

ASSUMPTIONS ABOUT THE "SME Ltd." HYPOTHETICAL COMPANY

Revenue	\$4,000,000	
Profit	\$200,000	5% of Revenue
Employee Population	50	
Employees	43	
Managers	7	
Average Employee Salary	\$25,000	
Average Manager Salary	\$55,000	

In the following worksheets, assumptions used in the calculations which are not obviously explicit are shown with this notation:

(Assumption: ...)

Most cells are calculated internally, but all are changeable.

The cells with the most critical assumptions are highlighted.

<u>EDUCATION INVESTMENT REQUIRED TO ACHIEVE BENEFITS</u>		
Costs for One Day of Education for the Whole Company		
Cost to develop and deliver the education		\$17,500
(Assumption: Whole company receives the education	50	
times the cost to develop and deliver one day)	\$350	
Cost of lost productivity of an employee while on course		\$2,945
(Assumption: Annual salary / 365	\$68	
times the number of employees)	43	
Cost of lost productivity of a manager while on course		\$1,055
(Assumption: Annual salary / 365	\$151	
times the number of managers)	7	
Total cost of one day of education for the whole company		\$21,500
Annual Cost of Sustainability Education		
Year 1		\$43,000
Year 2		\$21,500
Year 3		\$21,500
Year 4		\$21,500
Year 5		\$21,500

Cost of 5-year investment in sustainability education		\$129,000
NPV of 5-year investment in education		\$110,849
<i>(Assumption: Internal cost of money)</i>	6%	

REDUCED UTILITY, MATERIALS, AND WASTE COSTS

Simple, Ball-Park Calculations

Company revenue		\$4,000,000
Savings on UTILITIES, MATERIALS, and WASTE		\$40,000
<i>(Assumption: Savings equal 1-3% of revenue)</i>	1%	
<i>Benefit expressed as a percent of overall revenue</i>		1%

... OR ...

Company revenue		\$4,000,000
Utility, materials, and waste costs		\$400,000
<i>(Assumption: Costs as a percent of revenue)</i>	10%	
Savings on UTILITIES, MATERIALS, and WASTE		\$40,000
<i>(Assumption: Percent of expenses saved)</i>	10%	
<i>Benefit expressed as a percent of overall revenue</i>		1%

Checklist For a More Detailed Calculation

Savings on ELECTRICITY used for LIGHTING

	<i>Annual Qty. Today</i>	<i>Annual Cost Today</i>	<i>Potential Savings (%)</i>	<i>Potential Savings (\$)</i>
Install occupant sensors for lights in seldomly used areas			30%	
Use photo sensors or timers for outdoor lighting				
Use compact fluorescent light bulbs (CFLs)			75%	
Convert to from T12 to T8 fluorescent light fixtures			25%	

Use aluminum reflectors in fluorescent fixtures
Use task lighting
Reduce lighting in over-lit rooms
Turn off indoor lights at night
Use LEDs for exit lights and decorative lights
Increase use of daylighting
Other ,,,?

95%

Savings on ELECTRICITY used for APPLIANCES & EQUIPMENT

Turn off computers, copiers, appliances after work
Convert to Energy Star® appliances
Locate refrigerators and freezers in cool areas
Consider deferring use to off-peak hours
Generate power on-site (co-generation, solar, wind)
Sell excess electricity back to the grid
Install energy-efficient pumping motors
Consider more efficient distribution transformers
Use thicker electrical wires
Other ...?

Savings on FUEL used for HEATING & COOLING

Close entrance doors and windows when heating
Clean radiators and baseboard heaters

Change furnace filters regularly	
Use eco-efficient, right-sized fan and HVAC systems	
Ensure HVAC system use is monitored and controlled	
Maximize ventilation with a heat exchanger	
Install reversible ceiling fans, to heat and cool	
Use programmable thermostats	
Install plastic insulating sheets on windows	
Use shades and awnings	
Plant trees to shade buildings	40%
Plug drafty openings and electrical outlets	
Increase ceiling insulation and weatherstripping	
Install double-paned or "super" windows	
Insulate hot water tanks and pipes; lower thermostat	
Tap into district heating, if available	10%
Install a passive solar hot water heater	35%
Install a solar wall	
Other ...?	

Savings of FUEL used in TRANSPORTATION

- Use fuel-efficient vehicles
- Consider using compressed natural gas (CNG)
- Keep the vehicles tuned and tires at correct pressure.
- Keep a log of fuel consumption for each vehicle
- Discourage idling on deliveries

Improve route planning
Use rail instead of trucks or air freight whenever possible
Enable employee use of public transit and carpooling.
Consider planting trees to offset carbon dioxide emissions
Use teleconferencing instead of business travel
Other ...?

Savings from WATER CONSERVATION

Install aerators on taps
Install spring-loaded turn-off valves
Fix dripping taps
Install low-flow shower heads
Install low-flow toilets or toilet dams 50%
Use rain water in industrial processes
Landscape using native plants that require less water
Redesign inefficient rinse systems
Use low-pressure water instead of high-pressure
Consider closed-loop water treatment
Consider "living machine" water treatment
Other ...?

Savings on improved WASTE HANDLING

Redesign processes to be more efficient

Substitute benign materials for hazardous ones
Reduce monitoring & reporting costs if do the above
Reduce amount of material used per product
Reuse materials, solvents, chemicals, and packaging
Recycle materials at end-of-life
Sort and sell paper, glass, metal and organics
Reduce cost of hazardous waste disposal
Reduce cost of non-hazardous waste disposal
Use double-sided photocopying
Require suppliers to take back their packaging
Use reusable kitchen cutlery, plates, cups, etc.
Use reusable manila envelopes and file folders
Return printer cartridges
Use rechargeable batteries
Centralize paper filing
Donate old equipment and furniture to charities
Remove the company from unwanted mailing lists
Buy products with high recycled content
Take-back your own products after their end-of-life
Other ...?

ATTRACTING AND HIRING THE BEST TALENT

Cost of Recruiting a New Person

External advertising or internal job posting cost		\$1,000
Candidate screening costs		\$100
Interviewing costs ... preparation, interviews, follow-up		\$260
<i>(Assumption: Hours spent on interviewing activity)</i>	10	
Offer and hiring costs		\$100

Total cost of recruiting a new person **\$1,460**

Savings on Recruiting Costs

Normal cost of recruiting each new hire		\$1,460
x Number of new hires per year		5
<i>(Assumption: Percent of company workforce hired)</i>	10%	
Total Recruiting Costs		\$7,302
x Percent that will be attracted by sustainability image	20%	
x Percent reduction in recruiting costs for those attracted by company's sustainability image	5%	

Annual savings on RECRUITING costs **\$73**

Percent savings in Recruiting Costs 1%

RETAINING THE BEST TALENT

Assumptions Used To Estimate the Cost of Losing a Good Person

The person's years of service with the company		5 years
"Decide Time" while the person, privately, decides to leave		1 month
"Save Attempt Time" while management tries to save the good person		0.5 months
"Vacant Time" when the position is vacant		2 months
"New Hire Training Time" for the new hire, by the company		0.5 months
"Department Training Time" for the new person		6 months
Monthly cost of an employee		\$2,083
Monthly cost of a manager		\$4,583

Cost of Losing of a Good Person

Person's lost productivity during Decide Time		\$1,042
<i>(Assumption: Person's percent lost productivity during Decide Time)</i>	50%	
Managerial lost productivity during Save Attempt Time		\$573
<i>(Assumption: Manager's percent lost productivity during Decide Time)</i>	25%	
Person's lost productivity during Save Attempt Time		\$521
<i>(Assumption: Person's percent lost productivity during Save Attempt Time)</i>	50%	
Payroll and benefits administration		\$95
<i>(Assumption: Equivalent days of an employee's time)</i>	1	
Separation allowance		\$5,729
<i>(Assumption: Number of weeks' pay)</i>	11	

Lost knowledge, experience, and contacts <i>(Assumption: Percent of salary for 1st year employed plus additional percent for each subsequent year)</i>	50% 10%	\$22,500
Lost training invested in the employee <i>(Assumption: Number of days for 1st year employed plus additional days for each subsequent year)</i>	10 3	\$7,700
Lost customer revenue during Vacant Time <i>(Assumption: Person's share of monthly company revenue times Vacant Time divided by credibility factor)</i>	\$6,667 2 2	\$6,667
Lost department productivity during Save Attempt and Vacant Times <i>(Assumption: Percent of productivity lost by others times number of others affected)</i>	10% 5	\$2,604
Lost productivity in back-filling person's own work during Vacant Time <i>(Assumption: Percent of productivity lost by back-filling person)</i>	25%	\$1,042
Lost productivity of manager during Vacant Time <i>(Assumption: Percent of productivity lost by manager)</i>	10%	\$917
Lost productivity in person's job during Vacant Time <i>(Assumption: Percent of productivity lost, despite help from others)</i>	50%	\$2,083
Savings of person's salary while job is vacant		-\$4,167
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Total cost of loss of a good person		\$47,305

Total cost of recruiting a new person

\$1,460 See Hiring sl

Cost of On-Boarding and Training a New Hire

Setting up personnel records, system ids, etc. <i>(Assumption: Equivalent days of an employee's time)</i>	1	\$95
New hire training - Cost to company to deliver it <i>(Assumption: Cost per day of training times number of days of company training)</i>	\$350 2	\$700
New hire's own lost productivity during new hire training <i>(Assumption: Percent of productivity lost)</i>	100%	\$1,042
Lost productivity of back-filling person's work during new hire training <i>(Assumption: Percent of productivity lost)</i>	25%	\$260
Lost productivity of manager during new hire training <i>(Assumption: Percent of productivity lost)</i>	10%	\$229
Lost productivity in person's job during new hire training <i>(Assumption: Percent of productivity lost)</i>	50%	\$521
Cost to deliver formal department training <i>(Assumption: Cost per day of training times number of days of department training)</i>	\$350 1	\$350
New hire's own lost productivity during formal department training <i>(Assumption: Percent of productivity lost)</i>	100%	\$95
Lost productivity of back-filling person during formal department training <i>(Assumption: Percent of productivity lost)</i>	25%	\$24
Lost productivity of manager during formal department training <i>(Assumption: Percent of productivity lost)</i>	10%	\$9
Lost productivity in person's job during formal department training		\$47

<i>(Assumption: Percent of productivity lost)</i>	50%	
Buddy's lost productivity in own work during informal training		\$1,250
<i>(Assumption: Percent of productivity lost</i>	10%	
<i>times number of months of informal training)</i>	6	
Employee's lost productivity during informal training		\$6,250
<i>(Assumption: Percent of productivity lost</i>	50%	
<i>times number of months of informal training)</i>	6	

Total cost of on-boarding and training a new hire **\$10,872**

Cost of Losing and Replacing One Good Employee

Total cost of loss of a good person		\$47,305
Total cost of recruiting a new person		\$1,460
Total cost of on-boarding and training a new hire		\$10,872

Cost of losing & replacing one good employee **\$59,638**

Number of employees who leave each year		5
<i>(Assumption: Percent of employee population who leave)</i>	10%	
<i>x Number of good employees lost each year</i>		1
<i>(Assumption: Percent of employees who leave whom we want to retain)</i>	10%	

Annual cost of losing and replacing good employees \$29,819

x Percent of these who would not leave if they were attracted to the company's sustainability initiatives

20%

Annual savings from higher RETENTION rate

\$5,964

Overall cost of attrition

298,188

Percent savings of overall cost of attrition

2%

heet

INCREASED PRODUCTIVITY

Increased Productivity of Individual Employees

		Average
Total number of employees	50	
x Percent who will be energized by the company's sustainability initiatives	20%	
x Percent increased productivity from their increased commitment	10%	2.0%
x Average employee's annual salary	\$25,000	

Benefit of increased productivity from INDIVIDUALS	\$25,000	

Increased Productivity from Improved Teamwork Among Departments

Total number of employees	50	
x Percent increased productivity from interdepartmental teamwork	2%	2.0%
x Average employee's annual salary	\$25,000	

Benefit of increased productivity from improved TEAMWORK	\$25,000	

Increased Productivity from Improved Working Environment

Total number of employees	50	
x Percent of employees whose working conditions are improved	20%	
x Percent increased productivity from improved working environment	10%	2.0%
x Average employee's annual salary	\$25,000	

Benefit of increased productivity from improved WORKING ENVIRONMENT	\$25,000	

Total Benefit of Increased PRODUCTIVITY ...

Benefit of increased productivity from INDIVIDUALS	\$25,000	
Benefit of increased productivity from improved TEAMWORK	\$25,000	
Benefit of increased productivity from improved WORKING ENVIRONMENT	\$25,000	
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Annual benefit of increased PRODUCTIVITY	\$75,000	6.0%
Number of full-time equivalent (FTE) employees	3.0	

INCREASED REVENUE AND MARKET SHARE

Simple, Macro-level Calculation

Total revenue today		\$4,000,000
Potential revenue increase because of sustainability initiatives	5%	
Increased REVENUE from sustainability initiatives		\$200,000
Increased PROFIT from sustainability initiatives		\$10,000
<i>(Assumption: Percent of today's revenue that flows to profit)</i>	5%	

Checklist For a More Detailed Calculation

- Percent of increased mind share of "green" consumers
 - x Percent of historic markets share increase per percent of mind share
 - x Percent of historic revenue per percent of market share
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Increased revenue from new "green" customers

- + Increased revenue from more loyal customers**
- + Increased revenue from new markets**
- + Increased revenue from selling services vs. products**
- + Increased revenue from leasing vs. selling products**

+ Increased revenue from environmental services

Total increased new revenue

REDUCED RISK

Simple, Ball-park Calculation

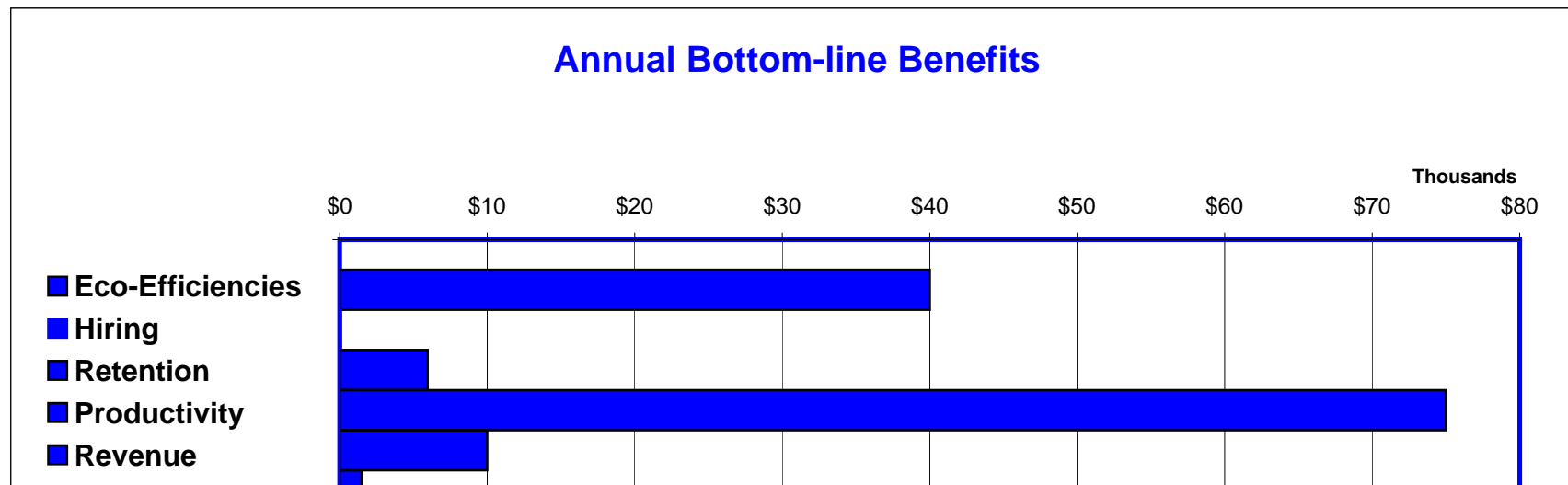
Total revenue today		\$4,000,000
Selling, general, and administrative (SG&A) expenses <i>(Assumption: SG&A percent of total revenue)</i>	15%	\$600,000
Part of SG&A expenses associated with risk <i>(Assumption: Percent of risk-related SG&A expenses)</i>	5%	\$30,000
Expense reductions from REDUCED RISKS		\$1,500
<i>(Assumption: Percent of risk-related SG&A expenses saved)</i>	5%	
<i>Benefit expressed as a percent of overall revenue</i>		0.04%

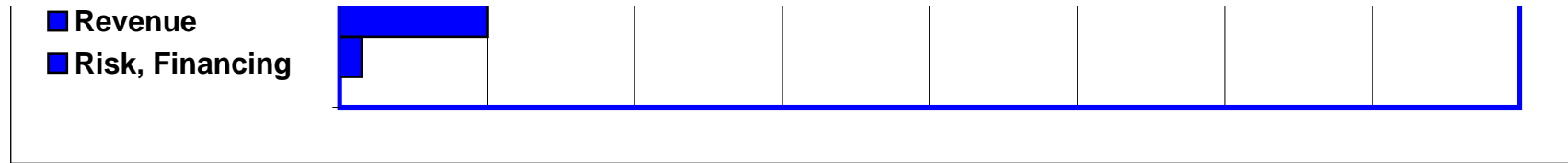
TOTAL BOTTOM-LINE BENEFIT

Totals from Seven Benefit Areas

	Annual Savings and Increased Revenue	Annual Profit Increase
Savings on UTILITIES, MATERIALS, and WASTE	\$40,000	\$40,000
Annual savings on RECRUITING costs	\$73	\$73
Annual savings from higher RETENTION rate	\$5,964	\$5,964
Annual benefit of increased PRODUCTIVITY	\$75,000	\$75,000
Increased REVENUE	\$200,000	\$10,000
Expense reductions from REDUCED RISKS	\$1,500	\$1,500

TOTAL	\$282,537	\$132,537
Percent of previous year's profits		66%
<i>(Assumption: Profit in previous year)</i>		\$200,000





Benefits Obtained Over Five Years	% of Benefit	Gross Benefit	- Education Investment	Net Benefit	IRR on Educ'n Invest't
Year 1	30%	\$84,761	\$43,000	\$41,761	97%
Year 2	50%	\$141,268	\$21,500	\$119,768	557%
Year 3	70%	\$197,776	\$21,500	\$176,276	820%
Year 4	90%	\$254,283	\$21,500	\$232,783	1083%
Year 5	100%	\$282,537	\$21,500	\$261,037	1214%
Total net benefit over 5 years				\$831,625	
NPV of 5-year investment in education <i>(Assumption: Internal cost of money)</i>				\$673,443	
	6%				