If the bonus calculation resulted in a negative amount for a particular period, the manager received no bonus. Negative amounts were not carried forward to the next period.

Exhibit 1 shows results for two representative HMI divisions for the year 2010, the first year under the new bonus plan. The Surgical Instruments Division (SID), one of HMI's original businesses, sold a variety of surgical instruments, including scissors, scalpels, retractors, and clamps. The markets for these products were mature, so growth was relatively slow. Not much innovation was needed, but controlling costs was critical. The Ultrasound Diagnostic Equipment Division (Ultrasound), which was acquired in 2007, sold and serviced ultrasound probes, transducers, and diagnostic imaging systems. The ultrasound market promised excellent growth and profits if the division could keep its sophisticated products on the cutting edge technologically and control both product development and production costs effectively.

In 2009, the total annual bonuses for the year earned by the managers of SID and Ultrasound were approximately £85,000 and £74,000, respectively.

This case was prepared by Professor Kenneth A. Merchant.

CASE STUDY
Superconductor Technologies, Inc.

In October 2003, Martin (Marty) McDermut, Senior VP, CFO, and Secretary of Superconductor Technologies, Inc. (STI), was reflecting on some issues related to his company's compensation and incentive systems. He had multiple concerns. Marty knew that STI's most important asset was its people, and he was worried about employee retention. STI's stock price was stuck far below its historical highs, so most of the options that had been granted to employees were "underwater." Without the prospects of significant rewards, some of the company's key people might be "ready to bolt." He wondered, "What can we do so that these things that we have put in place don't vanish?"

Marty also worried that some of the incentive system elements might motivate some behaviors that were not in the shareholders' best interest. One specific concern of this type was that top management would be too motivated to try to sell the company to cash in the large numbers of options that they had been granted. He sighed:

> **These things have tremendous motivational effects, but they can really get you in trouble if you don't think the issues all the way through.**

Company history and strategy

Superconductor Technologies, Inc. was founded in Santa Barbara, California, in 1987 by Nobel Prize winner Dr. J. Robert Schrieffer, who teamed up with three venture capitalists to form a company to capitalize on a scientific breakthrough known as high-temperature superconductivity (HTS) technology. In the mid-1990s, STI managers decided to focus their application of HTS technology on the wireless communications industry. In 1997, STI began the transformation to an operating company with the launch of its first commercial product, the SuperFilter®. M. Peter Thomas, a wireless-industry veteran, was hired as CEO.

By 2003, STI was the global leader in developing, manufacturing, and marketing HTS products for wireless communication networks. STI's products incorporated patented technologies that extended network coverage, increased capacity utilization, and improved both the uplink and downlink radio frequency signals, thus lowering the incidence of dropped and blocked calls. They also enabled higher wireless transmission data rates while reducing operators' capital and operating costs. Over 3,000 STI systems had been installed worldwide, making STI the clear leader in the HTS wireless network optimization technology marketplace. STI's successes stemmed largely from its technological developments, including patented thin-film technologies and unique software design and simulation tools. It planned to exploit its management, engineering, and manufacturing expertise to maintain and expand its market leadership in radio frequency enhancement solutions.

In 2003, STI, which had nearly 300 employees, was organized into two main operating entities. One was located in Sunnyvale, California, at the former site of Conductus, a company acquired in December 2002. People at the Sunnyvale location were primarily involved in research, some of which was funded by the federal government on a cost-plus basis. The other operating entity was located in Santa Barbara, California. Personnel at the Santa Barbara location were responsible for the company's commercial applications.

STI management looked at the year 2002 as a "watershed year," even though STI reported a net loss of $19.5 million that year (see financial statements in Exhibits 1 and2). The reason was the increased market acceptance of STI's products, which was expected to fuel further revenue growth and bring the company closer to profitability. In its entire 17-year history, STI had never made a profit. In 2002, STI also completed a multimillion-dollar expansion of its production facilities in Santa Barbara to ramp up production and further improve product quality.

Since 2001, STI revenues had grown quite rapidly. In 2003, revenues were expected to be nearly $50 million, up from $22 million in 2002. In both 2002 and 2003, STI was named one of the "Technology Fast 50" companies in the Los Angeles area.

STI was considered to be a consensus-driven company. As Marty McDermut phrased it, "People buy into our major decisions before we go ahead." Plans were developed on a bottom-up basis. Performance was reviewed monthly, and the forecasts for the remainder of the year were updated quarterly.

STI went public in March 1993 (NASDAQ: SCON), with 1.5 million shares offered at $10 per share. In an eight-week period in early 2000, STI's stock price shot up above $100, but it came down as quickly as it had risen. Most of the time since then, the stock had been trading below $5 per share (see Exhibit 3).

Still, STI's future looked bright. In 2003, approximately 150,000 wireless communications base stations were deployed in the United States alone, providing service to nearly 140 million people.[1] The number of US subscribers to mobile services had been growing at 14% per year, and the average monthly minutes of use per person was growing at an annual rate of 26%. The combined effect of more subscribers and more minutes of use resulted in an exponential increase in total wireless communications traffic. That growth was expected to continue, and the greater wireless traffic had also led to a rise in radio frequency interference, resulting in more dropped and blocked calls and origination failures, outcomes that negatively affect customer satisfaction. Consequently, the wireless operators had continuing needs to find new, cost-effective ways to increase network traffic while improving network performance. STI's products, which could be employed at a fraction of the cost of building more base stations, were designed to be part of the solution to the industry's delivery problems.

Elements of management compensation

The compensation package for STI's top 30 people, those down to the director level (one level below vice president), was comprised of three elements:

1. **Base salary.** STI set its salaries at competitive levels. For most employees, including top executives, annual salary increases were in the range of 0–5%.
2. **Cash bonuses.** All top STI executives were included in a bonus plan that provided cash awards based on

[1] The global numbers were nearly one million base stations serving more than one billion customers.

Table 1 Key elements of corporate "Performance Scorecard"

Cash	Number of employees
Sales	Warranty expenses
Profits	Inventory
Timing of sales	Yield
Receivables (days outstanding)	Gross margins
On-time delivery performance	Product reliability

the achievement of a weighted combination of corporate and individual objectives. The targeted bonus awards varied by organization level, from 25% to 40% of base salary.

Up through 2002, all bonuses were based exclusively on corporate performance. The compensation committee of the board of directors reached a judgment about corporate performance by comparing results measured in terms of the elements of a "performance scorecard" (see Table 1) with expectations.

The performance evaluation judgments did not automatically weight all the measurement elements equally in importance. Ken Barry, VP-Human Resources and Environmental Health & Safety, suspected that sales (revenue growth) was by far the most important criterion considered by the compensation committee. He postulated that the judgments about bonuses might come about as follows:

Let's see ... they met the revenue target; ... they didn't earn as much profit as we'd expected; ... but, they didn't have any major operational problems internally or externally, ... and they signed a big deal ... so, taken together, that probably warrants a bonus equal to potential for the year ...

Ken concluded that what it really came down to in normal years was for the compensation committee to decide whether to award a bonus at 80%, 100%, or 120% of the target bonus. Because the Board met with the key executives about four times a year, Ken believed that they had sufficient knowledge to make these bonus decisions, although the evaluations were undeniably subjective.

Before 2002, everyone received the same, undifferentiated bonus potential percentage. In 2002, however, the compensation committee concluded that some executives had performed better than others. They decided that these differences should be recognized by basing some of the bonus awards on individual performance. They decided to base the bonuses 75% on corporate performance and 25% on individual performance.

Each executive's individual performance was evaluated in terms of achievements in 4–9 performance areas tailored to the individual's areas of responsibility. Examples of achievements that were considered in the evaluations of specific individuals included:

- Successfully accomplish a project milestone;
- Reduce costs of products manufactured;
- Establish a needed line of credit;
- Maintain receivables at a level equal to or less than 28 days outstanding;
- Make significant new hires/retain valued employees;
- Maintain safe workplace (no lost-time accidents).

The evaluations of individual performance were linked to bonus awards as follows:

Evaluation	% of target bonus earned
Exceeded objectives	37.5
Met objectives	25
Partially missed objectives	12.5
Substantively missed objectives	0

When the compensation committee was not sure of its evaluations, they generally asked for more information or for an explanation from the "team leader," CEO Peter Thomas, before making the final call.

3. **Stock options.** Annually, almost all STI employees were given stock options. The purpose of the options was to promote the success, and enhance the value, of the company by linking the personal interests of participating employees to those of the company's stockholders and by providing such employees with an incentive for outstanding performance. The details of the stock option plan had been modified somewhat over the years, but all the options granted were 10-year options, and they vested over either four or five years.

The number of options granted varied depending on organization level, tenure, and individual performance. Lower-level employees were given only a few, perhaps only 200, options per year. Top management received thousands of options annually. Exhibits 3 and 4 provide detail on the option grants given to STI's top five executives.

Ken Barry estimated that in a normal year, about 10% of the workforce (30 employees, say) did not receive stock options, for one of three reasons, each of which explained the treatment of about 10 of the excluded employees. The first reason was because some employees did not meet performance expectations. Ken added, "By not meeting performance expectations I mean that we usually let these employees go within the next year." Second, some employees were not given the annual allotment of options for equity reasons. Some of them, for example, had recently received extra options because they had been promoted. And third, extra options were not provided to employees hired during the last quarter of the year.[2]

Implementation of the compensation plans

In 2001, STI failed to achieve its revenue plan by a narrow margin. All STI executives were given 80% of their target bonus.

The year 2002 was not a good one. STI did not come close to achieving its aggressive revenue plan. The STI plan was set at $32 million, and the actual revenues for 2002 were $22 million. In July 2002, management implemented a salary cut of 10% for the top 10 executives. At the end of the year, no bonuses were paid, and virtually all the options that had been granted previously were underwater.

In March 2003, STI's board approved a 2003 Equity Incentive Plan that reserved six million shares for issuance to key employees, directors, and consultants of the company. Two million of these shares were reserved for the top 20 executives. This plan replaced other stock option plans created in 1992, 1998, and 1999. It was designed both to help ensure that STI did not lose its key employees and to drive employees to focus on having the company become profitable. Becoming profitable was important because management wanted to raise more money, but they were told that would be difficult until and if the company started earning profits.

The 2003 Equity Incentive Plan provided 10-year options to be awarded on January 1, 2004, with "cliff vesting" after five years.[3] However, this plan also included a unique feature, a promise of accelerated vesting – 50% on January 1, 2004, and 50% on January 1, 2005 – if the company was profitable in the fourth quarter of 2003 and if the profits were judged to be sustainable.[4]

In January 2003, the executives whose salaries had been cut had their salaries reinstated to prior levels. They were not given back pay, however.

Issues for the future

Both Marty McDermut and Ken Barry raised issues about the incentive packages that STI should use in the future. If accounting rules regarding stock options were changed to require the immediate recording of the value of the options as an expense, as seemed likely to happen, should that cause the company either to discontinue the granting of options or to restrict their use, perhaps only for top executives? Should the company instead substitute restricted stock, or some combination of restricted stock and options? Marty did not think that the solution would be just to provide higher bonus payments because those payments would cause "a big hit to the P&L."

Particularly if the use of options was to be restricted, Ken Barry thought that the company would need more deferred compensation options, mechanisms that

[2] All employees were given stock options when they were first hired.

[3] That is, all the options would vest on January 1, 2009.

[4] Without the cliff vesting feature, the accelerated vesting in this plan would have had a significant accounting implication. The original fixed price options did not require the recording of any compensation expense because the options were granted at the market price at the time of grant (*Accounting Principles Board Statement 25, Accounting for Stock Issued to Employees*, October 1972). However, without the cliff vesting provision, a change in terms, in this case the acceleration of vesting, if it happened, would require STI to record compensation expense in accordance with the "variable method" (*FASB Interpretation 44, Accounting for Certain Transactions Involving Stock Compensation: An Interpretation of APB Opinion No. 25*, March 31, 2000). Under variable accounting, compensation expense is recognized based on the excess of the underlying stock's market price over the exercise price on the exercise date. Then, prior to the exercise date, compensation expense is estimated each period. It varies with the movement in the price of the company's stock in comparison to the exercise price. Therefore, if a company changes the terms of its stock option grants, it is subject to the uncertainty of how much compensation expense it will have to record, not only during the vesting period of the option, but until the option is actually exercised by the employee. If the company's stock performs well, the company will probably have to take a hit to earnings.

would allow the company to spread the employees' compensation over 5, 10, or even 15 years. Deferred compensation approaches had tax benefits for the employees, and they allowed the company to save cash during its most rapid growth period.

Related was a concern about the appropriate short-term/long-term balance of the incentive package. Should STI link the much desired annual profit objective more strongly with incentives, or should the company continue to be patient in its positioning of the firm for long-term success? Ken also was not sure whether the assignments of the rewards should be less subjective after the firm became profitable.

Ken had also started thinking about issues that the company would face when it expanded internationally. STI had no foreign employees as yet, but Ken knew that incentive approaches varied markedly around the world. He wanted to be prepared to give recommendations to management when and if the international expansion took place.

Exhibit 1 Superconductor Technologies, Inc.: Income statement data for years ending December 31 ($ millions)

	2002	2001	2000	1999	1998
Net sales or revenues	22.40	12.39	9.96	7.12	7.98
Cost of goods sold	17.36	8.49	13.92	5.54	10.79
Depreciation, depletion, and amortization	1.93	2.14	1.79	1.31	0.94
Gross income	**3.11**	**1.77**	**–5.75**	**0.27**	**–3.74**
Selling, general, & admin expenses	18.90	18.90	15.09	10.88	5.44
Other operating expenses	0.00	0.00	0.00	0.00	0.00
Other expenses – total	38.18	29.52	30.80	17.72	17.16
Operating income	–15.79	–17.13	–20.85	–10.60	–9.18
Extraordinary charge – pretax	3.80	0.98	0.13	0.00	0.00
Nonoperating interest income	0.22	1.05	0.81	0.02	0.08
Earnings before interest and taxes (EBIT)	**–19.37**	**–17.06**	**–20.17**	**–10.58**	**–9.10**
Interest expense on debt	0.15	0.15	0.48	0.30	0.06
Pretax income	–19.51	–17.20	–20.66	–10.88	–9.16
Income taxes	0.00	0.00	0.00	0.00	0.00
Net income before extra items/preferred div	**–19.51**	**–17.20**	**–20.66**	**–10.88**	**–9.16**
Extra items & gain(loss) sale of assets	0.00	0.00	–10.61	0.00	0.00
Net income before preferred dividends	–19.51	–17.20	–31.27	–10.88	–9.16
Preferred dividend requirements	1.76	2.60	2.20	1.36	0.27
Net income available to common	**–21.27**	**–19.80**	**–22.86**	**–12.24**	**–9.43**

Exhibit 2 Superconductor Technologies, Inc.: Balance sheet data for years ending December 31 ($ millions)

Assets	**2002**	**2001**	**2000**	**1999**	**1998**
Cash and ST investments	18.19	15.21	31.82	0.07	0.31
Receivables (net)	3.41	1.45	3.69	1.59	1.94
Total inventories	6.35	5.73	3.78	2.75	2.72
Raw materials	1.84	1.39	1.09	0.43	0.82
Work in progress	3.14	2.95	1.96	1.69	1.67
Finished goods	2.01	1.40	0.72	0.63	0.24
Progress payments & other	–0.65	0.00	0.00	0.00	0.00
Prepaid expenses	0.00	0.00	0.00	0.00	0.00
Other current assets	0.56	0.60	0.50	0.45	0.17
Current assets – total	28.50	22.98	39.79	4.85	5.14
Long-term receivables	0.82	0.00	0.00	0.00	0.00
Property, plant & equipment – net	11.09	5.22	4.99	4.10	5.11
Property, plant & equipment – gross	23.74	16.24	14.34	12.15	12.10
Accumulated depreciation	12.65	11.03	9.35	8.05	6.99
Other assets	25.74	1.96	1.98	2.14	2.25
Deferred charges	0.00	0.00	0.00	0.00	0.00
Tangible other assets	0.49	0.28	0.11	0.21	0.18
Intangible other assets	25.25	1.68	1.88	1.93	2.07
Total assets	**66.15**	**30.16**	**46.76**	**11.09**	**12.51**
Liabilities & shareholders equity					
Accounts payable	5.89	2.70	2.00	1.80	2.40
ST debt & current portion of LT debt	1.55	0.28	0.24	2.16	0.81
Accrued payroll	1.05	0.84	0.90	0.67	0.58
Income taxes payable	0.00	0.00	0.00	0.00	0.00
Dividends payable	0.00	0.00	0.00	0.00	0.00
Other current liabilities	3.50	0.41	0.46	0.24	0.00
Current liabilities – total	12.00	4.23	3.60	4.87	3.79
Long-term debt	0.57	0.27	0.51	0.75	0.93
Other liabilities	3.23	2.00	4.24	0.00	0.00
Total liabilities	**15.80**	**6.50**	**8.35**	**5.62**	**4.72**
Preferred stock	0.00	37.53	0.00	20.34	8.98
Common equity	50.34	–13.87	38.41	–14.87	–1.20
Common stock	0.06	0.02	0.02	0.01	0.01
Capital surplus	154.74	73.34	110.65	32.21	35.01
Other appropriated reserves	0.00	–2.28	–4.52	0.00	0.00
Retained earnings	–104.46	–84.95	–67.75	–47.09	–36.22
Total liabilities & shareholders equity	**66.15**	**30.16**	**46.76**	**11.09**	**12.51**
Common shares outstanding (thousands)	59,823.55	18,579.16	17,823.16	7,739.22	7,722.59

Exhibit 3 Superconductor Technologies, Inc.: Stock performance Copyright 2003 Yahoo! Inc. http://finance.yahoo.com/

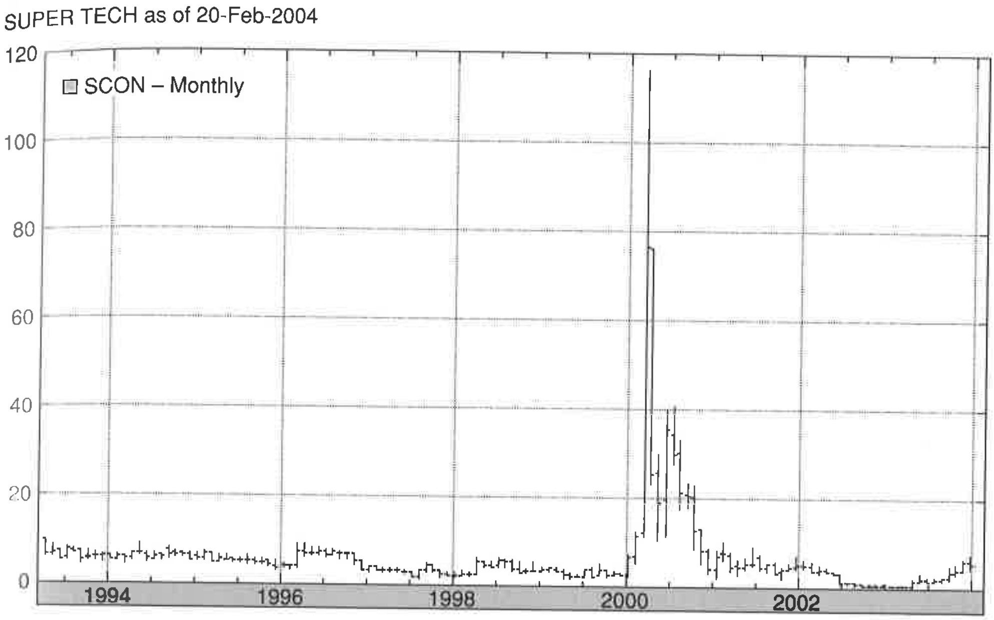

Exhibit 4 Superconductor Technologies, Inc.: Executive officer compensation

The following table sets forth all compensation received for services rendered to the Company in all capacities during the fiscal years ended December 31, 2002, 2001, and 2000 by the Company's Chief Executive Officer and the four executive officers other than the Chief Executive Officer whose total salary and bonus for fiscal year 2002 exceeded $100,000.

		Annual compensation			Long-term compensation	
Name and principal position	**Year**	**Salary ($)**	**Bonus ($)**	**Other ($)[1]**	**Securities underlying options (#)**	**All other compensation ($)[2]**
M. Peter Thomas	2002	303,854	–	–	125,000	1,980
President and Chief	2001	300,014	72,000	–	75,000	2,323
Executive Officer	2000	285,394	70,000	–	250,000	1,290
E. Ray Cotten	2002	194,997	–	–	57,750	6,180
Senior Vice President,	2001	209,467	30,172	–	7,300	7,250
Business Development	2000	195,582	28,080	–	20,000	3,810
Robert B. Hammond	2002	208,394	–	–	57,750	690
Senior Vice President and	2001	205,945	29,628	–	3,650	809
Chief Technical Officer	2000	194,613	27,675	–	40,000	690
Robert L. Johnson[4]	2002	186,267	–	–	66,000	690
President, STI Wireless	2001	182,163	26,244	–	38,350	809
Systems, North America	2000	116,462[4]	20,048	–	100,000	504
Martin S. McDermut[5]	2002	194,961	–	–	43,750	690
Senior Vice President,	2001	193,895	23,310	–	43,750	809
Chief Financial Officer and Secretary	2000	167,212[5]	24,975	43,374[3]	100,000	398
Charles E. Shalvoy[6]	2002	277,052	–	–	–	–
President and CEO	2001	264,992	56,644	–	153,000	–[7]
of Conductus	2000	250,185	66,250	–	200,000	–

[1]Excludes certain perquisites and other amounts that, for any executive officer, in the aggregate did not exceed the lesser of $50,000 or 10% of the total annual salary and bonus for such executive officer.
[2]Term life insurance premiums.
[3]One-time relocation expenses.
[4]Mr. Johnson joined the Company in April 2000.
[5]Mr. McDermut joined the Company in February 2000.
[6]Mr. Shalvoy joined the Company in December 2002. All compensation paid by Conductus prior to acquisition of Conductus by the Company. Mr. Shalvoy is the President of the Conductus subsidiary and an Executive Vice President of Superconductor Technologies, Inc.
[7]Because Conductus provided group term life insurance for its employees and named executive officers on an aggregate basis, Conductus is unable to determine the amount of term life insurance premiums paid by Conductus for Mr. Shalvoy during the 2002, 2001, and 2000 fiscal years.

Source: *STI Proxy Statement*, May 23, 2003

Exhibit 5 Superconductor Technologies, Inc.: Option grants to executives in 2002

The following table sets forth certain information regarding stock options granted during the fiscal year ended December 31, 2002, to each of the executive officers named in the table under "Executive Officer Compensation – Summary Compensation Table."

	Individual grants				Potential realizable value at assumed annual rates of stock price appreciation for option term[3]	
Name	**Number of securities underlying options granted[1]**	**% of Total Options granted to employees in fiscal year[2]**	**Exercise price ($/share)**	**Expiration date**	**5% ($)**	**10% ($)**
M. Peter Thomas	125,000	15%	5.60	2/4/2012	385,930	950,563
E. Ray Cotten	57,750	7%	5.60	2/4/2012	178,300	439,160
Robert B. Hammond	57,750	7%	5.23	1/23/2012	178,300	439,160
Robert L. Johnson	66,000	8%	5.23	1/23/2012	190,307	468,736
Martin S. McDermut	43,750	5%	5.23	1/23/2012	126,151	310,715
Charles E. Shalvoy[4]	–	–	–	–	–	–

[1]Except as set forth herein, each option vests over a four-year period at the rate of $^1/_4$th of the shares subject to the option at the end of the first 12 months and $^1/_{36}$ the of the remaining shares subject to the option at the end of each monthly period thereafter so long as such optionee's employment with the Company has not terminated.

[2]Total number of shares subject to options granted to employees in fiscal 2002 was 851,975, which number includes options granted to employee directors, but excludes options granted to nonemployee directors and consultants.

[3]The Potential Realizable Value is calculated based on the fair market value on the date of grant, which is equal to the exercise price of options granted in fiscal 2002, assuming that the stock appreciates in value from the date of grant until the end of the option term at the compounded annual rate specified (5% and 10%). Potential Realizable Value is net of the option exercise price. The assumed rates of appreciation are specified in rules of the SEC and do not represent the Company's estimate or projection of future stock price. Actual gains, if any, resulting from stock option exercises and common stock holdings are dependent on the future performance of the common stock and overall stock market conditions, as well as the option holders' continued employment through the exercise/vesting period. There can be no assurance that the amounts reflected in this table will be achieved.

[4]Mr. Shalvoy joined the Company in December 2002 and did not receive any options from the Company in 2002, although he did receive options from Conductus in 2002 prior to the acquisition.

Source: *STI Proxy Statement*, May 23, 2003.

This case was prepared by Professors Kenneth A. Merchant and Wim A. Van der Stede.