Case 33

Piping Plus

Curly, Maureen (Mo to her friends), and Larry founded CML Mechanical Engineers nearly ten years ago. The firm has grown substantially, and it now employs 28 engineers. CML emphasizes industrial and commercial work related to the construction of facilities. For example, they have designed heating and ventilation systems for factories and shopping malls, piping for refineries and chemical plants, and even a treatment facility for oil tanker ballast water. Obviously, they have undertaken many other jobs over the years, but these represent their market niche.

When CML first started business, most of the work was subcontracts for heating and ventilation systems for individual buildings. The jobs are now larger, more complex, and technically far more sophisticated, but CML still generally works as a subcontractor to another design firm. None of the founders, who are still the owners, want to diversify into other branches of engineering or into more general construction or into project management. They enjoy being in close contact with the technical details, even though they do relatively little design work themselves.

Virtually all of the analysis and technical drawings are done with an ever-increasing array of software packages. However, there are beginning to be problems in interfacing with the project management software used by some of their clients. Furthermore, they would like to link the firm’s accounting and time tracking and billing software with the firm’s software for design, drawing, and project management.

They believe that this integration will allow automatic tracking of time spent on work packages, progress on contracts, and billing breakdowns by project type, client, and employee. This will in turn support more accurate estimating for bidding on future work.

It appears that software packages costing about $25,000 initially are needed, and then there would be a 15% annual fee. This fee covers service, answering questions, and periodic updates. Another $30,000 would be needed for a contract with a software integration firm. Initial training of the firm's employees is estimated at $12,000, and about one-sixth of that as an annual expense. From looking at their history of software usage, they estimate that the life of this "generation" of software will be about 5 years.

Curly was assigned the job of estimating the value of having the integrated software, while Mo and Larry examined possible sources of financing. Should the firm get the software? If so, use their three memos and the firm's financial statements to define an acquisition plan. This plan should identify the timing of the purchases and the source of funds for the purchase. What is the rate of return of your proposal?

Suggestion to the Student

If enough jobs are lost, the firm may have to shrink; but the danger of this can be judged by comparing lost billings to annual billings. The income statement can also be used to estimate the average contribution to profit and overhead from billed projects.

To: Mo & Larry
From: Curly
About: Projected Financial Impact of Integrating Data Flow between Packages

Last year we lost four jobs with estimated billing of $45,000 because we could not meet client data flow expectations. We bid on and received jobs that covered 60% of these potential billings, and we were only out-of-pocket about $6000 in unbillable wages. Even this time was productively spent on an internal short course on changes in OSHA standards.

I'm guessing, but I expect to lose two more jobs each year that we are without the integrating software. It will also become increasingly difficult to obtain other work. I would guess that a 10% to 20% drop in replacement billings would occur each year. Thus, next year I would expect 6 jobs to be lost, and that we would only be able to replace 40% to 50% of the billings.

Since we do not really want to expand, I've not analyzed this as a problem in attracting new business. But we certainly do not want to reduce the scope of our operations, so I believe we should purchase the software.

To: Curly & Larry
From: Mo
About: Alternative Financing of Possible Software Purchases

We all know that we've cut our margins to the bone on last year's bids. I still believe this was the right response to the downturn in construction in our part of the oil patch. We have managed to stay busy, but last year's profits and this year's projections are essentially zero. If it weren't for the payments on our building and the depreciation on it, both our cash flow and profit pictures would improve.

You know I hate to borrow money, so that only leaves me with the option of bringing new stock into the business. We could attempt to bring in a fourth partner, but I would rather sell stock to some of our principal engineers and maybe even other long-term employees.

Such a plan cannot be set up as profit sharing—we have none to share. Thus the most reasonable approach I see is that qualified employees (maybe everybody) be allowed to take part of their pay as stock. Then CML would match on a one-for-four basis. Thus someone who set aside $2000 in income over the year would be credited with $2500 in stock at the end of the year.

I would guess that about half of the 40 employees would participate, although most would only make minimal contributions—at least at the beginning. They might average $100 to $200 each per month at the beginning. Thus, this plan could generate as much as $4000 per month.

As I've thought about this idea I have become enthused because of the non-financial possibilities. If we could tie our best engineers into the long-term success of the firm, there might be less turnover. We do not have a serious problem. But, like the other design firms, we seem to keep our engineers for only two or three years (in most cases). I'd also like to reward people like Marcie who have been with us since the beginning.

Thus, if this is set up as a share-the-reward and share-the-risk plan, I feel it can improve both morale and productivity. At the same time, it should allow us to buy the new software, as well as providing a structure to lower our costs if business gets even worse.

To: Curly & Mo
From: Larry
About: Bank Financing for the Software Programs

The people at First Loutex have lots of faith in our ability to pay back any loans, but money is tight right now—so they want a pretty steep interest rate. They're also concerned about satisfying the auditors that any loans are sound. Consequently, they will probably insist that we use our equity in the building as collateral for any loan with a term over three years.

We could switch to a new bank, but we know and like them and they know and trust us. It's just that with all the bad energy loans floating around and uncertainty in real estate, they have to be very cautious now. Maybe they'd relent some if we pushed, but I just don't know.

Anyhow, they offered us up to $70,000 at 15% over three years or less. If we want more than three years, it'll cost us an extra $4500 in fees for securing the loan with our share of the building. They also want another 1% in interest.

I've attached in Tables 33-1 & 33-2 the income statement and balance sheet from last year.

Table 33-1 CML Income Statement

INCOME STATEMENT	Year Ended December 31	
	Last	**Current**
Billings	$4,850,000	$4,820,000
Billable salaries	3,010,000	3,120,000
Gross Profit	1,840,000	1,700,000
Selling, general, and administrative expenses	1,250,000	1,230,000
Operating Profit	590,000	470,000
Depreciation Expense	(580,000)	(525,000)
Profit Before Taxes	10,000	(55,000)
Taxes on income	4,000	0
Net Profit	$ 6,000	$ (55,000)

Table 33-2 CML Balance Sheet

BALANCE SHEET		**As of December 31**
Assets	**Last Year**	**Current Year**
Current Assets		
Cash	$ 200,000	$ 180,000
Marketable securities	50,000	50,000
Accounts receivable	1,390,000	1,440,000
Inventory	50,000	100,000
Prepaid expenses	20,000	25,000
Total current assets	$ 1,710,000	$ 1,795,000
Property, plant, and equipment	4,350,000	4,800,000
less: Accumulated depreciation	1,760,000	2,380,000
	$ 2,590,000	$ 2,420,000
Total assets	$ 4,300,000	$ 4,215,000
Liabilities and Owner's Equity		
Current liabilities		
Accounts payable	$520,000	$540,000
Taxes payable	80,000	85,000
Bank loan payable	80,000	75,000
Other payables	80,000	130,000
Total current liabilities	740,000	830,000
Mortgage payable (interest at 9%)	1,320,000	1,200,000
Capital stock plus paid-in capital (140,000 shares outstanding)	1,400,000	1,400,000
Retained earnings	840,000	785,000
Total liabilities and owners' equity	$4,300,000	$4,215,000