

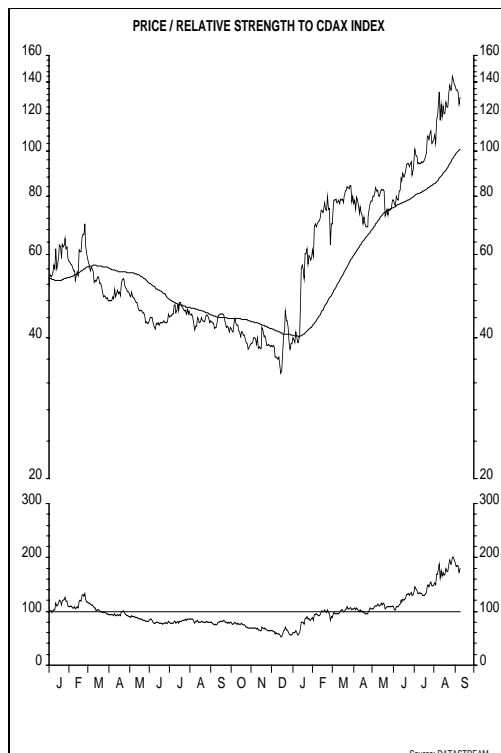
technotrans
Recommendation: Buy (previously: buy) (price target: € 200)

 Sector: Technology
 Country: Germany

 Reuters symbols: TTRG.F, TTRGG.DE
 Sec. ident. no.: 744 900

 Price on Sept. 8, 2000: € 129.50
 High/low in 2000: € 150.00/38.00

Capital		Ownership structure		Upcoming events	
Market capitalization	€ 266.8 m	Management	17.8%	Nov. 10, 2000	Nine-month report
Number of shares	€ 2.06 m	Venture capital companies	18.7%		
Subscribed capital	€ 6.18 m	Free float	63.5%		
Authorized capital	€ 2.82 m (31.03.2004)				


Print and CD/DVD headed skyward
New valuation leads to all-time highs, price target: € 200

Listed on the Neuer Markt, technotrans is a leading supplier of high-tech components for the printing machinery industry and one of the world's top two suppliers of equipment for the electroforming process used in the production of CDs and DVDs. After its IPO on the Neuer Markt in March 1998, technotrans was neglected for a quite a while. This was due to extremely high initial share prices followed by steadily declining quotations over more than a year, although the company regularly achieved or exceeded the targets announced at the time of the IPO. With new products in the print division and the successful development of CD/DVD equipment business, which will find expression in considerably rising earnings in 2000 and thereafter, the company is in a phase of revaluation. We are maintaining our buy recommendation and give the stock potential to at least € 200 based on a peer group comparison. If technotrans succeeds in achieving world leadership in high-tech electroforming (production of master CD/DVDs) for CD/DVD equipment, even significantly higher prices may well be registered.

Earnings set to take off in the second half

After extensive advance outlays for expected growth, the company is on the verge of a planned dramatic earnings upswing in the second half of 2000, which is so far only partly reflected in the share price. The most important event in the first half of 2000 was Drupa, the world's leading trade fair for the print industry, which is held every five years. The costs of participating are fully included in the earnings reported for the first half of 2000 and have thus resulted in a temporary earnings decline. While group sales increased 30.6% to € 47 million, net earnings amounted to € 1.9 million, or 14.7% less than their year-earlier level, mainly due to Drupa expenses. Earnings per share accordingly declined to € 0.93 (year earlier: € 1.10).

High-tech supplier of print and optical storage media

technotrans' core competence is based on its know-how in fluids technology. With 545 employees at present, sales are projected to reach at least € 100 million for the first time this year. World market leadership has been attained in nearly all product areas. New products are only launched when there is a realistic chance that market leadership can be achieved in a reasonable period of time. With its strategy of continuously increasing the share of its products in printing machines by introducing innovations and cultivating new, fast-growing segments like CD/DVD equipment, technotrans managed to achieve annual growth of 27% in the 1990s. As of the current year, technotrans counts among its customers all major printing machine manufacturers. We expect continued double-digit growth for the coming years. In view of the expansive development in both the print and CD/DVD divisions, technotrans will more than double its production capacity at its Sassenberg headquarters by the be-

in €	1999	2000e	2001e	2002e
EPS (current)	2.12	2.43	4.43	5.95
CFPS	3.19	4.45	6.72	8.41
Dividend	1.15	1.28	1.79	2.05
in DM m	1999	2000e	2001e	2002e
Sales	143.5	197.0	250.2	292.7
EBITDA	20.1	29.3	41.0	51.9
EBIT	16.0	21.3	31.8	42.0
Net profit	8.3	9.7	17.9	24.0
Cash flow	12.5	17.7	27.1	33.9
ROCE	21.2%	16.8%	22.2%	26.7%
	1999	2000e	2001e	2002e
P/E	22.0	53.2	29.2	21.7
P/CF	14.7	29.1	19.3	15.4
Div. yield	2.5%	1.0%	1.4%	1.6%
EV/sales	1.4	2.9	2.3	2.0
EV/EBITDA	10.0	19.6	14.3	11.3

ginning of 2001. Construction started at the beginning of September 2000 and, with a total volume of € 5 million, is the largest capital investment project in the company's history.

Steadily rising share of technotrans products in printing machines

One of the forces driving growth is the constantly rising share of technotrans products in the composition of printing machines. In 1990, it stood at less than 1%. This year, it is likely to reach almost 2% thanks to products for dampening solution preparation, ink roller temperature control, coating preparation, ink supply, and spray dampening, and the company expects to reach 3% by 2005. This further increase will be made possible in part by the ink supply system for sheet-fed offset printing presses introduced at the Drupa and by the expected triumph of digital printing machines. A good example of this is the product Karat, introduced by König & Bauer at the Drupa. technotrans was involved in the four-year development of this machine from its inception. According to the management, the components supplied by technotrans account for about 5% of the value of the Karat, and hence more than twice as much as in the case of standard machines. technotrans is likewise involved in the new digital printing machines of market leader Heidelberger Druckmaschinen. A second growth factor is the concentration process going on among printing machine component suppliers. While a large number of them still directly supply printing machine manufacturers, a hierarchy of suppliers is emerging, analogous to the quite advanced trend in the automotive industry. In our estimation, technotrans will be at the top of the hierarchy as a systems supplier in the future. At the same time, good opportunities should arise for technotrans to make further acquisitions of smaller, technologically interesting businesses that would fall behind on their own in the hierarchy of industry suppliers.

Acquisition of Ryco (USA) assures world market leadership in spray dampening and improved access to the US market

technotrans has acquired Ryco Graphic, an American competitor, effective as of April 5, 2000. Ryco generated sales of about US \$ 15 million with 60 employees in 1999. It is the world's leading supplier of spray dampening and silicon coating equipment. technotrans developed a spray dampening system of its own in 1998. Ryco has established access to the US market (28% of the world market for printing machines), while technotrans has so far generated only 4% of sales in the USA. Given the prospect of improved market access for technotrans products via Ryco, appreciable synergy should be attainable. The same applies vice versa to Ryco products, which should experience an additional boost outside the USA from the technotrans distribution network. At the time of the acquisition, technotrans described Ryco as extremely profitable and held out the prospect of a positive contribution to group earnings after financing costs and goodwill amortization. The purchase price has not been specified, but mention has been made of a moderate valuation by American standards. Payment of the purchase price has been made in part by means of 60,000 technotrans shares from authorized capital. technotrans will depreciate the Goodwill over the comparably short period of 15 years.

Already a year earlier, technotrans initiated a breakthrough on the Japanese market by means of a distribution partnership with the Japanese firm Nikka Ltd. Still this year, technotrans wants to be represented on this important market with its own site for sales and service. On this market, too, technotrans is seeking market leadership in peripheral equipment for printing machines.

CD/DVD equipment: Sights firmly set on world market leadership

technotrans is on its way to world market leadership in the area of CD/DVD production equipment. By its own account, the company received nearly half of all projects awarded worldwide in the first half of 2000. The biggest competitor is the Dutch firm Toolex Alpha. This year, the market share of technotrans is expected to rise by 10% points to 35% while the share of Toolex is expected to fall from 50% to 40%. technotrans is focusing in the CD/DVD sector exclusively on the area of electroforming. This step involves the galvanic production of master CD/DVDs from which copies, i.e., the actual CD/DVD disks, are subsequently replicated. technotrans thus depends not on the absolute number of CD/DVDs produced, but rather on the number of different CD/DVDs, since a master CD/DVD must be produced first for each CD/DVD title. In view of the strongly increasing number of titles with falling average batch sizes, technotrans should thus benefit even more than proportionately from growth of the CD/DVD segments. According to Dataquest, the number of DVD players sold worldwide is expected to increase from 80 million in 1998 to 2.6 billion in 2003. With a current volume of the relevant market for electroforming of € 25 Mio, annual growth of 60% can be expected for the coming years.

In view of the necessary special know-how concerning the electroforming-process, sellers of CD/DVD production equipment increasingly tend to concentrate on the area of replication and to buy the electroforming equipment. This evidently also applies to Toolex Alpha. technotrans would presumably be very interested in buying Toolex Alpha's electroforming division, and we have the impression that negotiations to that end are under way with the Dutch firm. Acquiring the Toolex division would make technotrans by far the world's strongest supplier of electroforming equipment and give it the dominant position in a technologically sophisticated segment of CD/DVD equipment. The electroforming division of Toolex Alpha has sales of almost € 10 million and is profitable. On an assumed EBIT margin of 10%, the purchase price is likely to be on the order of € 5 million. technotrans pays about five to six times EBIT for acquisitions and is basically not prepared to pay strategic prices. Possibly, as in the case of the Ryco acquisition, the purchase price will be paid partly or fully in stock.

Balance sheet: Ryco acquisition having an impact, but no capital increase except for a major acquisition

The acquisition of Ryco in the first half of 2000 has had an appreciable impact on the technotrans balance sheet. The previously overcapitalized balance sheet has now normalized. Long-term capital only moderately exceeds noncurrent assets, and the equity ratio has fallen below 50% as of June 30, 2000. Intangible assets (goodwill) have increased to € 19.4 million. technotrans has chosen a relatively short amortization period of 15 years. On the whole, technotrans is able with its present capital resources to achieve internal growth targets for the coming years on its own. A relatively large acquisition, however, is likely to be financed with stock or by means of a capital increase for cash.

CD/DVD: Market position expanded again in the first half of 2000

The CD/DVD equipment division developed quite dynamically in the first half of this year. Sales increased by 109% to € 4.2 million, and division earnings skyrocketed by 285% to € 0.8 million. The company's market position thus expanded again. For the year as a whole, sales are likely to exceed € 10 million on expected growth of 120%.

technotrans: Development in the first half of 2000				
	Sales		Division earnings	
	EUR m	+/- %	EUR m	+/- %
Group	47,012	30.6%	4,692	-1.6%
Print division	35,525	22.7%	2,417	-34.1%
CD/DVD division	4,232	108.7%	0.831	284.7%
Services division	7,255	46.8%	1,126	49.7%
Other	0.000		0.318	133.8%
M.M.Warburg Investment Research				

Know-how in optical storage media opens up opportunities in other areas of application

With the know-how gained in the CD/DVD sector, technotrans is cultivating other areas of application. Production systems for microstructure technology are being developed, for example. Two systems have already been sold for medical applications. A huge future market may open up in the area of anti-reflection treatment of transparent media (glass and plastics). The anti-reflection treatment, for example, of automobile instrument panels is still being done at considerable expense. By applying a humanly invisible microstructure to transparent media, 100% anti-reflection can be achieved at comparatively low cost. Others potentials for the technotrans-technology, which basically links mechanics with electronics, are to be found in the glass fiber technology or the sensory sector, for example.

Services division growing along with core business, technotrans creating e-commerce platform for graphics industry

Supplementing its print and CD/DVD divisions, technotrans is expanding its services division, which is broken down into product-related services, Internet and e-commerce, and documentation. In product-related services, technotrans is more than twice as big as its next-largest competitor. The company is benefiting in this connection from the steadily rising base of installed technotrans systems, on the one hand, and from the growing trend toward services outsourcing by customers, on the other hand.

With Globalprint (www.globalprint.com), technotrans has implemented the leading Internet portal for the graphics industry. Globalprint functions primarily as a database for products and suppliers from the print industry and is to be expanded into a virtual marketplace. technotrans generates revenue with links and advertising. Globalprint currently has about 18,000 customers and is expected to start making profits in 2003.

Valuation: Revaluation phase not over yet, further significant valuation gaps relative to peer group

Despite impressive share price performance this year, the revaluation of technotrans is still not over, in our opinion. On average of the P/E ratios for the years 2000-2002, technotrans stock is still quoting at a discount of about 50% to peer companies. The valuations already take into account the steep price declines of LPKF and Steag Hamatech after disappointing figures for the first six months of 2000. Since technotrans is not a "pure play" in the true sense, with activities divided between print and CD/DVD, the market will presumably price in a discount on its fair value. In our estimation, this discount should be on the order of 10-20%. On a conservatively assumed "conglomerate discount" of 20%, one consequently arrives at a price target of € 200. Without the discount, the stock's price potential would extend as far as € 250.

Peer group

Neuer Markt engineering/technology			
P/E	2000e	2001e	2002e
Aixtron	274.5	167.8	107.9
LPKF	130	56.9	36.4
Pfeiffer Vacuum	22.8	17.8	15.5
Singulus	46.3	40.3	34.7
Steag Hamatech	103.6	27.8	17.3
Unweighted average	115.4	62.1	42.4
technotrans	53.2	29.2	21.7
technotrans discount	54%	53%	49%
Price target on valuation at peer group P/E			252.22

M.M.Warburg Investment Research

Outstanding market positions in print and CD/DVD based on core competence in liquids technology

In the mid-1980s, technotrans defined itself as a systems supplier for the printing press industry and focused on its core competence in liquids technology. Building on this know-how, the company has also been involved in the growth field of CD/DVD equipment since the mid-1990s. On the product side, technotrans relies on a high degree of standardization. Production is outsourced as far as possible to suppliers, leaving technotrans essentially only the assembly of components and modules. Because of the resulting low proportion of fixed costs, technotrans is relatively insensitive to unexpected sales fluctuations. In this connection, the company relies on evolved, stable supplier relationships, with one key supplier per product group. The supplier is closely involved in development, design, and logistics. By widely using just-in-time delivery, technotrans keeps its own inventories low.

With innovative products that have set technological standards in competition, technotrans has advanced to become the world's leading systems supplier to the print industry. The company's technological focus is on peripheral equipment used by the offset printing press industry for the areas of liquids technology and cooling. At the Drupa trade fair in May 2000, numerous innovations were presented, including new products for dampening solution preparation, ink roller temperature control, washing agent recycling, and ink supply.

Products in the print division:

Dampening solution preparation system: The offset process requires a specially treated process water to separate printing and non-printing spaces on the printing plate. Dampening solution preparation systems consist of dispensing devices for the addition of dampening solution, water, and isopropanol, a circulation system with tank and filtration, and an intervening cooler.

Ink roller temperature controllers: The viscosity of the printing inks varies with temperature. This causes changes in printing results. Ink roller temperature controllers supply tempering water to the rollers and ductors in the printing press in a circulating system. This ensures constant printing conditions.

Circulating devices for coating materials: Printed materials often receive a coating. technotrans offers a circulating device that automatically supplies the printing press with coating material. It keeps the material at a constant temperature and automatically carries out all control processes in operating and cleaning modes.

Ink supply systems: The technotrans automatic ink supply system permits fully automatic ink dispensing to sheet-fed offset printing presses by means of a plastic cartridge. Compared with earlier manual ink application, an ink saving of about 20% is achieved. Depending on the number of ink rollers, a sheet-fed offset press requires five to eight ink supply systems. Because of the printing press rationalization effect and considerable ink savings, many already installed sheet-fed offset presses are likely to be retrofitted with such ink supply systems.

Spray dampening systems: Spray dampening systems apply dampening solution to the printing rollers and improve printing quality. A more homogenous ink application is achieved thanks to a dispensing valve operating frequency that is several times higher than that of competing products.

Products in the CD/DVD division: Based on know-how in liquids technology, technotrans is setting standards with its CD/DVD equipment in the technologically sophisticated area of electroforming. The only significant competitor is the Dutch firm Toolex Alpha, whose systems cover the entire process of CD/DVD production, but whose core competence is not in elec-

troforming. Even in the case of complete Toolex Alpha systems, many customers demand technotrans equipment for electroforming. An acquisition of this line of business from Toolex Alpha would give technotrans a dominant position in the world market.

Electroforming equipment for CD/DVDs: The starting point for the production of CD/DVDs is the stamper, which is the blank for the entire CD/DVD production process. The quality of the finished CD/DVD depends on the quality of the stamper. The technotrans system, relying on liquids technology, produces the stamper by means of electroforming, a process of galvanic precipitation in a nickel electrolyte bath. This nickel stamper bears all the information needed for replication, i.e. actual production of the CD/DVDs. Before and after each electroforming process, the surface of the master and the copy must be wet-chemically treated. The quality of the ultrapure water used is crucial. The technotrans ultrapure water generation process incorporates state-of-the-art technology such as reverse osmosis and ultraviolet sterilization. The technotrans system very economically provides ultrapure water of the highest quality. technotrans is the first full-range supplier of waste-water recycling technology for CD/DVD electroforming systems.

Hamburg, Sept. 8, 2000

Eggert Kuls

technotrans

Technology

Price on September 08, 2000:

129.50

	1997	1998	1999	2000e	2001e	2002e
Income statement (in DM m)						
Sales	88.7	123.6	143.5	197.0	250.2	292.7
Production costs	-54.2	-73.4	-89.3	-120.2	-152.1	-175.5
Sales and administration costs	-13.5	-23.1	-27.4	-36.5	-45.0	-51.0
Research and development costs	-4.8	-6.8	-7.2	-9.9	-12.9	-15.2
Depreciation	-2.0	-3.4	-4.2	-8.0	-9.2	-9.9
Other operating income/expense	0.4	1.5	0.5	-1.1	0.8	0.9
EBITDA	16.6	21.7	20.1	29.3	41.0	51.9
EBIT	14.5	18.3	16.0	21.3	31.8	42.0
Financial income	-0.8	-0.7	-0.4	-1.6	-2.0	-2.0
Extraordinary income/expenses	-0.4	-3.1	0.0	0.0	0.0	0.0
Pre-tax profit	13.4	14.6	15.6	19.7	29.8	40.0
Income taxes	-6.3	-8.1	-7.3	-10.1	-11.9	-16.0
(Tax rate in %)	47%	56%	51%	51%	40%	40%
Net income	7.1	6.5	8.3	9.7	17.9	24.0
Growth (in %)						
	CAGR (5 Years)					
Sales	26.98%	23.4%	39.4%	16.1%	37.3%	27.0%
EBITDA	25.66%	44.4%	31.2%	-7.2%	45.7%	26.5%
EBIT	23.68%	46.6%	26.1%	-12.7%	33.4%	32.2%
Net income	26.69%	33.8%	-8.6%	28.2%	84.9%	34.4%
Cost ratios (in % of total operating performance)						
Production costs/Sales	61.1%	59.4%	62.2%	61.0%	60.8%	60.0%
Sales and administration costs/Sales	15.2%	18.7%	19.1%	18.5%	18.0%	17.4%
Depreciation/Sales	2.3%	2.8%	2.9%	4.1%	3.7%	3.4%
Cash flow (in DM m)						
Operating cash flow	9.7	11.5	12.1	18.5	28.3	35.1
Capital expenditure	2.6	17.2	9.1	30.0	8.0	10.0
Oper. free cash flow	1.9	-17.4	-4.8	-23.2	3.5	11.7
Cash flow	9.1	9.9	12.5	17.7	27.1	33.9
Returns (in %)						
EBITDA / sales	18.7%	17.6%	14.0%	14.9%	16.4%	17.7%
EBIT / sales	16.4%	14.8%	11.1%	10.8%	12.7%	14.3%
Pre-tax profit / sales	15.1%	11.8%	10.8%	10.0%	11.9%	13.7%
Net income / sales	8.3%	6.3%	5.8%	4.9%	7.1%	8.2%
Return on equity (net income / equity)	45.5%	12.8%	14.6%	14.7%	22.8%	25.2%
ROCE (EBIT/CE)	41.4%	30.3%	21.2%	16.8%	22.2%	26.7%
Balance sheet (in DM m)						
Property, plant and equipment	10	19	23	26	27	29
Financial assets	0	0	0	0	0	0
Working capital	24	36	44	62	79	92
Capital employed (CE)	35	60	75	127	143	157
Shareholders' equity	16	50	57	66	78	95
Equity ratio in %	43%	75%	73%	50%	52%	56%
Net debt	20	10	19	62	65	62
Gearing (in %)	127%	20%	33%	94%	83%	65%
Valuation						
EPS (EUR)*	1.88	2.00	2.12	2.43	4.43	5.95
CFPS (EUR)*	2.33	2.53	3.19	4.45	6.72	8.41
P/E		34.9	22.0	53.2	29.2	21.7
P/CF		27.6	14.7	29.1	19.3	15.4
Enterprise value in DM (EV)		283.7	201.4	575.7	586.5	583.5
EV / sales		2.29	1.40	2.92	2.34	1.99
EV / EBITDA		13.1	10.0	19.6	14.3	11.3
EV / EBIT		15.5	12.6	27.0	18.5	13.9
Number of shares, in m		2.00	2.00	2.03	2.06	2.06
Market capitalization, in EUR m		139.9	93.4	262.9	266.8	266.8

M.M.WARBURG INVESTMENT RESEARCH
Eggert Kuls, + 49 (0) 40 3282 2560