 31, 1998, the number of employees was 3. None of these are directly involved with consultancy assignments or customer training.

Until 1997, only a small volume of products was sold in the Japanese market, but during 1997 a breakthrough occurred in the Japanese communications industry. Growth was therefore strong during 1998.

Our largest customer in Japan is Fujitsu, which, during 1998, became one of Telelogic's biggest global customers. Other large customers are Oki and NEC.

The main competition in Japan has so far come in the form of the communications industry's own in-house development tools. SDL is relatively well-established as a language and Japanese organizations have participated in its development. The current translation of Telelogic's products into Japanese is expected to strengthen the Company's position in the Japanese market.

The Japanese market has a high priority for Telelogic and strong market expansion is expected during the coming years, even when the current economic situation in Japan is taken into consideration.

Other markets

SEK million	1996	1997	1998
License and maintenance income	13.5	15.2	23.7
Consulting and other income	0.7	0.8	0.5
Total revenues	**14.2**	**16.0**	**24.2**

Distributors	Country
Litronic AG	Switzerland
Aran AB	Czech Rep. Slovakia[1)]
Telsys Ltd.	Israel
FCS Computer Systems Sdn Bhd	Malaysia
Syscom Computer Engineering Co.	Taiwan
3-Link System Pte Ltd.	China
Tricom Co, Ltd.	South Korea
Bildem	Turkey
Instrumatic	Italy

[1)] According to a "Letter of Intent".

The Other Markets unit is responsible for the sale of Telelogic's products in all geographical markets not covered by the market units already described. The majority of sales takes place via distributors, while certain countries are taken care of from Sweden. Since 1998, a wholly-owned Telelogic subsidiary has managed operations in Italy.

The aim is that the Other Markets market unit will be responsible for establishing operations in new markets which the Company considers to be important.

Since January 1, 1998, the Other Markets market unit has been an individual profit center within the parent company. Previously, distributor sales were organized as a part of different geographical sales regions within the parent company with support from central units, which also supplied related services.

On December 31, 1998, the number of employees was 11. None of these are directly involved with consultancy assignments or customer training.

Traditionally, Telelogic has had the ambition to cover a large number of geographical markets via distributors, who have contributed a significant part of the sales. However, during recent years, activities have been concentrated in those countries which have a strong communications industry, in countries where there was considered to be the greatest potential and where Telelogic operates through its own subsidiaries.

Major geographical markets within the Other Markets market unit are Italy and Spain. Until the Asian financial crisis began in autumn 1997, South Korea was a rapidly expanding market, with customers such as Samsung and Daewoo. The crisis caused a drastic reduction in demand during the first half of 1998, but some recovery took place subsequently. India has become a rapidly growing market due to the fact that many telecom companies have located their development centers there.

The Company estimates that the current market shares can be sustained or increased in all of those countries where Telelogic's major customers are established.

Years of accumulated experience

1983 – 1988

In the beginning of the 1980's, Televerket (Swedish Telecom) predicted a dramatic increase in costs for developing software within the telecommunications industry, and therefore established the R&D company Telelogic in 1983. The Company was established in seven regions of Sweden with the initial intention of cooperating with local universities and higher education institutions in order to carry out research on methods for developing software for the telecom industry.

Standardized languages and methods within the telecom sector was initially a priority area for Telelogic. Responsibility for this area was given to the R&D unit in Malmö, which through its contacts in the university in Lund had already built up expertise in this field. One of the prime tasks was active participation in initial work on standardization within the International Telecommunication Union (ITU).

During the 1980's ITU, which today is a global organization that recommends standards with the aim of ensuring the effective operation of global telephony, carried out extensive work on the development of an international standard for the design of telecom systems. This work, in which Televerket and Telelogic played a significant role, later resulted in the SDL modeling language.

Already during the initial work within ITU, a plan was devised for building an advanced computer support system for supporting SDL and thereby also providing it with the properties needed to gain widespread use within the telecom industry. During the rest of the 1980's the SDL unit at Telelogic carried out development projects with the aim of creating prototypes of a development tool for modeling in SDL. During this period the foundation was laid for the technology which would later form the framework for the Company's current core product, SDT.

Similar development projects were run simultaneously by other public and private telecom companies in different parts of the world. At first the work tools were intended for internal use, but Telelogic soon realized the opportunities in commercializing the tools, primarily to sell them to players in the telecom industry who had not developed their own tools.

With this objective in mind Telelogic developed SDT, and when SDT was considered to have reached a sufficiently high standard during 1988, marketing of the product began, During the same year a licensing agreement was reached for the use of SDT by the Finnish and Dutch telecom authorities.

At the end of the 1980's, SDL was established as a well-functioning standard for modeling languages within the telecom industry, and thereby became an important element in several international development projects, among them ISDN. Telelogic's sales came to be dominated by such development projects, which to a great extent were controlled through RACE (Research for Advanced Communications in Europe). Through participation in such projects, Telelogic reached out to equipment suppliers within the telecom industries, which later became the Company's single largest customer group.

1989 – 1993

SDL activities within Telelogic expanded successively during 1988–89 and became a separate profit center with responsibility for product development and marketing of SDT. When Televerket experienced increased competition as a result of the deregulation of the Swedish telecom market, a restructuring of operations was carried out within Telelogic. Telia Research and Telia Promotor were formed with the internal R&D resources which were considered part of Televerket's core activities. In association with these changes, the activities on SDT in Malmö were incorporated into a separate company in 1991. The Company took the name Telelogic Malmö AB, which was later changed to Telelogic AB. Televerket remained as the sole owner through Teleinvest.

A new generation of SDT was launched in 1990, which was based on the evolving standard X-windows for workstations. This turned SDT into a modern user-friendly development tool. The first version of SDT with automatic code generation was delivered in 1991, which built the foundation for faster program development for manufacturers of telecom equipment. During 1991 the Company received the first order worth more than SEK 1 million from the Spanish company Telefónica.

In 1992 Telelogic became an independent subsidiary of Televerket, which later changed its name to Telia. During 1992 and 1993, several larger orders were received from, among others, Ericsson and Telematics. In order to increase sales outside of Sweden, co-operation was established with distributors in Asia, North America and Europe.

1994 – 1998

Communicator AB, then one of Scandinavia's leading IT companies, acquired the majority stockholding in Telelogic AB in 1994, whereby Telia retained a minority holding. During the same year the Company took over operations involving ITEX from Telia Promotor, and thereby the development and marketing rights to ITEX which were previously licensed to Telelogic.

During 1995, the then biggest order was signed with Northern Telecom in Canada, which covered 700 licenses over a period of two years.

During 1995 Saab AB acquired a number of companies from Communicator AB, including Telelogic AB.

By combining SDT with ITEX, Telelogic could provide a total solution incorporating both development and testing tools. The Company's foreign investments were strengthened through founding our own operations in Princeton, USA, as a division within Saab. In the same way, an office was established in London during the spring, and a branch office in France later the same year.

The SDT and ITEX products successively strengthened their position in the market and licensees more than doubled during the period 1995-97. During 1997, the Company consolidated its position as a supplier of tools and solutions to the dominant communication suppliers, such as Fujitsu, Ericsson, Nokia and Motorola.

In 1998, the ORCA product was split off from SDT with the aim of creating a new product dedicated to the analysis and description of system requirements.

In the beginning of 1998, Telelogic Intressenter AB signed an agreement with Saab AB for the acquisition of all shares in Telelogic AB. This acquisition enabled the Company for the first time to be completely independent from other groups. The operations that were established in the USA and Great Britain during the period when the Company was subordinate to Saab AB, were transferred with the change in ownership to Telelogic AB with the formation of new subsidiaries. A short time after this acquisition, Telelogic Intressenter AB transferred the shares in Telelogic AB to the current stockholders.

During the spring of 1998, Telelogic AB acquired the German S&P Media Group. Subsidiary companies were established in Italy and Japan. At the end of 1998 the Company applied for the listing of its shares on the Stockholm Stock Exchange.

Trends within the communication industry

Previously, the telecom market was primarily divided into fixed and mobile telephony.

Fixed telephony has had an annual growth of about 5–10 percent, whereas mobile telephony has grown by an average of 50 percent per year during its much shorter lifetime.

In many countries, market competition is increasing at the same pace as the telecom market is being deregulated, with the result that users and operators are demanding faster and market-oriented development of new functions in the solutions that manufacturers offer. Therefore fixed and mobile telecommunications are converging at the same time as they are being successively integrated with data communication to form what is described in this annual report as the "communications industry".

Technical development within the telecom industry is explosive. In principle, up until 1975 there was only fixed telephony (PSTN). During the 1980's the first analog mobile telecom systems were introduced, which each individual region developed using its own standard. NMT was established in the Nordic countries, TACS in parts of the rest of Europe, and AMPS is the USA. In the transition from analog to digital mobile telephony in the mid-1990's, the growth of mobile telephony increased significantly and led to the GSM standard rapidly achieving a strong position world-wide. During the latter part of the 1990's, the development of the Internet has increased very strongly. To enable telephone, data and video transmissions via both computer and telephone networks (ATM and VoIP), the development of fixed broadband and real-time communication has been made a priority.

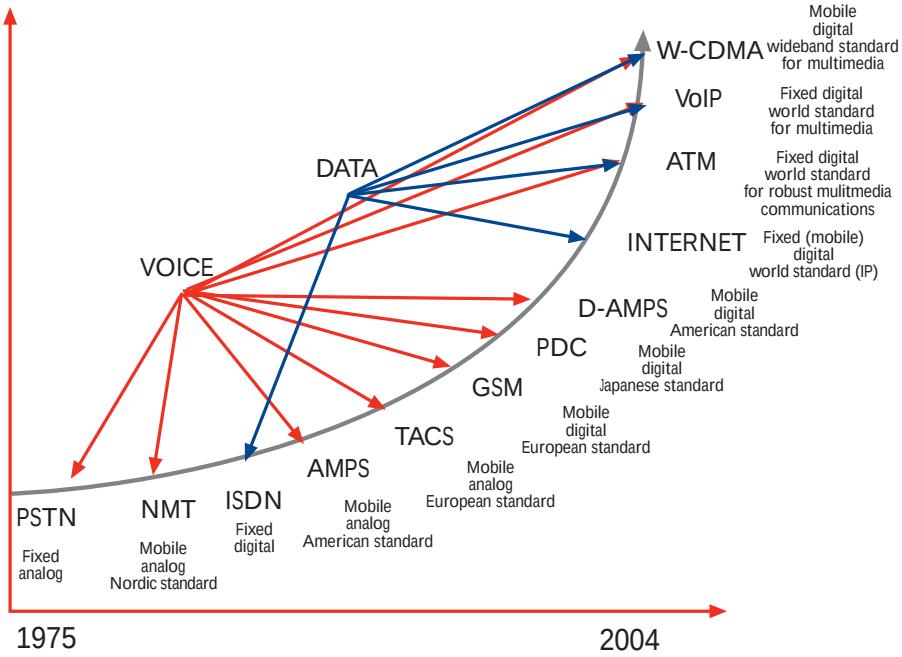
Along with the increasing number of people who have access to mobile telephony, the demand for access to the same functionality is also rising irrespective of whether users are connected via fixed or mobile systems.

After the turn of the millennium, the third generation of mobile communication will be launched with considerably extended bandwidth and real-time functionality for multimedia. At the same time it is expected that market penetration will increase for a number of new satellite communication systems and that several subscribers to the fixed network will gain access to broadband transmission.

The telecom market is gradually becoming merged and integrated with computer communication (datacom). In certain respects the development of datacom is ahead of the telecom sector, for example, with regard to the presence of open interfaces and standard platforms. This has resulted in greater competition and increased pressure on suppliers to improve their production efficiency and shorten the development time of new products. Prices within the computer industry have therefore been cut dramatically and today they are much lower compared with the equivalent functionality within the telecom industry. Moreover, product life cycles have become considerably shorter.

As a consequence of the datacom and telecom industries becoming integrated, telecom suppliers are being forced to improve the efficiency of their own development organizations in order to prevent losing out to the competitive power of datacom suppliers who are striving to establish themselves in the new common communication market. As a result, higher demands will be imposed on suppliers within the integrated communication industry in the future.

The complexity of new communication technologies

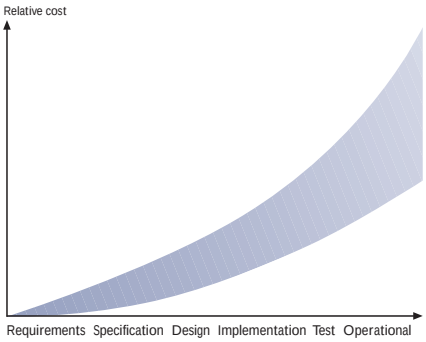


The development of new technologies is taking place at an exponential rate, which is increasing the need for more effective software development methods.

Software development

A big problem with program development in most industries, and in the communication industry in particular, is that the demand for skilled manpower within the IT sector is rising faster than the available supply. So far, the improvement in productivity has not compensated for the increased demand for development capacity, which has led to the costs for software greatly exceeding those for hardware. Both system complexity and the demand for software maintenance are increasing the scale of this problem.

Relative error correction cost in different development stages



System complexity results both in time-consuming development processes, and in the occurrence of more bugs. The cost for correcting bugs rises faster in the latter phases of the development process, and in general the quality demands on the system affect maintenance costs by a corresponding proportion. It is not always enough to increase development resources in response to increased system complexity, but rather there is a need to improve the development method itself.

Maintenance costs for software, of which the majority derives from labor costs, in general accounts for about 75 percent of the total costs for the software during its life cycle. This means that three times the amount invested in software design is required for software maintenance. In turn, this large demand for development costs for maintenance means that many development projects suffer from a lack of resources. There is therefore a risk that the continued use of current development methods will lead to inadequate maintenance of existing systems, or to new projects having a lack of manpower resources.

New development methods

The growth of the telecom market, the convergence of datacom and telecom, deregulation, tougher competition and the huge influx of Internet users have led to increased system complexity and the demand for shorter development times and greater productivity within the communication industry. This is taking place at the same time as the costs for software design and maintenance are rising significantly.

In order to meet the increased demands on software design and maintenance, manual line coding is giving way to visual integrated development tools. A consequence of this is that customers are changing their purchasing behavior concerning development tools from developing their own tools, or ordering individual tool licenses, to structured evaluation of development tools for use within the complete development department or company group.

A focus on the communication industry

Telelogic is active in the market for integrated visual software development tools for real-time applications with a focus on the communications industry.

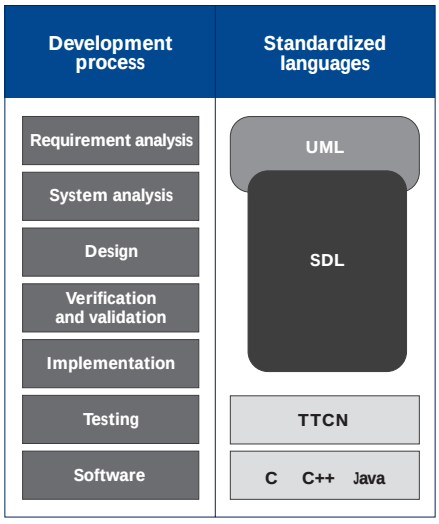
Development process

The development of real-time applications consists of a number of different phases. Depending on the project phase, different modeling languages suit the work in different ways.

In requirements and system analysis, a general language is demanded where expressiveness is preferred over detailed descriptions. An example of such a language is UML, which is non-formal in that it does not give detailed information on how the executable code should be constructed. Nevertheless, it is powerful with regard to describing system functionality early in the development process.

Further along the process, during the design phase, a formal modeling language is needed that gives the precision necessary for ensuring that the resulting coding for an executable language can take place without incorrect interpretation occurring. Coding, which itself constitutes the implementation phase of the development process, can be done either manually or with the help of development tools.

The diagram below gives examples of which languages can be used in different phases. Unlike UML, SDL is a language with a formal specification and it is therefore used in design stages of the development process. However, SDL is less powerful for describing functionality early in the development process.



UML and SDL are consequently languages that satisfy different demands in the development process, but which to a certain extent overlap each other. It is therefore not unusual that both UML and SDL are used in the same development process.

Market trends

Before 1993, a large number of players within the telecom industry were equipped with computer systems that did not provide support for the use of graphical development tools. In addition, the limitations in the prevailing development environment in the form of documentation and version handling have long prevented the use of visual development tools. Some of the market's major players developed their own development tools in response to the lack of available commercial tools.

However, during the years after 1993 many players updated their development environments and methods, which increased the demand for commercial development tools.

Nevertheless, the use of line coding in the design phase is still widespread within the communication industry as in other sectors. The reasons for this are the investments already made in other development methods combined with the need for continuity in current program development.

Today there are several development tools on the market and few players choose to develop their own in-house tools. Instead, many players have gone over to using existing commercial tools in order to take advantage of ever quicker development times while avoiding the prohibitive costs of developing their own tools. This choice is also an important factor in communication suppliers focusing on their own core operations.

The increasing complexity of systems and the increased demand for fast, resource-saving and high-quality development are forcing communication suppliers to change their development environments, which in many cases means that the choice of development tools is a company management decision. This change in purchasing behavior, with central purchasing projects, also means structured evaluation of commercially available development tools.

In the Company's estimation, based on information from the analytical institute Epsicom Business Intelligence, the number of software engineers within the global communication industry was up to 80 000 in 1998. During the same year the Company also estimates that the penetration of development tools in the communication industry was 20–25 percent. Accordingly, there are currently about 16–20 000 users of development tools, commercial as well as in-house versions, in the communications industry. Each license is used by more than one user. As of December 31, 1998, there were about 3 500 active licenses for Telelogic's products, from which the Company estimates that its market share for integrated visual development tools for real-time applications within the communications industry is up to 50 percent. According to the Venture Development Corporation analysis institute, market penetration is expected to increase to 80 percent by the year 2003.

Telelogic's market position

Telelogic's strengths mainly derive from its extensive in-depth knowledge of the telecom systems and code generation. With the help of this fundamental knowledge, the Telelogic Tau product group was developed to cover all phases of the development process. Telelogic Tau is the only comprehensive tool on the market within the implementation and testing phases which satisfies customers' increasing demands for automatic code generation along with the possibilities of checking that the correct functionality has been developed at an early process stage. It is becoming all the more important to initially specify the system correctly and then first

thereafter generate code with the aim of reducing the lead times for system development. To achieve this, a stable development tool is demanded that is accessible for use with the development steps in the middle of the development process: design, verification, validation and implementation. Telelogic's products satisfy all these demands.

Telelogic's competitors

There are a number of commercial software development tools on the market that compete with Telelogic Tau. Competitors that the Company considers important are given in the table below.

Company	Product
ObjecTime	ObjecTime
Rational	Rose
Verilog	ObjectGeode

The diagram below illustrates Telelogic Tau's position compared with other tools on the market. Today, Telelogic Tau is being developed to cover a greater part of requirement and system analysis in the future. The most competitive product within this segment is Rose, a UML-based tool. Within the product development phases design, verification, validation and implementation, remain the competitive products ObjecTime and ObjectGeode. In addition to these are in-house development tools found within a number of companies that are applied to different parts of the development process.

Telelogic's customers

Telelogic's concentration on the communications industry has resulted in a strong market position. The number of active licenses as of December 31, 1998, was about 3 500. The table below shows that seven of the world's largest communication suppliers in 1996 are included in Telelogic's ten biggest customers in 1998.

World's largest communication suppliers[1)]	Telelogic's largest customers 1998[2)]
Alcatel	Alcatel
Cisco	Bosch
Ericsson	Ericsson
Fujitsu	Fujitsu
Lucent Technologies	GPT
Motorola	Hewlett Packard
NEC	Lucent Technologies
Nokia	Motorola
Northern Telecom	Nokia
Siemens	Siemens

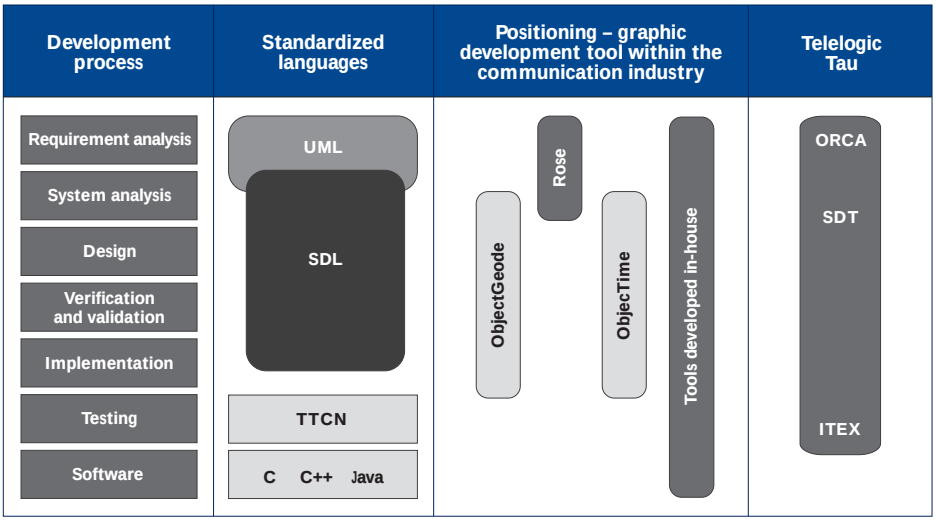
1) *Source: Espicom, based on recorded turnover 1996, listed in alphabetical order.*

2) *Based on sales per customer, 1998 listed in alphabetical order.*

Standards institutes

Within the communications industry there are a number of standards institutes whose aim is to ensure the functioning of international telephony and communication. International Telecommunication Union (ITU) is a global standards institute subordinated to the UN, which in 1992 evaluated 17 development tools, both commercial and in-house systems. In connection with this, the ITU recommended the three regional standards institutes in North America, Japan and Europe to use Telelogic's SDT product for the development of new telecom standards.

Since 1994, Telelogic has been a member of the European standards institute, European Telecommunications Standards Institute (ETSI), and is together with Verilog a motivating player in the development of SDL standards within ITU. Telelogic is also an active member of the Object Management Group (OMG), where the UML modeling language was standardized.



The diagram shows the standardized languages used in the different phases of the development process along with the positioning of graphical development tools.

Telelogic Tau is a comprehensive group of products

Telelogic's product and service range covers integrated visual tools for the development of real-time software applications, consultancy work for customers and staff training.

Telelogic Tau

Telelogic's three main products, ORCA (Object-oriented Requirement Capture and Analysis), SDT (SDL Design Tool) and ITEX (Interactive TTCN Editor and eXecutor), constitute tools for the design and testing of real-time applications based on internationally established standard modeling languages (SDL, TTCN and UML). With the aim of offering customers complete solutions for the total development chain, Telelogic's products have been integrated to form a single package which is marketed under the name Telelogic Tau.

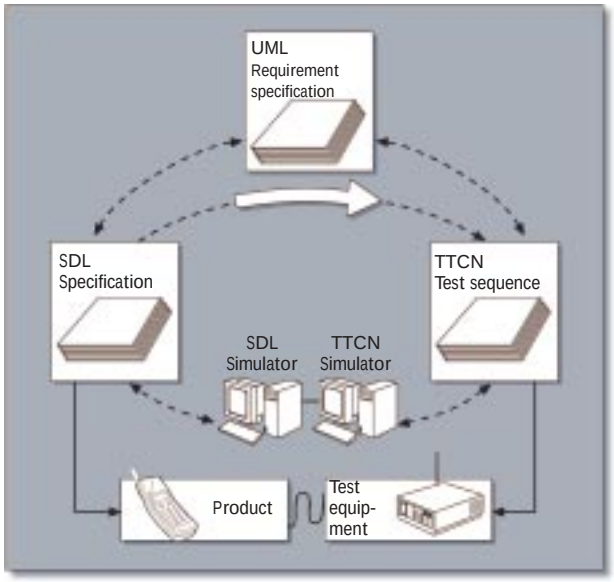
The object of Telelogic Tau is to make the development of real-time software applications much more effective, primarily within the communications industry. With Telelogic Tau, Telelogic strives to offer a product that:

- minimizes routine work, particularly coding;
- enables testing for correctness and reliability already at an early stage of the development process;
- is easy to understand and use.

Telelogic Tau consists of a number of integrated visual tools for the design and testing of real-time applications. Requirement specifications can be saved from the ideas stage to implementation and back, which simplifies both fault tracing and the correction of faults. The code generators generate complete executable code for most platforms and environments, which results both in significant time saving for the user, and also in far fewer less faults.

Telelogic Tau facilitates the testing of new ideas by the user. After a part of the software system has been designed with Telelogic Tau, the system's functionality can be simulated, compiled and tested. In the event that the results are not satisfactory, the required changes are implemented, after which new simulations are run. Through this way of working, the user can concentrate on the design and application of software and spend less time on coding and expensive fault rectification late in the development process.

Telelogic Tau provides the user with a number of tools that are used in different phases of the development process.



With Telelogic Tau, the developer can use different modeling languages for analyzing user requirements, designing software and constructing tests. When the product is fully developed, the tests can be exported to external equipment for testing the product.

Examples of projects where the Company's products are used

Ericsson Mobile Communications AB

The Bluetooth technology can be used to create a flexible office environment where mobile telephones, portable computers and other portable equipment can be easily linked together without the need for cables. The concept is based on radio communication over short distances. The development of new communication components incorporating the Bluetooth technology demands shorter development times. Ericsson Mobile Communications chose SDT with automatic code generation to rapidly design program prototypes for communication units incorporating Bluetooth. About 90 percent of the program code was generated automatically from the descriptions made with Telelogic's SDT tool.

Nokia Telecommunications OY (Professional Mobile Radio)

When Nokia developed the new generation of communication systems for the police, fire department and the rescue services based on the new European standard TETRA (Terrestial Trunked Radio), the development tools from Telelogic were used. The code that makes up about 90 percent of Nokia's TETRA telephones was automatically generated with Telelogic's SDT tool. Nokia also used the Company's ITEX tool for testing and ensuring the quality of its telephones.

Telia Promotor AB

Telia Promotor used Telelogic's SDT tool to develop Telia's new name-seeking service, 07979 (Synthia). In order to develop software programs that link together a large number of databases with advanced equipment for synthetic speech, the descriptions were carried out using SDL. SDT was used to automatically generate code for the end software program.

Requirement and system analysis

In requirement and system analysis, a general description is made of the system's component parts and properties. In these earlier stages of a project it is of great advantage to work with an informal modeling language such as UML. Telelogic Tau supports selected parts of UML and combines these with the strict modeling language SDL.

A common method when it comes to graphically defining a system's overarching properties comprises MSC diagrams. MSC diagrams describe the main interactions, both between a system's internal components, and between a system and other external systems. In addition to MSC diagrams being created and edited in Telelogic Tau, the diagrams can then be transformed into SDL diagrams. In this way MSC diagrams can be used as a starting point in the following design phase.

Design

Design with Telelogic Tau is primarily based on SDL. In this phase the clearly defined SDL specifications are created that prepare the basis for generating executable code.

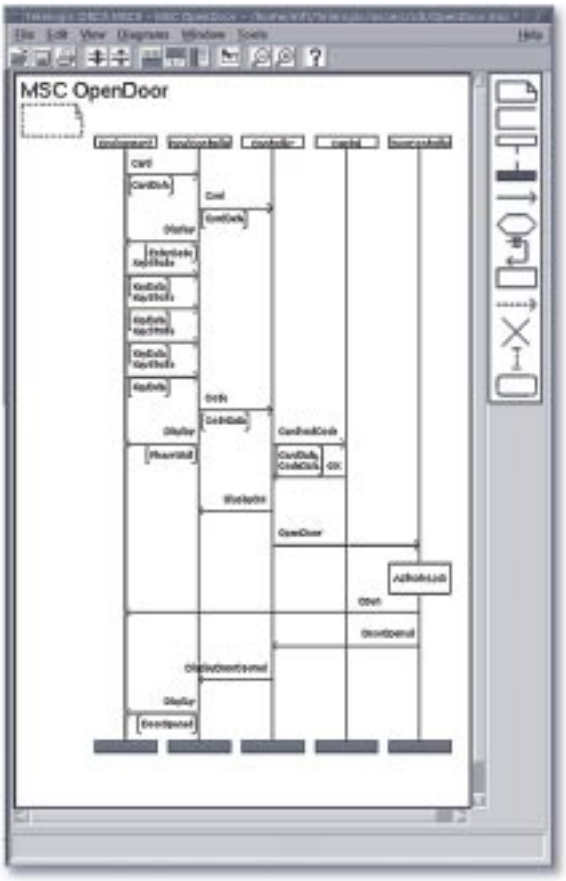
The user works with graphical symbols that are standardized in SDL, which gives a clear picture of the system's structure and properties. This allows a sharper focus on problem-solving rather than on coding details.

SDL is object-oriented, which enables the simple handling of different configurations of the same system with consequent less need for extensive maintenance. The SDL design in itself constitutes the documentation of a system, and object-orientation not only leads to more compact models but also to more compact documentation.

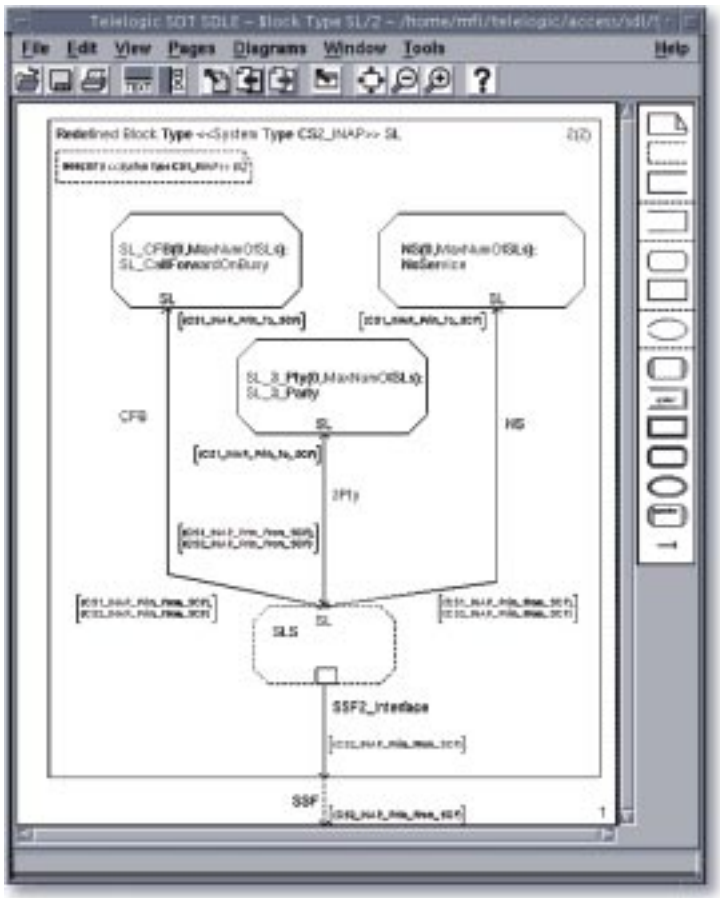
Verification and validation

The verification phase makes sure that the specifications are compatible with the SDL standard modeling language. Faults in syntax and semantics are indicated in the created SDL diagram. Verification can be carried out either on the whole system or just parts of it. When no faults in syntax and semantics remain, verification is complete.

The validation phase checks whether the verified system performs exactly what it should perform and nothing else. By means of different types of simulations, the system is tested to see that it agrees with the description given in the system analysis phase, usually in the form of MSC diagrams or so-called TTCN diagrams – see "Testing" below. In this way any design faults are prevented from being transferred to the end product.



SDT MSC Editor, a Telelogic Tau tool.



SDL Editor, a Telelogic Tau tool.

Implementation

The finished SDL specifications provide the platform for coding. Historically, this has been done manually, which has tied up a significant amount of time and human resources. This way of producing code is not only time-demanding and expensive but also results in larger complications when faults are discovered late in the development process. Because there is no tracking between SDL specifications and manually produced code, faults are both difficult to detect and remedy. This problem is solved in Telelogic Tau by the clear relationship between SDL and executable code being used for automatic code generation.

Currently, Telelogic Tau generates automatic code in the programming languages C and Chill from SDL specification.

Because Telelogic Tau provides an open interface, the generated code can be integrated with a number of operating systems, including Unix and MS Windows, but in particular with several real-time operating systems.

Testing

Telelogic Tau also incorporates the ITEX development tool, which is used to create test sequences based on the standardized TTCN language. Test sequences can be used in the verification and validation phases of a development process, or with fully-developed systems. When testing, the test sequences are transferred via ITEX into executable code. An open interface enables integration with dedicated test equipment. This means that all functionality of both hardware and software can be checked.

Customer services and training

Telelogic provides a range of services aimed at supporting the introduction of Telelogic Tau for its customers. Telelogic's ambition is to provide a comprehensive solution in as close cooperation as possible with its customers. Traditionally, personnel based in Sweden have provided the bulk of services, but the creation of local resources is now taking place as part of the new investments in market units. Services that can be offered are:

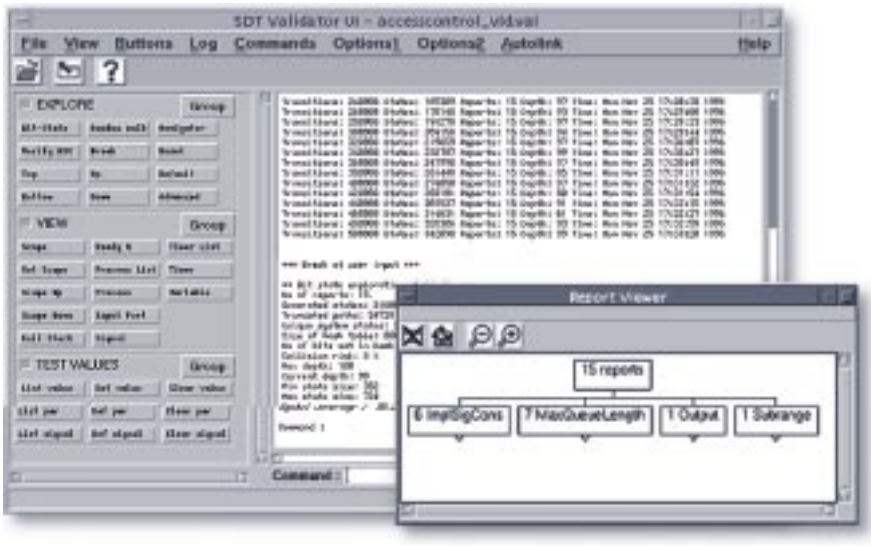
- pre-studies;
- method support;
- introduction and on-going training;
- customized training;
- product installation and integration with the development environment;
- product support and guidance;
- integration with the target environment.

Future products

A prime strategy of the Company's product development is to strive to make Telelogic Tau as open as possible, which enables combination with niche tools. This, together with continuous improvement of Telelogic Tau's functionality, gives the Company the opportunity to market comprehensive solutions.

A trend within the communications industry is to try re-use components that have either been already developed internally or been bought in from outside. This leads to the requirement to extend the support for integration with Java and C++ programming languages. Such functionality should fully open the datacom market for Telelogic's products.

On-going work is in progress for further integration of UML in Telelogic Tau and translating the user-interface into Japanese.



SDT Validator, a Telelogic Tau tool.

Financial objectives

Telelogic is active in the market for integrated visual software development tools for real-time applications. The Company's objective is to achieve a growth that will maintain its current market share within the communications industry. Further objectives are to increase the sales of relevant services and to market our products within other industries.

The ultimate goal of the Company is to achieve an average growth in sales in excess of 50 percent per year up until the year 2001.

Solidity and net debt/equity ratio

In order to reduce the financial risk and improve the opportunities for continued international expansion, the Board of Directors has decided to carry out a new capital issue. As of December 31, 1998, solidity increased to 11 percent. The new capital issue is expected to provide the Company with new funds of approx. SEK 91 million after deduction of issue expenses of approx. SEK 9 million. The solidity after the new capital issue is calculated to increase to approx. 64 percent. The net debt/equity ratio before the new capital issue rose to 2.5 times. After the new capital issue and reimbursements of the interest-bearing liabilities, the Company's net funds are expected to increase to SEK 60 million.

The board's goal is that long-term solidity shall exceed 40 percent and that the net debt/equity ratio shall not permanently exceed 0.5 times. However, in connection with an acquisition, the net debt/equity ratio may temporarily exceed the stated targets.

Margin and earning capacity

Within the next two to three years, growth will be given priority over profits. It is the Company's estimation that investments during this period which will be carried out in service and sales organizations and product development will lead to a gradual increase in profit margins. The Company's long-term goal is that the average operating margin shall exceed 20 percent.

At the current capital turnover, the return on operating capital exceeds 75 percent.

Dividend policy

Historically, Telelogic has not paid any dividends apart from a one-off payment to Saab AB before the sale of Telelogic AB to Telelogic Intressenter AB. In view of the strong expansion predicted by the Company, it is estimated that its policy on share dividends will continue to be restrictive in the immediate future.

Financing policy

After the new capital issue, the Company's liquid assets will exceed the interest-bearing debts by approx. SEK 60 million. The management of liquid assets will be carried out by means of low-risk investments.

Handling of currency risks

As a consequence of its international exposure, Telelogic has established a currency policy based on ensuring that the flow of currency shall be carried out on sound business principles of a non-speculative nature.

Contracted and expected sales are 40–80 percent currency-hedged after the deduction of costs.

Costs shall be recorded against revenues in the same currency, irrespective of where the costs or revenues originated. Consequently, it is not the individual currency exposure of subsidiaries but the overall exposure of the group which is hedged. Subsequently, currency flows will be secured in US dollars, British pounds, euros and yen, currencies which account for the majority of the Telelogic Group's currency risks.

Risk factors

Telelogic's operations are affected by a number of external factors whose effects on revenues and expenditures can be controlled to varying degrees. When considering Telelogic's future development potential, it is therefore essential to take into account relevant risk factors alongside any possible improvements in results.

In need of a new market

The future success of Telelogic is to a great extent dependent on the expected high growth of the market for integrated visual development tools, a market that finds itself in an early stage of development.

The introduction of integrated visual development tools depends on the increased acceptance of visual tools for programming real-time applications. In the event that the Company's expected shift from manual coding to visual tools does not take place at the same pace as the Company has estimated, there is a distinct likelihood that the Company's growth, sales and results will be negatively affected.

In addition, Telelogic's prospects during coming years will depend on the underlying growth within the communications market and the investment of market players in software development. Should the number of software developers decline, it is probable that the Company's growth, sales and results would all be negatively affected.

Control of growth

One risk for Telelogic is a failure to recruit suitable personnel, which may seriously obstruct the required growth.

Our rapid business growth will entail a continuous need of recruitment and training, which in turn places great demands on Telelogic's management and organization. That newly recruited staff can be integrated smoothly in an organization is a prerequisite for an organization growing without the quality of work deteriorating.

Competitors

A number of companies are working with the development of graphical development tools that can compete with Telelogic's products. Some of these companies have significantly larger resources than Telelogic within R&D, manufacturing and marketing. They may also have a stronger financial position and management, as well as a more well-established company name. Therefore it is possible that these companies could pose a serious short-term and long-term competitive threat.

Copyright and trademarks

If the technology or trademarks used by Telelogic infringe on another existing or future copyright or trademark, the owner of these can initiate legal proceedings against Telelogic. Conversely, Telelogic can also initiate legal action against another party in the event of any infringement on Telelogic's copyright or trademarks. The inherent uncertainty in legal disputes concerning copyright and trademarks makes the outcome of such disputes difficult to predict. Moreover, court costs and other costs associated with legal disputes, irrespective of whether Telelogic succeeds in maintaining its rights, can have a damaging effect on Telelogic's financial position.

Staff dependency

Telelogic's future development to a great extent depends on a number of key employees remaining in the organization. As a result of the strong development within the software branch over recent years, the increased competition for qualified people has led to the consequent increase in salary costs.

New business start-ups

Establishing new subsidiaries involves increased risk-taking. During the building up period, the costs for investments and setting up a business and marketing organization are significant. This means that newly-established operations place a burden on results. Telelogic lacks experience, a history and an established customer base in the development of new markets. Following individual orders, this can lead to sales forecasts during the founding phase being uncertain with results varying widely compared with forecasts.

Technological development

The market for graphical programming tools for real-time applications is influenced by the ever-faster technological development within the communications industry. The future development for any player in this market is to a great extent dependent on the ability to develop products at the same pace as technological development and the increased demands of customers. Any delays can lead to lost market shares and reduced competitiveness.

Forecast uncertainty

Seasonal changes in the Company's revenues during the year mean that forecast uncertainty increases. The concentration of licensees to the fourth quarter results in a large part of the annual sales and profit being generated during this quarter. An earlier or later placing of just a few orders over the whole year can therefore have considerable influence on the net income / loss for the year.

Financial summary 1994-98

Telelogic's current company structure was established in 1998 in connection with the acquisition of the S & P Media Group, the previous distributor of Telelogic's products in the German market. Along with this acquisition, Telelogic established subsidiaries in the USA, UK, Germany, Italy, Japan, and a branch office in France. Moreover, the German subsidiary has a subsidiary in Ireland.

In the period 1994 -1998, Telelogic achieved an average annual growth rate of approximately 39 percent. The most accelerated growth took place during the period 1997-1998. Net sales increased by 59 percent in 1997 and by 69 percent in 1998. The increase in 1998 for equivalent business units in Telelogic was 46 percent.

A number of factors account for this strong growth. Foremost has been the increasing market acceptance of the type of software development tools produced by Telelogic. Another reason for rapid growth in 1997 and 1998 is the internationalization of the company, which began in 1995 and intensified during 1996, as a direct result of the Company being aquired by Saab AB. The original ownership structure, with Telia as the parent company, hindered establishment of a multinational concern and considerably limited the growth of Telelogic prior to 1995. The establishment of subsidiaries and the greater marketing efforts in local markets during 1996 was reflected in a large increase in sales. This first became apparent during the 1997 financial year, since the sales cycle from initial contact to close of sale often takes from between 9 to 12 months. During 1998 the Company acquired its former distributor in Germany.

The third most important factor in Telelogic's growth has been an increase in the range of products brought to the market. Up until 1994, Telelogic was a 'one-product-company' with all income arising from SDT. During 1994, 1995 and particularly in 1996, the testing tool ITEX was further developed. In 1996 it was integrated with SDT to produce a more complete product. Moreover, in 1997 and 1998 Telelogic increased its investment in providing a wider range of product services, while at the same time cultivating a limited number of major customers.

Five-year summary of income statement

Presented below is an overview for the Company over the past five years. The figures in the tables below are rounded off to one decimal point, which is the reason why certain columns do not seem to add up. The figures show the performance of the parent company during 1994-1996. The Group's current structure and financial standing were established during 1997, thus only the figures from 1997 and 1998 have a true bearing on the Group's present performance. Certain changes in the definition of operational costs have been carried out which has led to adjustment to the income statement for the years 1995-1996 in order to comply with the Swedish Annual Accounts Act. In 1994 another change was made in the reporting of financial statements. Paid sales commissions in the annual accounts were re-classified from operating expenses to a reduction in sales revenue, in accordance with the company's updated accounting principles. However, these change had no influence on the net income for these years.

Summary of income statement

SEK million	1994	1995[1)]	1996[1)]	1997	1998
Net sales	47.6	53.0	66.4	105.5	178.4
Operating expenses	– 39.8	– 50.2	– 68.7	– 96.8	– 169.4
Profit/loss before depreciation	**7.8**	**2.7**	**– 2.4**	**8.7**	**9.0**
Depreciation	– 0.4	– 0.6	– 1.4	– 2.5	– 6.7
Operating profit/loss	**7.4**	**2.1**	**– 3.8**	**6.2**	**2.3**
Net financial income/expense	0.1	0.1	– 0.3	0.0	– 1.3
Profit / loss after financial items	**7.5**	**2.2**	**– 4.1**	**6.2**	**1.0**
Gross margin, percent	16.3	5.1	– 3.6	8.2	5.0
Operating margin, percent	15.5	3.9	– 5.7	5.9	1.3
Profit margin, percent	15.7	4.2	– 6.2	5.9	0.6

[1)] During 1995 and 1996 sales receipts in England and USA included those conducted via Saab-owned companies. The expenses required for these sales activities totaled SEK 0.7 million in 1995 and SEK 2.4 million in 1996, but since they were never charged to Telelogic, the expenses are not included in the income statement above.

Five-year summary of the Balance Sheet

The balance sheet total at December 31, 1998 was SEK 111.3 million. A prominent feature of Telelogic's balance sheet is the high amount of current assets consisting mainly of accounts receivable. The fixed assets are a small portion of the total capital employed and consist mainly of computer equipment and office equipment. Telelogic's equity has increased gradually, keeping pace with the results. In connection with Saab AB's sale of Telelogic AB, an extraordinary general meeting of Telelogic stockholders was held on December 29, 1997, to approve a one-off dividend to Saab AB of SEK 8.5 million. This amount explains the reduction in stockholder's equity from SEK 11.3 million at the beginning of 1997 to SEK 3.7 million at the end of 1997.

Solidity at the end of the 1997 financial, following this dividend payment, increased to 7 percent. After the close of the fiscal year, a stockholder' contribution of SEK 7.5 million was paid by Saab AB. On December 31, 1998, solidity increased to 11 percent.

During 1998, the net interest-bearing liabilities increased from SEK 9.2 to 30.6 million asa result of the adjustment of earlier dealings with the former owners along with the continued expansion of operations.

Summary of the balance sheet

SEK million	1994	1995	1996	1997	1998
Fixed assets	1.6	2.9	4.3	7.8	31.0
Other current assets	22.6	23.5	33.1	44.1	70.5
Cash and bank	0.0	2.4	3.0	2.9	9.7
Total assets	**24.3**	**28.7**	**40.4**	**54.7**	**111.3**
Stockholder's equity	9.0	10.4	11.3	3.7	12.2
Interest-bearing liabilities	1.3	4.5	5.2	12.1	40.3
Non-interest bearing liabilities	14.0	13.9	23.8	38.9	58.7
Total liabilities and equity	**24.3**	**28.7**	**40.4**	**54.7**	**111.3**

The non-interest bearing liabilities consist in particular of advanced payments from customers in respect of software maintenance. These agreements cover one year at a time and payment is made at the beginning of each period. These agreements constitute an important source of financing for the Company.

Current assets, which consist mainly of accounts receivables, are derived from receivables from license holders and from purchasers of consultancy services. Because of the large amount of revenue during the last quarter, the credit period is overestimated compared with receivables by the end of the year and yearly sales. The average credit period during the year amounts to approx. 68 days.

The average credit period means that the payment time exceeds the agreed credit period by about 18 days. This is mainly explained by the large amount of international sales. Historically, the Company's customer losses have been limited as a result of the nature of our customers.

Summary of key financial ratios and share data over a 5 year period

Key financial ratios	1994[1)]	1995[1)]	1996[1)]	1997[2)]	1998[2)]
Margins					
Gross margin, percent	16.3	5.1	– 3.6	8.2	5.0
Operating margin, percent	15.5	3.9	– 5.7	5.9	1.3
Profit margin, percent	15.7	4.2	– 6.2	5.9	0.6
Yield on capital					
Return on operating capital, percent	133.0	18.3	– 29.2	47.0	8.4
Return on capital employed, percent	108.7	18.8	– 22.3	40.9	8.4
Return on stockholder's equity, percent	85.6	16.5	– 27.5	60.1	9.5
Capital structure					
Operating capital, SEK million	10.3	12.5	13.6	12.9	42.8
Capital employed, SEK million	10.3	14.9	16.5	15.8	52.5
Stockholder's equity, SEK million	9.0	10.4	11.3	3.7	12.2
Net interest-bearing liabilities, SEK million	1.3	2.1	2.3	9.2	30.6
Capital turnover, ratio	8.6	4.7	5.1	8.0	6.4
Net debt/equity, ratio	0.1	0.2	0.2	2.5	2.5
Solidity, percent	37.1	36.1	28.0	6.7	11.0
Cash flow and liquidity					
Cash flow before investment, SEK million	– 0.6	1.6	– 2.0	12.8	2.8
Cash flow after investment, SEK million	– 2.3	– 0.3	– 4.8	6.9	– 27.1
Cash and bank, SEK million	0.0	2.4	3.0	2.9	9.7
Internal financing, ratio	– 0.3	0.8	– 0.7	2.2	0.1
Investments					
Investment in fixed assets, SEK million	1.8	1.9	2.9	5.9	29.9
Employees					
Average number of employees	35	46	61	83	150
Net sales per employee, SEK million	1.360	1.152	1.088	1.271	1.190
Value added per employee, SEK million	0.777	0.593	0.478	0.616	0.733

Stock data[3)]	1994[1)]	1995[1)]	1996[1)]	1997[2)]	1998[2)]
Number of shares at year-end	6 000 000	6 000 000	6 000 000	6 000 000	6 000 000
Number of outstanding warrants at year-end[4)]	0	0	0	0	1 782 000
Number of share after utilization of outstanding warrants	6 000 000	6 000 000	6 000 000	6 000 000	7 782 000
Dilution of shares, percent	0	0	0	0	16.1
Profit after full tax, SEK					
Before full dilution	0.91	0.23	– 0.50	0.73	0.07
After full dilution	0.91	0.23	– 0.50	0.73	0.06
Stockholder's equity, SEK					
Before full dilution	1.50	1.73	1.88	0.61	2.04
After full dilution	1.50	1.73	1.88	0.61	1.75
P/e ratio					
Before full dilution					> 100
After full dilution					> 100

[1)] *Applies to parent company.*
[2)] *Applies to the Group.*
[3)] *Number of shares adjusted for share split conducted in 1998.*
[4)] *Refers to the maximum number of shares that can be subscribed for through outstanding warrants.*

Board of Directors report 1998

- Revenues increased by 69 percent to SEK 178.4 million, including acquisitions, compared with 1997. For corresponding Telelogic business units the increase was 46 percent.
- During the year the number of employees rose from 87 to 220 persons. Despite large costs for recruitment and the introduction of new personnel, the result was positive, SEK 1.0 million after financial items.
- S&P Media, Telelogic's distributor and partner in Germany, was acquired on May 1, 1998.
- Subsidiaries were established in Japan and Italy.
- In February, all the shares in Telelogic AB were acquired by a group of investors. After the change in ownership Telelogic had about 50 stockholders. The major stock holders include Ratos, MVI and Kjell Spångberg, Bo Wahlström and Lars Ahlman through their companies.
- Telelogic AB will be introduced to the O-list of the Stockholm Stock Exchange on March 8, 1999.

The market

Growth of the international communications market continues to be strong, which promotes the demand for Telelogic's development tools based on graphical modeling languages, which are gaining ever wider acceptance among the major telecom suppliers.

Both demand and sales are growing at an undiminished rate in both the Nordic Countries and in West Europe. Major breakthroughs have been achieved with Nokia and Ericsson. In the North American market, significant deliveries have been made to Motorola. Telelogic has also achieved major successes in Japan, where invoicing quadrupled from SEK 3.1 million to 12.6 million. Fujitsu is now one of Telelogic's largest customers.

Operations, billings and results

A new strategy has been agreed upon to further secure the growth potential that the rapid expansion of the communications industry offers Telelogic.

Strong underlying market growth and the increased demand for standardized tools for the development of software programs resulted in a net increase in sales to SEK 178.4 million compared with SEK 105.5 million for the corresponding period last year.

The increase amounted to 46 percent for comparable units, and with the acquisition S&P Media the increase was 69 percent.

Product revenues for license and software maintenance accounted for the majority of the sales, SEK 134.8 million (90.2) compared with SEK 43.6 million (15.2) for service revenues only. However, in relative terms, service revenues grew faster than product revenues.

The strong development in invoiced sales shows that focusing on major existing customers gives good results. During the year a significant number of licenses were signed by Ericsson, Nokia, Fujitsu and Motorola.

A subsidiary was established in Tokyo, Japan, during the year. A subsidiary was also established in Milan, Italy. Despite large costs for the recruitment and introduction of new personnel, the results are positive with SEK 1.0 million after net financial income (6.2).

Financial position

Stockholders' equity amounted to SEK 12.2 million (3.7) at the end of the year, which gives a solidity of 11 percent. The net debt/equity ratio amounted to SEK 2.5 million.

The liquid assets including bank overdraft amounted to SEK 9.7 million. Cash flow during 1998 from current operations in respect of those assets tied up in our operations amounted to SEK 0.3 million.

The Company received SEK 7.5 million from Saab AB as a stockholders' contribution. In order to finance our expansion and the acquisition of the S&P Media Group, loans and credits totaling SEK 34 million have been obtained by the parent company.

At extraordinary general meetings in March and July, it was decided to introduce an options scheme which gave personnel and senior executives the right to acquire a total of approx. 23 percent of the share capital after full utilization of the subscription options.

With the aim of financing its continued expansion, Telelogic was introduced to the O-list of the Stockholm Stock Exchange. In preparation for this, a split of 1:1 000 was carried out. The number of shares at the end of the year was 6 000 000.

Investments

During the period, investments amounted to SEK 29.9 million. The major part of investments concerned the acquisition of the S&P Media Group.

Parent company

The parent company's net sales increased to SEK 147.4 million and the result after financial income and expenses amounted to a loss of SEK –0.8 million.

Telelogic AB's operations in the French market are carried out through a branch office in Paris which was established in 1996. During 1998 net sales amounted to SEK 12.5 million and the number of employees was 5 persons.

Personnel

The access to qualified persons is a key factor, and currently a potential bottleneck for Telelogic's expansion. The number of employees increased from 87 to 220, of which the S&P Media Group accounted for 60 persons.

The strong business upswing places large demands on the organization. Although this results in increased costs for recruiting and the introduction of new personnel, these measure are necessary in order to realize growth opportunities and to implement the Company's global strategy. Recruitment is aimed at increasing our capacity primarily within the market organization and consultancy activities, as well as in product development. Now that Telelogic is no longer a part of the Saab Group, the Company has established its own group functions for finance and administration in Malmö.

Product development

In addition to on-going development work with Telelogic Tau, three very strategic projects were started relating to increasing its functionality and reaching out to more users. Telelogic Tau is being translated into a Japanese version, and UML (a standardized language for requirement and system specification) is being integrated with SDL (the standardized language for design and implementation that prepared the ground for SDT) and being developed to give greater support to C++ and Java.

Outlook for 1999

The powerful expansion during 1998 will have a big influence on our cost situation during the first part of 1999, whereas the full effect on the revenue side is not expected to be realized until the second half of 1999. Continued strong growth and a positive result are expected for the whole of 1999.

Proposal for the distribution of earnings

The following profits are at the disposal of the Annual General Meeting:

Retained earnings	SEK 7 821 000
Net income for the year	0
	SEK 7 821 000

The Group's unrestricted reserves amounted to SEK 8 934 000. Allocation of restricted reserves is not proposed.

The Board of Director's propose that this amount be disposed of as follows:

To be carried forward:	SEK 7 821 000

Malmö, Januari 20, 1999
Telelogic AB (Publ)
The board of Directors

Lars Ahlman	Kjell Duveblad
Erik Fröberg	Olle Isberg
Bo Wahlström	Anders Lidbeck, CEO

Statement of accounts 1996-98

The Group was formed in the autumn of 1997 when subsidiaries were established in the UK and the USA. These subsidiaries took over activities involving Telelogic products that had been conducted earlier by the Saab group. Because of this, this part does not include a statement of accounts for the Group for the 1996 financial year.

Income statement

SEK (thousands)	Note	Parent company 1996[1)]	Parent company 1997	Parent company 1998	Group 1997	Group 1998
License and maintenance income		57 888	90 240	121 895	90 240	134 787
Consulting and other income		8 483	15 245	25 489	15 245	43 660
Net sales	1	**66 371**	**105 485**	**147 384**	**105 485**	**178 447**
License and maintenance expenses		– 5 254	– 7 524	– 9 665	– 7 524	– 11 897
Consulting and other expenses		– 4 571	– 7 083	– 16 999	– 7 083	– 25 173
Gross margin		**56 546**	**90 878**	**120 720**	**90 878**	**141 377**
Selling expenses	1	– 28 721	– 45 751	– 65 161	– 45 159	– 78 178
Administrative expenses		– 10 820	– 12 764	– 14 011	– 12 764	– 18 548
Product development expenses	2	– 20 808	– 26 737	– 41 161	– 26 737	– 42 302
Operating profit/loss	3, 4	**– 3 803**	**5 626**	**387**	**6 218**	**2 349**
Other interest income and similar income items		309	398	221	398	521
Interest expenses and similar items		– 640	– 372	– 1 370	– 372	– 1 821
Net income/loss after financial items		**– 4 134**	**5 652**	**– 762**	**6 244**	**1 049**
Appropriations	5	144	– 72	762	–	–
Net income/loss before tax		**– 3 990**	**5 580**	**0**	**6 244**	**1 049**
Taxes	6	1 081	– 1 659	0	– 1 837	– 901
Net profit/loss for the year		**– 2 909**	**3 921**	**0**	**4 407**	**148**

[1)] During 1996 marketing activities within the Saab company related to Telelogic, amounted to SEK 2 445 000 but were not invoiced. In 1997 debts for the corresponding marketing activities were transferred to the newly established company.

Funds statement

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1998
Result from current activities				
Operating profit/loss	– 3 803	5 626	387	2 349
Adjustment for items not included in cash flow				
Depreciation	1 443	2 303	3 640	6 676
Unrealised foreign exchange profits/loss	– 539	– 690	775	775
Capital loss/profit from sales and disposal of equipment	–	137	–	–
Interest received	309	398	221	521
Interest paid	– 640	– 372	– 1 370	– 1 821
Income tax paid	– 755	256	– 1 487	– 2 197
Cash flow from current activities before changes in working capital	**– 3 985**	**7 658**	**2 166**	**6 303**
Changes in working capital				
Increase in work-in-progress	–	–	–	– 939
Increase in receivables	– 8 685	– 10 655	– 16 346	– 24 873
Increase in liabilities	9 915	14 242	7 389	19 806
Cash flow from current activities	**– 2 755**	**11 245**	**– 6 791**	**297**
Investment activities				
Investment in intangible fixed assets	–	–	–	– 17 429
Investment in tangible fixed assets	– 2 854	– 4 468	– 4 692	– 12 505
Investment in financial fixed assets	–	– 138	– 18 993	–
Sale of equipment	–	43	–	–
Cash flow from investment activities	**– 2 854**	**– 4 563**	**– 23 685**	**– 29 934**
Financing activities				
Group contribution	5 438	– 5 000	–	–
Dividends paid	–	– 8 451	–	–
Issuance of debt	771	6 670	33 390	39 252
Amortization of loans	–	–	– 11 919	– 12 104
Issue of subordinated loans in association with warrants	–	–	2 104	1 808
Stockholder contributions	–	–	7 500	7 500
Cash flow from financing activities	**6 209**	**– 6 781**	**31 075**	**36 456**
Net change in cash and bank	600	– 98	599	6 819
Cash and bank at beginning of year	2 364	2 964	2 866	2 866
Cash and bank at end of year	**2 964**	**2 866**	**3 465**	**9 685**

The Company was part of the Saab Group up until the beginning of 1998, through which the Company's current financing was arranged. This current financing is included in the above table as raised and amortized loans.

Balance sheet

Assets

SEK (thousands)	Note	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Fixed assets						
Intangible assets						
Goodwill	7	–	–	–	–	16 267
Tangible assets						
Equipment, fixtures and fittings	7	4 311	6 295	7 347	7 780	14 771
Financial assets	8					
Participation in group companies		–	138	19 131	–	–
Total fixed assets		4 311	6 433	26 478	7 780	31 038
Current assets						
Inventories						
Work-in-progress for other parties		–	–	–	–	939
Current receivables						
Accounts receivable – trade		26 780	39 839	40 021	39 839	56 307
Receivables from group companies		3 924	661	14 684	–	–
Tax receivables		356	–	–	–	–
Other receivables		261	762	1 507	1 084	2 774
Prepaid expenses and accrued income	9	1 792	2 919	4 867	3 134	10 507
		33 113	44 181	61 079	44 057	69 588
Cash and bank		2 964	2 866	3 465	2 866	9 685
Total current assets		36 077	47 047	64 544	46 923	80 212
Total assets		**40 388**	**53 480**	**91 022**	**54 703**	**111 250**

Equity and liabilities

SEK (thousands)	Note	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Stockholder's equity	10					
Restricted equity						
Share capital		600	600	600	600	600
Restricted reserves		–	–	–	2 297	2 679
Statutory reserve		120	120	120	–	–
Stock premium reserve		–	–	1 044	–	–
		720	720	1 764	2 897	3 279
Unrestricted equity						
Retained earnings		11 360	– 3 600	7 821	– 3 633	8 786
Net income for the year		– 2 909	3 921	0	4 407	148
		8 451	321	7 821	774	8 934
Total equity		9 171	1 041	9 585	3 671	12 213
Untaxed reserves	11					
Accelerated depreciation		284	356	0	–	–
Tax allocation reserves		2 659	2 659	2 253	–	–
Total untaxed reserves		2 943	3 015	2 253	–	–
Provision for deferred taxes		–	–	–	845	378
Liabilities						
Long-term liabilities						
Long-term liabilities	13	–	–	23 460	–	29 302
Current liabilities						
Accounts payable		3 755	6 905	10 077	6 905	13 141
Liabilities to group companies		5 249	11 919	1 141	12 104	–
Income tax payable		–	160	–	452	1 228
Other current liabilities	14	1 516	2 253	17 079	2 253	17 473
Accrued expenses and deferred income	12	17 754	28 187	27 427	28 473	37 515
		28 274	49 424	55 724	50 187	69 357
Total liabilities		28 274	49 424	79 184	51 032	99 037
Total equity and liabilities		**40 388**	**53 480**	**91 022**	**54 703**	**111 250**
Pledged assets	16	None	None	55 237	None	55 797
Contingent liabilities	15	151	131	1 317	131	109

Accounting principles and definition of key ratios

Adjustments to accounts

Certain changes in defining operating expenses have been carried out, which result in adjustment to the profit and loss account for the years 1996 and 1997. However, the operating profit is not effected. Earlier disclosed miscellaneous operating income has been analyzed and allocated to the respective income items in the income statement.

Accounting items in respect of group contributions received and provided and stockholders' contributions received have been changed for all accounting periods according to the statement received from the Swedish Financial Accounting Standards Council during 1998.

Consolidated accounts

The company's annual accounts include those companies where the parent company owns, directly or indirectly, shares which correspond to more than 50 percent of the voting rights. The company's annual accounts have been prepared according to the recommendation of the Swedish Financial Accounting Standards Council regarding consolidated accounts concerning the application of purchase accounting. This means that the equity of subsidiaries and equity in non-taxed reserves at the time of acquisition are eliminated in their entirety. The foreign subsidiaries' annual accounts have been translated according to the current method. Assets and liabilities have been translated according to the closing day rate of exchange and the items in the income statement according to the average exchange for the year. Arisen translation differences have been added directly to stockholder's equity.

Receivables and liabilities

After individual evaluation, receivables have been recorded at the amount that is expected to be received. Receivables and liabilities in foreign currencies are stated at year-end exchange rates. If the payment exchange rate for a receivable or liability is hedged by means of a forward transaction, the rate of the forward transaction is used. Exchange rate differences for current receivables or liabilities are included in the operating profit/loss while the differences in financial receivables and liabilities are recorded under financial items.

Settlement of software programs

The granted program rights (ORCA, SDT and ITEX licenses) are recognized as revenue when delivery is made to the customer according to the agreed contract.

Settlement of software maintenance

Maintenance agreements are primarily billed one year in advance and recognition of revenue is carried out on an on-going basis during the agreed maintenance period in question.

Product development costs

All costs related to product development are charged on an on-going basis.

Fixed price and continuous invoicing

Projects carried out at a fixed price are recognized as revenue at final invoicing, received advances are entered as liabilities. Accrued costs are accounted for as ongoing work at their original costs. Loss risks are allocated after individual evaluation. Projects carried out according to agreements covering continuous invoicing are recognized as revenue at the same rate as invoicing.

Depreciation

Depreciation "according to plan" is based on the acquisition value of the asset and its expected economic life.

Equipment. The rate of depreciation for equipment is 20 percent. As a result of the ever-faster technological development of hardware, it was decided in 1995 that computers as of 1996 should be depreciated by an annual rate of 33.33 percent.

Goodwill. The difference between the acquisition value of shares in the subsidiaries and the estimated value of stockholder' equity on acquisition analysis is accounted for as consolidation goodwill. Consolidation goodwill relating to the acquisition of the S&P Media Group, which gave the Company an important market position in Germany, is depreciated by 10 percent per year.

Definition of key ratios

Average no. of employees. The number of employees at the end of respective quarters divided by four.

Capital employed. The balance sheet total less non-interest bearing liabilities. The average capital employed has been calculated as the opening capital balance plus the closing capital balance divided by two.

Capital turnover. Net sales divided by the average operating capital.

Cash flow after investments. Cash flow before investments deducted with investment in fixed assets.

Cash flow before investments. The net income/loss before depreciation with change in working capital.

Degree of internal financing. Cash flow before investments divided by investments.

Dilution. Measurement of dilution from outstanding warrants.

Fixed assets. Investment in fixed assets, net after sales and disposals.

Gross margin. Operating profit before depreciation as a percentage of net sales.

Net debt/equity ratio. Interest-bearing debts divided by stockholders' equity plus minority participations.

Net interest-bearing liabilities. Interest-bearing liabilities less cash balances.

Net sales per employee. The net sales divided by the average no. of employees.

Operating capital. Balance sheet total less non-interest bearing liabilities and cash balances. The average operational capital has been calculated as opening plus closing operational capital divided by two.

Operating margin. Operating profit after depreciation as a percentage of net sales.

Profit after full tax. Net income/loss after financial items less tax paid and tax on changes in appropriations.

Profit after full tax per share. Net income/loss after full tax divided by the total number of shares at year end before and after full dilution.

Profit margin. The result after financial items as a percentage of net sales.

Return on capital employed. Operating profit plus financial revenues as a percentage of the average capital employed.

Return on operating capital. The operating profit as a percentage of the average operative capital.

Return on stockholder's equity. Result after full tax (paid tax plus 28 percent of the appropriations carried out) after deduction for minority participations as a percentage of the average equity.

Stockholder's equity. Stockholders' equity at year end. Calculated as equity plus the equity element of non-taxable reserves.

Stockholder's equity per share. Equity divided by the number of shares at year end before and after full dilution.

Solidity. Stockholders' equity plus minority shares as a percentage of the balance sheet total.

Value added per employee. The result before depreciation and personnel costs divided by the average number of employees.

Notes to the accounts 1996-98

Note 1 Net sales according to geographical markets

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Sweden	11 282	18 210	27 976	18 210	27 976
Other Nordic Countries	4 606	13 543	17 724	13 543	17 724
Rest of Europe	36 387	48 664	55 488	48 664	83 284
North America	10 148	16 145	20 845	16 145	23 089
All other areas	3 948	8 923	25 351	8 923	26 374
Net sales	**66 371**	**105 485**	**147 384**	**105 485**	**178 447**

Parent company net sales corresponds to Group net sales for 1997, as all billing was directly from the parent company.

Of the parent company's income, SEK 14 269 thousand (-) was income from its subsidiaries, mainly in respect of royalties.

Of the parent company's expenses, SEK 34 544 thousand (8 273) was paid to its subsidiaries, primarily in respect of sales commissions.

Note 2 Product development expenses

Expenses for product development regarding SDT, ITEX and ORCA primarily include personnel, computer expenses and expenses for premises. The total expenses for product development are written-off at the time they arise.

Note 3 Staff and personnel expenses

Salaries, social security expenses and other remuneration

	1996		1997		1998	
SEK (thousands)	Salaries and other remunerations	Social security expenses	Salaries and other remunerations	Social security expenses	Salaries and other remunerations	Social security expenses
Parent company	21 808	9 733	27 689	11 702	39 621	17 245
of which pension expenses		1 575		2 090		2 920
Subsidiaries			2 993	80	38 765	5 236
of which pension expenses				46		200
The Group, total	**21 808**	**9 733**	**30 682**	**11 782**	**78 386**	**22 481**
of which pension expenses		**1 575**		**2 136**		**3 120**

Salaries and remuneration for board members, the President and other employees

	1996		1997		1998	
SEK (thousands)	Board of Directors and President	Other employees	Board of Directors and President	Other employees	Board of Directors and President	Other employees
Parent company	609	21 199	678	27 011	1 047	38 574
of which bonuses	30		91		282	
Subsidiaries			958	2 035	3 169	35 596
of which bonuses			146		701	
Group total	**609**	**21 199**	**1 636**	**29 046**	**4 216**	**74 170**
of which bonuses	**30**		**237**		**983**	

Remuneration was not paid to board members. The President received SEK 180 000 in salary and SEK 60 000 in bonus for employment from October 1, 1998. Pension benefits were SEK 24 000.

The President's employment contract stipulates a period of notice of six months. The Company is required to give 12 months notice upon termination of the contract. There is no provision for severance pay.

The Vice-President received SEK 585 000 in salary and SEK 222 000 in bonus. Pension benefits were SEK 92 000.

The Vice-President's employment contract stipulates a period of notice of four months. The Company is required to give 12 months notice upon termination of the contract. There is no provision for severance pay.

In addition to the above payments, one board member received a consultancy fee for his work in the Company management during 1998.

Average number of employees

	1996	(Men)	1997	(Men)	1998	(Men)
Sweden	61	54	68	58	82	67
Germany					38	29
UK			4	3	11	9
USA			8	7	10	8
France			3	2	5	3
Italy					1	1
Japan					1	1
Irleand					2	2
Total	**61**	**54**	**83**	**70**	**150**	**120**

Note 4 Depreciation of fixed assets

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Goodwill	–	–	–	–	1 162
Equipment	1 443	2 304	3 640	2 463	5 514
	1 443	**2 304**	**3 640**	**2 463**	**6 676**
The above items were allocated in the Income Statement as follows:					
Sales expenses	687	1 236	2 043	1 314	4 263
Administrative expenses	259	345	406	371	736
Product development expenses	497	723	1 191	778	1677
	1 443	**2 304**	**3 640**	**2 463**	**6 676**

Note 5 Appropriations

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Accelerated depreciation	144	– 72	356	–	–
Change in tax allocation reserve	–	–	406	–	–
Total	**144**	**– 72**	**762**	**–**	**–**

Note 6 Taxes

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Tax on net income for the year	– 442	– 259	–	– 417	– 274
Deferred tax	–	–	–	– 20	– 627
Tax effect of group contribution	1 523	– 1 400	–	– 1 400	–
Total	**1 081**	**– 1 659**	**–**	**– 1 837**	**– 901**

Note 7 Fixed assets

Equipment, fixtures and fittings

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Accumulated acquisition value					
At beginning of year	4 016	6 870	10 566	6 870	12 216
Acquisitions	2 854	4 468	4 691	6 112	12 505
Sales and disposals	–	– 772	–	– 772	–
	6 870	10 566	15 257	12 210	24 721
Accumulated depreciation					
At beginning of year	1 116	2 559	4 270	2 559	4 436
Sales and disposals	–	– 592	–	– 592	–
Depreciation for the year	1 443	2 304	3 640	2 463	5 514
	2 559	4 271	7 910	4 430	9 950
Net book value at end of year	**4 311**	**6 295**	**7 347**	**7 780**	**14 771**

Goodwill

Accumulated acquisition value					
At beginning of year	–	–	–	–	–
Acquisitions	–	–	–	–	17 429
	–	**–**	**–**	–	17 429
Accumulated depreciation					
At beginning of year	–	–	–	–	–
Depreciation for the year	–	–	–	–	1 162
	–	**–**	**–**	–	1 162
Net book value at end of year	**–**	**–**	**–**	**–**	**16 267**

Note 8 Participation in affiliated companies

	Corp. ID no.	Domicile	Holding	Voting rights	Total shares	Book value Thousand SEK
Telelogic Ltd	1832150	Bracknell, UK	100%	100%	10 000	130
Telelogic Inc.	22-3551414	Princeton, USA	100%	100%	1	8
S&P Media EG	321121	Bielefeld, Germany	100%	100%		2523
S&P Media IS	34265	Bielefeld, Germany	100%	100%		15 714
Telelogic Options AB	556558-9119	Malmö, Sweden	100%	100%	1 000	100
Telelogic KK	035618	Tokyo, Japan	100%	100%	200	562
Telelogic Italy Srl	194219	Milan, Italy	100%	100%	20 000	94
Total						**19 131**
Owned by subsidiary						
S&P Media IS Ltd.	274232	Galway, Ireland (wholly-owned)				106

During the year shares in S&PMedia IS and S&PMedia EG were acquired and the Telelogic Options AB, Telelogic KK and Telelogic Srl companies were formed.

Note 9 Prepaid expenses and accrued income

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Prepaid rent	639	666	989	666	1 392
Accrued income	655	671	–	671	–
Other	498	1 582	3 878	1 797	9 115
Total	**1 792**	**2 919**	**4 867**	**3 134**	**10 507**

Note 10 Equity

SEK (thousands)	Number of shares	Share capital	Restricted reserves	Unrestricted equity	Total
Parent company					
Closing balance, December 31, 1995	**6 000**	**600**	**120**	**7 445**	**8 165**
Group contribution received				3 915	3 915
Profit for the year				– 2 909	– 2 909
Closing balance, December 31, 1996	**6 000**	**600**	**120**	**8 451**	**9 171**
Group contribution provided				– 3 600	– 3 600
Dividend payment				– 8 451	– 8 451
Profit for the year				3 921	3 921
Closing balance, December 31, 1997	**6 000**	**600**	**120**	**321**	**1 041**
Stockholders' contribution received				7 500	7 500
Option premiums received			1 044		1 044
Share split	5 994 000				
Profit for the year				0	0
Closing balance, December 31, 1998	**6 000 000**	**600**	**1 164**	**7 821**	**9 585**

Group

Closing balance, December 31, 1996	**6 000**	**600**	**2 239**	**8 451**	**11 290**
Dividend payments				– 8 451	– 8 451
Group contribution provided				– 3 600	– 3 600
Translation difference			6	19	25
Displacement items			52	– 52	0
Profit for the year				4 407	4 407
Closing balance, December 31, 1997	**6 000**	**600**	**2 297**	**774**	**3 671**
Stockholders' contribution received				7 500	7 500
Option premiums received			758		758
Displacement items			– 552	552	0
Translation difference			176	– 40	136
Share split	5 994 000				
Profit for the year				148	148
Closing balance, December 31, 1998	**6 000 000**	**600**	**2 679**	**8 934**	**12 213**

During 1998, Telelogic AB has issued loans with associated warrants.

Loan 1998 / 2002 is combined with 21 separable options. Each option gives entitlement to subscribe for 60 000 shares in Telelogic AB at a subscription price of SEK 18.33 per share. Subscription can take place no later than December 30, 2002. With full utilization the capital stock will increase by SEK 126 000.

Loan 1998 / 2001 is combined with 522 000 separable options. Each option gives entitlement to subscribe for one share in Telelogic AB at a subscription price of SEK 73.00 per share. Subscription can take place no later than December 30, 2001. With full utilization the capital stock will increase by SEK 52 200. The loan is subscribed for by the subsidiary company Telelogic Options AB. As of December 31, 1998, 379 000 options have been transferred from the subsidiary to employees of Telelogic AB.

Note 11 Untaxed reserves

	Parent company	Parent company	Parent company	Group	Group
SEK (thousands)	1996	1997	1998	1997	1998
Accelerated depreciation	284	356	0	–	–
Tax allocation reserve tax provision - 95	2 145	2 145	1 739	–	–
Tax allocation reserve tax provision - 96	514	514	514	–	–
Total	**2 943**	**3 015**	**2 253**	**–**	**–**

Note 12 Accrued expenses and deferred income

	Parent company	Parent company	Parent company	Group	Group
SEK (thousands)	1996	1997	1998	1997	1998
Maintenance contracts	10 822	18 077	17 592	18 077	19 758
Holiday pay liabilities	1 212	1 617	2 565	1 617	4 066
Accrued salaries	1 020	1 825	1 565	1 825	2 348
Social security expenses	1 435	2 293	3 745	2 293	3 985
Other	3 265	4 375	1 960	4 661	7 358
Total	**17 754**	**28 187**	**27 427**	**28 473**	**37 515**

Note 13 Long-term liabilities

SEK (thousands)	Parent company 1998	Group 1998
Bank overdrafts facilities	22 400	28 252
Option loans	1 060	1 050
Total	**23 460**	**29 302**

Options loan 1998/2002 subscribed for by a few investors amounting to SEK 1 050 thousand with an annual interest rate of 1.5 percent and due for payment on December 30, 2002.

Options loan 1998/2001 subscribed for by subsidiary Telelogic Options AB amounting to SEK 10 thousand with an annual interest rate of 5.5 percent and due for payment on January 1, 2000.

The bank overdraft facility granted in the parent company amounts to SEK 23 000 thousand.

Note 14 Other current liabilities

Of current liabilities in the parent company and group as of 1998-12-31, SEK 11 000 thousand is in respect of interest-bearing liabilities, SEK 7 000 thousand of which is owed to credit institutions.

Note 15 Contingent liabilities

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Guarantees to employees	151	131	109	131	109
Guarantees to group companies	–	–	1 208	–	–
Total	**151**	**131**	**1 317**	**131**	**109**

Note 16 Pledged assets

SEK (thousands)	Parent company 1996	Parent company 1997	Parent company 1998	Group 1997	Group 1998
Floating charges	–	–	37 000	–	37 000
Shares in subsidiaries	–	–	18 237	–	18 797
Total	**–**	**–**	**55 237**	**–**	**55 797**

Note 17 Commitments

The Company rents certain of its building and equipment in accordance with agreements which expire within 5 years. Future lowest rental commitments (excluding property tax and other costs) according to current rental agreements with original or remaining non-cancellation conditions over and above one year are reflected below.

	Parent company		Group	
SEK (thousands)	Premises	Equipment	Premises	Equipment
1999	1 891	1 393	4 725	1 435
2000	1 576	1 067	2 063	1 109
2001	–	719	370	761
2002	–	462	98	504
2003	–	–	–	–
Total agreed leasing charges and rent	**3 467**	**3 641**	**7 256**	**3 809**

Leasing and rental costs for the financial year 1998 for the parent company amounted to SEK 1 427 thousand and SEK 3 351 thousand respectively. For the Group, leasing and rental costs amounted to SEK 1 469 thousand and SEK 5 353 thousand respectively.

Auditor's report

To the general meeting of the shareholders of Telelogic AB (publ)

Registered Number 556049-9690

I have audited the parent company and the consolidated financial statements, the accounts and the administration of the board of directors and the president of Telelogic AB for 1998. These accounts and the administration of the Company are the responsibility of the board of directors and the president. My responsibility is to express an opinion on the financial statements and the administration based on my audit.

I conducted my audit in accordance with Generally Accepted Auditing Standards in Sweden. Those Standards require that I plan and perform the audit to obtain reasonable assurance that the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and their application by the board of directors and the president, as well as evaluating the overall presentation of information in the financial statements. I examined significant decisions, actions taken and circumstances of the Company in order to be able to determine the possible liability to the Company of any board member or the president or whether they have in some other way acted in contravention of the Companies Act, the Annual Accounts Act or the Articles of Association. I believe that my audit provides a reasonable basis for my opinion set out below.

In my opinion, the parent company and the consolidated financial statements have been prepared in accordance with the Annual Accounts Act, and consequently I recommend

- that the income statements and the balance sheets of the Parent Company and the Group be adopted, and
- that the profit of the Parent Company be dealt with in accordance with the proposal in the Administration Report.

In my opinion, the board members and the president have not committed any act or been guilty of any omission, which could give rise to any liability to the Company. I therefore recommend

- that the members of the board of directors and the president be discharged from liability for the financial year.

Malmö, Januari 29, 1999

Alf Svensson

Authorized Public Accountant

The Board of Directors, senior executives and auditors

The Board of Directors

Ahlman Lars, Chairman

Born 1959. Board member of Telelogic AB since 1998. Board member of Entra data AB, Ten Four AB, CyberCom AB and Innovative AB.

Number of shares in Telelogic AB: 163 000

Number of warrants in Telelogic AB: 300 000

Duveblad, Kjell

Born 1954. Board member of Telelogic AB since 1998. Managing Director of Oracle Sverige AB. Board member of Helix Communications AB, Oracle's Nordic subsidiary companies (Sweden, Denmark, Norway and Finland).

Number of shares in Telelogic AB: 15 000

Number of warrants in Telelogic AB: 0

Fröberg, Erik

Born 1957. Board member of Telelogic AB since 1998. Chief Operating Officer of LHS Group Atlanta GA, USA.

Number of shares in Telelogic AB: 15 000

Number of warrants in Telelogic AB: 0

Isberg, Olle

Born 1961. Board member of Telelogic AB since 1998. Vice-President of Förvaltnings AB Ratos. Board member of Capaona AB. Netch Technologies AB, Prifast AB, Televisions Aktiebolaget TV 8, Telia Overseas AB and Teligent AB.

Number of shares in Telelogic AB: 0

Number of warrants in Telelogic AB: 0

Wahlström, Bo

Born 1949. Board member of Telelogic AB since 1998. Board member of Transtema AB, MC2 SA, Edelmark BV, Digital IllusionsAB, Stena Fastigheter AB, Metroland BV.

Number of shares in Telelogic AB: 648 000

Number of warrants in Telelogic AB: 300 000

Senior executives

Lidbeck, Anders

Born 1962. Chief Executive Officer and President of Telelogic AB since October 1, 1998.

Number of shares in Telelogic AB: 10 000

Number of warrants in Telelogic AB: 180 000

Ljungdahl, Ingemar

Born 1953, Chief Operational Officer. Employed by the Company since 1984 and Managing Director during the period 1991-97.

Number of shares in Telelogic AB: 21 000

Number of warrants in Telelogic AB: 3 000

Tjärnemo, Håkan

Born 1960. Chief Financial Officer. Employed by the Company since 1998.

Number of shares in Telelogic AB: 11 000

Number of warrants in Telelogic AB: 3 000

Lundquist, Eric

Born 1962. Vice President Marketing. Employed by the Company since 1989.

Number of shares in Telelogic AB: 11 000

Number of warrants in Telelogic AB: 3 000

Andreasson, Tord

Born 1958. Vice President Development.

Employed by the Company since 1987.

Number of shares in Telelogic AB: 6 000

Number of warrants in Telelogic AB: 3 000

Auditor

Svensson, Alf

Authorized Public Accountant, KPMG.

Auditor of Telelogic AB since 1998.

Deputy auditor

Pennander, Charlotte

Authorized Public Accountant, KPMG.

Deputy auditor of Telelogic AB since 1998.

At the annual general meeting to be held on February 18, 1999, it will be proposed that all the current board members be re-elected and that the Company CEO, Anders Lidbeck and Stefan Wigren, President of Front Capital Systems AB, Stockholm, be elected as new board members.

Possession of the above shares and warrants is inclusive of family members and companies. "The number of warrants" refers to the number of shares the owner of the warrants has the right to subscribe for.

Glossary

AMPS, Advanced Mobile Phone Service
Analog mobile phone system used primarily in North and Latin America.

ATM, Asynchronus Transfer Mode
Digital connection technology that enables broadband transmission (>2Mbit/s) of information in a network.

Back-end
The part of the product that is hidden from the user.

Broadband access
Connection that allows data transmission at a very high speed.

C
Widespread programming language that can be used on most computer systems.

C++
Object-oriented programming language developed from C by AT&T in 1985.

Chill
Standardized high-level language for programming real-time systems.

Code generator, code generation
Automatic transformation of one program language to another, specifically from an advanced language at a high level to a language that lies nearer to machine code.

Communication industry
The telecom and datacom industries.

ETSI, European Telecommunications Standards Institute
European standards institute that aims to ensure the correct functioning of international telephony and communication.

Front-end
The part of the product that is visible to the user.

Generic product
A general standard product without any customer- or market-specific adaptations.

Graphical editor
A computer program for writing and editing graphical symbols on-screen.

IN, Intelligent Network
Telecom network with special architecture that provides "intelligent" telecom services, e.g. call transfers and wake-up calls.

ISDN, Integrated Services Digital Network
A network technique for integrated services. A digital telephone connection that enables higher data transmission than analog telephone connection.

ITEX, Interactive TTCN Editor and eXecutor
Telelogic's tool for automatic generation and execution of test cases in TTCN.

ITU, International Telecommunication Union
A global standards institute that aims to ensure the correct functioning of international telephony and communication.

Java
Object-oriented programming language originally created for use of the Internet but which today is also used for other types of program development.

Modeling language
Language for describing systems and building models of them.

MSC, Message Sequence Charts
Standardized (ITU-T) language for describing communication behavior in a real-time system.

Multimedia
Combination of many media such as pictures, sound, film and text.

NMT, Nordic Mobile Telephony
Analog mobile telephone system primarily used in the Nordic Countries.

Object-oriented analysis and design
Object-oriented analysis means that one regards that which is being analyzed as consisting of a number of smaller parts that have a distinct relationship with each other. Object-oriented design means that the system is built according to the same reasoning.

OMG, Object Management Group
International standards institute that standardized the UML modeling language.

Open interface
A property of a product that makes it possible to connect it to products from other suppliers or that allows the user to add a function to the product.

ORCA, Object-oriented Requirement Capture and Analysis
Telelogic's tool for object modeling and system analysis based on the UML and MSC programming languages.

Productification
Changeover from a product functioning in a test environment to being a commercial product demanding a higher level of quality.

Programming language
Language for describing and creating computer programs.

PSTN, Public Switched Telephone Network
The common public telephone network.

Real-time applications
A system that responds to changes in the surroundings with a certain (often short) predetermined time.

SDL, Specification Description Language
Standardized (ITU-T) object-oriented language to visually specify structures and behavior in an event-driven real-time system.

SDT, SDL Design Tool
Telelogic's tool for the design, simulation, verification, validation and code generation in distributed real-time systems.

Semantic analysis
Deep analysis that examines whether the computer program follows the rules of the programming language used.

Standard platform
The computer system on which a product can be operated.

Syntactic analysis
A shallow analysis that examines whether the computer program follows the rules of the programming language used.

TACS, Total Access Communication Systems
Analog mobile telephone system primarily used in the UK.

Test case generation
To automatically create a test case description from a system description, that is, a typical scenario for how the system is used and should behave.

TTCN, Tree and Tabular Combined Notation
Standardized (ISO) language for specification of test cases for communication systems.

UML, Unified Modeling Language
A collection of object-oriented languages and techniques for the visual analysis and description of a system under development.

User interface
That part of a computer program that the user sees and uses to control the program.

Validation
An extensive examination that will decide whether a system actually carries out the functions expected of it.

Verification
An examination that will decide whether a system is correctly built up. It includes semantic and syntactic analysis.

VoIP, Voice over IP (Internet Protocol)
Digital transmission of voice information over the Internet.

X-windows
Handling of windows on a screen within a UNIX environment, e.g. on computers of the brand Sun, HP and Digital. Equivalent to Microsoft Windows in a PC environment.

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