

Finance 101

Intro

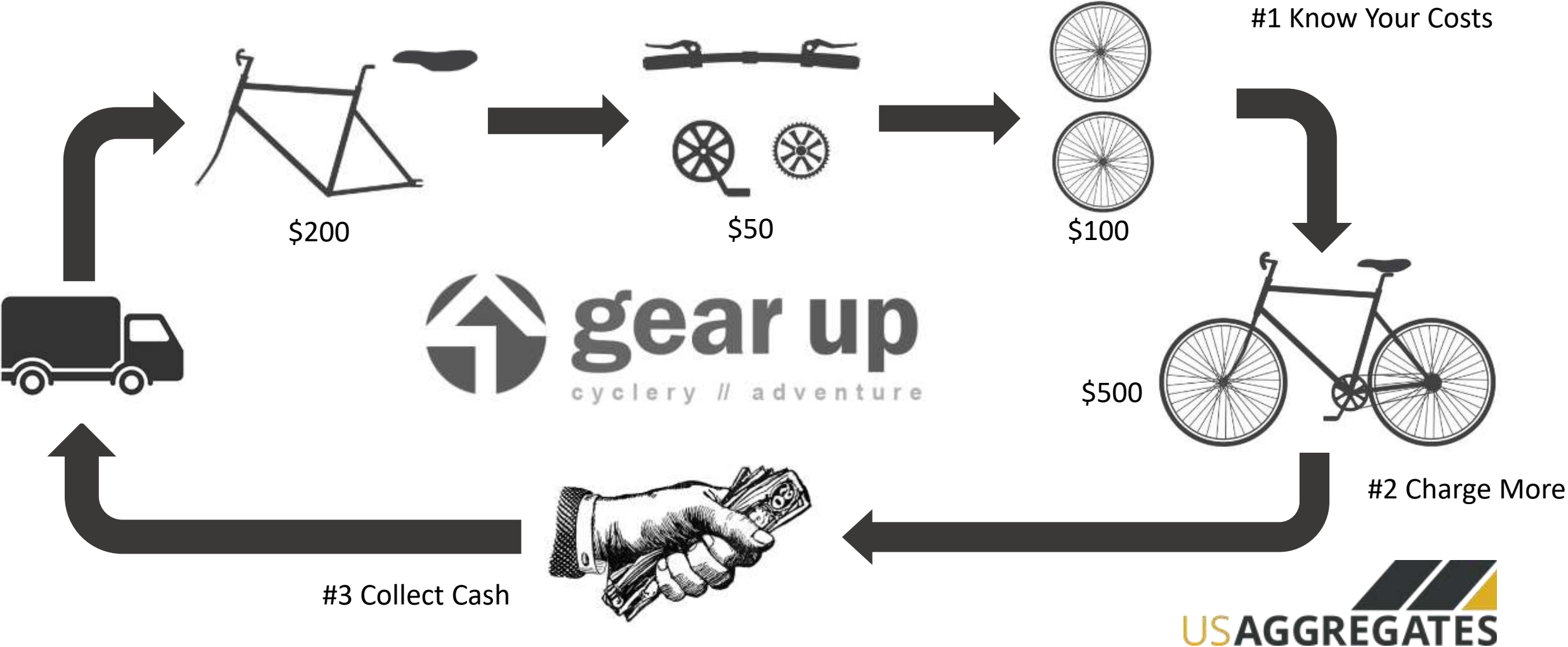
- Duane Gibbs – Director of Finance for US Aggregates
- 16 years of experience within Corporate Finance, last 3+ years in the aggregates industry
- Enjoy traveling, hiking, biking and golfing with my family
- Coaching kids' sports teams
- Purdue Boilermakers – Boiler Up!

Agenda

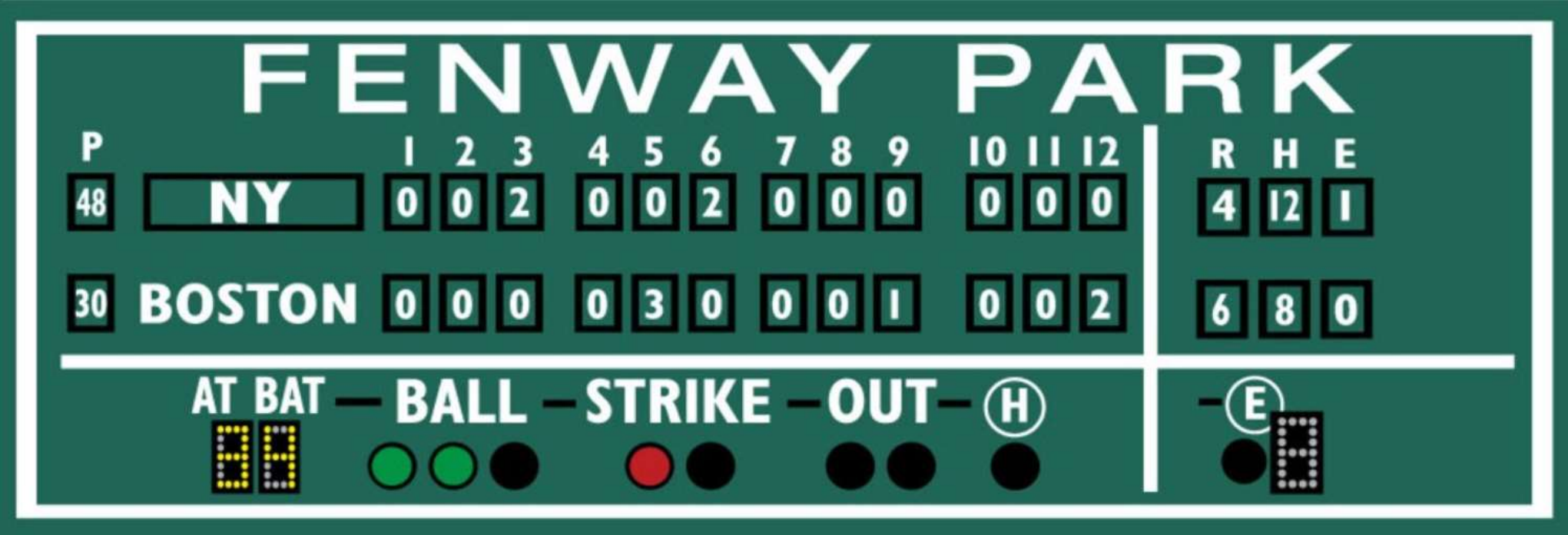
- Financial Statements Overview
- Finance/Accounting Terms
- Operating KPIs
- How KPIs affect Finances
- Project Evaluation
- Interpreting Results

Rules of Business Finance

- There are 3 basic rules to business finance



Financial Statements



Financial Statements – Income Statement

**Example Corporation
Income Statement
Years ended December 31**

(in thousands of dollars)

	<u>2021</u>	<u>2020</u>	<u>2019</u>
Net sales	\$ 3,980	\$ 3,750	\$ 3,400
Cost of sales	<u>3,100</u>	<u>2,950</u>	<u>2,700</u>
Gross profit	880	800	700
Selling, general and administrative expenses	<u>640</u>	<u>590</u>	<u>510</u>
Operating income	240	210	190
Interest expense	20	15	15
Loss on sale of equipment	<u>5</u>	<u>-</u>	<u>4</u>
Income before income taxes	215	195	171
Income tax expense	<u>50</u>	<u>40</u>	<u>36</u>
Net income	<u>\$ 165</u>	<u>\$ 155</u>	<u>\$ 135</u>

- Profitability over a period of time (ie month, quarter, year)
- AKA Profit & Loss Statement
- Shows revenue and costs
- Revenue
- Cost of Goods Sold
- Gross Profit
- SG&A (Overhead)
- Personal = tax return

Financial Statements – Balance Sheet

Example Corporation
Balance Sheet
December 31, 2021

ASSETS

Current assets	
Cash and cash equivalents	\$ 2,200
Short-term investments	10,000
Accounts receivable - net	39,500
Other receivables	1,000
Inventory	31,000
Supplies	3,800
Prepaid expenses	1,500
Total current assets	<u>89,000</u>
Investments	<u>36,000</u>
Property, plant & equipment - net	
Land	5,500
Land improvements	6,500
Buildings	180,000
Equipment	201,000
Less: accumulated depreciation	<u>(56,000)</u>
Property, plant & equipment - net	<u>337,000</u>
Intangible assets	
Goodwill	105,000
Other intangible assets	<u>200,000</u>
Total intangible assets	<u>305,000</u>
Other assets	<u>3,000</u>
Total assets	<u>\$ 770,000</u>

LIABILITIES

Current liabilities	
Short-term loans payable	\$ 5,000
Current portion of long-term debt	15,000
Accounts payable	20,900
Accrued compensation and benefits	8,500
Income taxes payable	6,100
Other accrued liabilities	4,000
Deferred revenues	<u>1,500</u>
Total current liabilities	<u>61,000</u>
Long-term liabilities	
Notes payable	20,000
Bonds payable	375,000
Deferred income taxes	<u>25,000</u>
Total long-term liabilities	<u>420,000</u>
Total liabilities	<u>481,000</u>
Commitments and contingencies (see notes)	

STOCKHOLDERS' EQUITY

Common stock	110,000
Retained earnings	220,000
Accum other comprehensive income	9,000
Less: Treasury stock	<u>(50,000)</u>
Total stockholders' equity	<u>289,000</u>
Total liabilities & stockholders' equity	<u>\$ 770,000</u>

- Snapshot in time
- Shows values of assets, liabilities and owner's equity
- Balance: Assets = Liabilities + Equity
- Personal = Net Worth

Financial Statements – Statement of Cash Flows

Example Corporation
Statement of Cash Flows
For the year ended December 31, 2021

Cash flows from operating activities	\$230,000
Net income	
<i>Adjustments to reconcile net income to net cash provided by operating activities:</i>	
Depreciation and amortization	63,000
Loss on sale of equipment	15,000
<i>Changes in current assets and liabilities:</i>	
Increase in accounts receivable	(21,000)
Decrease in prepaid expenses	3,000
Decrease in accounts payable	(28,000)
Net cash provided by operating activities	<u>262,000</u>
Cash flows from investing activities	
Capital expenditures	(300,000)
Proceeds from sale of equipment	40,000
Net cash used for investing activities	<u>(260,000)</u>
Cash flows from financing activities	
Proceeds from issuing debt	200,000
Dividends paid	(110,000)
Net cash provided by financing activities	<u>90,000</u>
Net increase in cash during the year	92,000
Cash at the beginning of the year	101,000
Cash at the end of the year	<u>\$193,000</u>

- Cash generated or used over a period of time
- Shows sources and uses of cash
- Operating Activities
- Investing Activities
- Financing Activities
- Change in Cash
- Personal = Checking/Savings Account

Finance / Accounting Terms

- Accrue/Accrual
 - Recognize income/expense when earned/incurred regardless of when cash is received/disbursed
 - Good or service received, but invoice has not been received
 - Annual expense recognized evenly over periods
 - Example: \$240k in property taxes which are paid twice a year
 - How much would we accrue for property tax expense each month?

Property Tax	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Total</u>
Accrued Expense	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	240,000
Paid					120,000						120,000		240,000

Finance / Accounting Terms

- Expenses
 - Operating Expense
 - Goods & services used in operations this year
 - Reflected on the income statement
 - Capital Expenses
 - Goods & stuff used in operations over multiple years, and over a threshold
 - Reflected on the balance sheet

Operating Expenses

Labor	Operating Supplies
Repairs	Marketing
Fuel	Subscriptions
Dirt Stripping	Royalties
Drilling	Property Tax
Blasting	Freight

Capital Expenditures

Mobile Equip	Buildings
Crushers	Land
Conveyors	R&D
Dirt Stripping	IT Equipment

Finance / Accounting Terms

- Depreciation
 - Allocates the cost of a tangible asset over its useful life
 - Reduces the value of an asset over time due to usage/wear and tear
 - Most common method: Straight-line Depreciation
 - Expense is the same every period
 - Cost / Useful Life of Asset
 - Example: Loader purchased for \$350k, Useful Life established @ 5 yrs
 - What is the annual Depreciation expense recognized each year?
 - What is the remaining Asset value after year 3?

Straight Line Depreciation

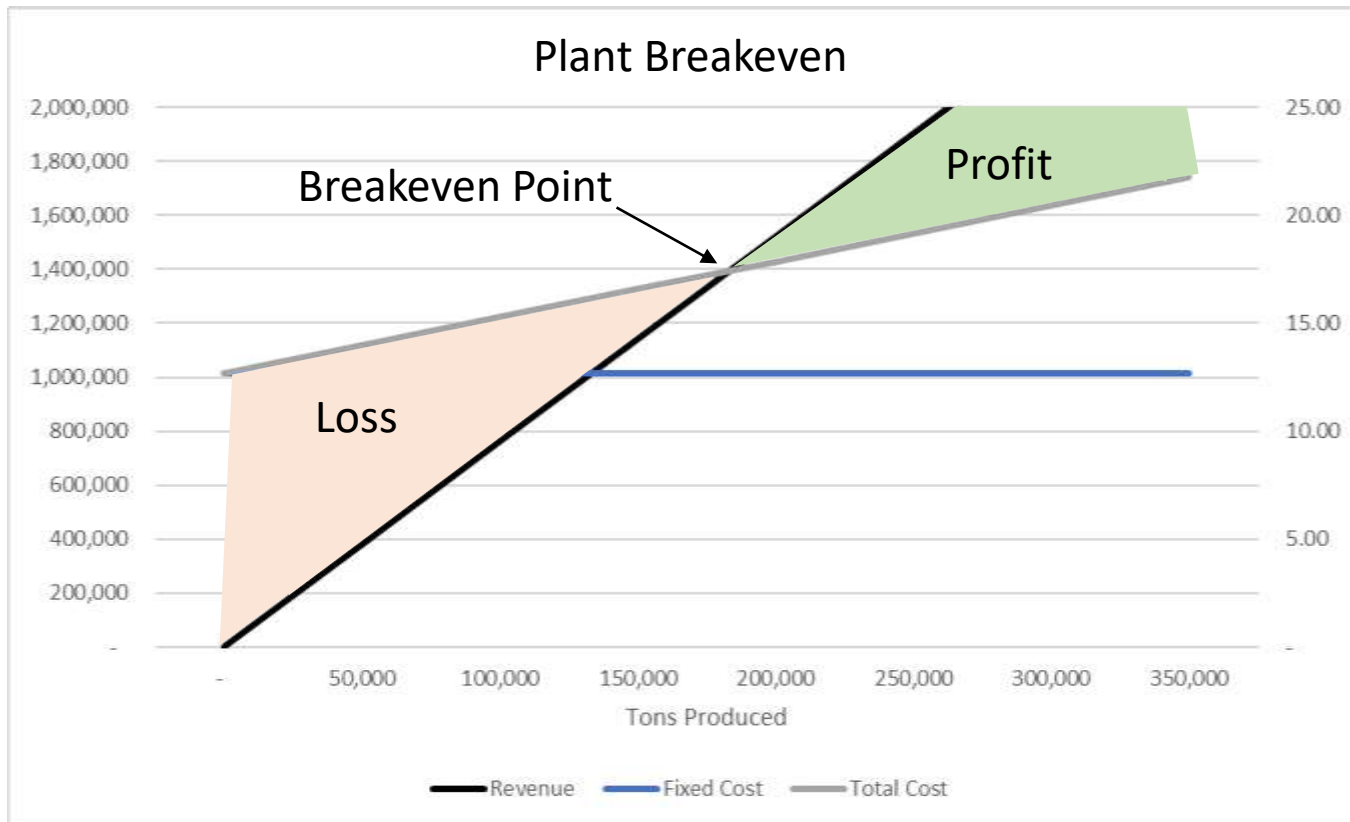
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Opening Book Value	350,000	280,000	210,000	140,000	70,000
Depreciation Expense	70,000	70,000	70,000	70,000	70,000
Ending Book Value	350,000	280,000	210,000	140,000	-

Finance / Accounting Terms

- Operating Expenses
 - Fixed Costs
 - Constant regardless of production volume
 - Cost / unit of production decreases as volume increases
 - Variable Costs
 - Changes with the volume of units or production
 - Cost / unit stays constant

<u>Cost</u>	<u>Fixed</u>	<u>Variable</u>
Freight to ship goods to customer		★
Wood used in manufacturing furniture		★
Supervisor's salary	★	
Sand used in manufacturing concrete		★
Blasting to mine stone		★
Depreciation of mobile equipment	★	
Property Taxes	★	
Dirt Stripping		★
Hourly Wages	★	★

Variable Costs vs Fixed Costs



- Fixed Costs
 - Remain the same regardless of production
 - Cost/ton changes as volume changes
 - Example: Fixed Costs = \$1M
- Variable Costs
 - Varies based on the amount of production
 - Cost/ton is constant
 - Example: Variable Costs = \$2.15/ton
- Total Costs
 - Cost/ton decreases as fixed costs are spread over more tons
 - “Last ton produced is our cheapest”
 - Example: Cost/ton @ 50,000 tons = ?
 - Example: Cost/ton @ 300,000 tons = ?
- Revenue
 - Example: ASP = \$8.00/ton
 - What is the breakeven point?

Finance / Accounting Terms

- Other Terms
 - EBITDA – Earnings before Interest, Taxes, Depreciation and Amortization
 - Amortization – similar to depreciation, recognize expense of an asset over a period of time, typically an intangible asset
 - SG&A – Selling, General & Administrative
 - ROI – Return on Investment
 - Others?

Operating KPIs

- Key Performance Indicators
 - Set of quantifiable measures used to monitor and compare performance to goals
 - Help establish benchmarks
- Examples
 - Plant – Uptime / Availability %
 - Plant – Throughput (TPOH, TPSOH)
 - Labor – TPMH, Overtime %
 - Equipment – Total cost of ownership
 - Equipment – Cycle times
 - Safety – Lost work days
 - Safety – Recordables
 - Safety – Workers comp costs

Operating KPIs

- Uptime / Availability %
 - Shows the % of time your plant/equipment is producing/running
 - $\text{Uptime} = \text{Production Time} / \text{Total Available Time}$
 - Why is it good?
 - Why is it bad?
- Throughput – TPOH and TPSOH
 - Shows tons produced per hour of production time
 - $\text{TPOH} = \text{Tons Produced} / \text{Production Time}$
 - $\text{TPSOH} = \text{Tons Produced} / \text{Total Scheduled Time}$
 - Why is it good?
 - Why is it bad?

Operating KPIs

- Scenario 1

- Plant's Production Time = 1,500 hrs
- Total Available Time = 2,000 hrs
- Production Goal = 1,500,000 tons
- Improve Uptime to 80%

- Plant Uptime?

75%

- Plant TPOH?

1,000

- Scheduled time needed to hit Production Goal, assuming same TPOH?

1,875 hrs

125 hrs less

- Tons produced if you kept the same production schedule?

1,600,000 tons

Operating KPIs

- Scenario 2

- Plant's Production Time = 1,500 hrs
- Total Available Time = 2,000 hrs
- Production Goal = 1,500,000 tons
- Improve TPOH to 1,050

- Plant Uptime – 75%
- Plant TPOH – 1,000
- Scheduled time needed to hit Production Goal, assuming same Uptime?
 - 1,905 hrs
 - 95 hrs less
- Tons produced if you keep the same production schedule?
 - 1,575,000 tons

Operating KPIs and Finance

- Improvement in Uptime/TPOH can:
 - Reduce Hrs
 - Increase Production Tons
- What does that mean for costs?
 - Uptime example: reduced labor by 125 hrs
 - Headcount: 15 laborers
 - Average Wage: \$25/hr standard time
 - If all time reduced was OT/Weekend what are the savings?
~\$70,000

125 hrs saved X 15 laborers = 1,875 man hrs

1,875 man hrs X \$25/hr X 1.5 = \$70,312.50

Operating KPIs and Finance

- Improvement in Uptime/TPOH can:
 - Reduce Hrs
 - Increase Production Tons
- What does that mean for costs?
 - TPOH example: Increased TPOH from 1,000 to 1,050
 - Headcount: 15 laborers
 - Average Wage: \$25/hr standard time
 - What is your labor cost / production hr?
 $15 \text{ labors} \times \$25/\text{hr} = \$375/\text{hr}$
 - What was your labor cost / ton and what did it improve to?
Was \$0.38/ton, improved to \$0.36/ton

Small Project Justification

- Need to replace 550 ft of piping from wash screen to sand screw
- 2 options: Sch 40 Metal Pipe vs Ceramic Pipe

- Cost Difference

- Sch 40 – \$75 / foot
- Ceramic – \$250 / foot

- Expected life of pipe

- Sch 40 – 1 yr
- Ceramic – 2 yrs

- Expected maintenance time per season

- Sch 40 – 135 hrs
- Ceramic – 25 hrs

- People and Equipment Cost per hour

- \$350 / hr

	Sch 40	Ceramic
Feet of Pipe	550	550
Cost/ft	\$ 75	\$ 250
Total	\$ 41,250	\$ 137,500
Maintenance Time	135	25
Cost/Hr	\$ 350	\$ 350
Total	\$ 47,250	\$ 8,750
Total Cost Yr 1	\$ 88,500	\$ 146,250
Total Cost Yr 2	\$ 88,500	\$ 8,750
	<u>\$ 177,000</u>	<u>\$ 155,000</u>

How Did We Do?

- What was our profit?
- Group Similar Activities
 - Sales
 - Production
- The Simple Way – Cash basis
- What was our cost per ton produced?
 $\$500,000 / 80,000 \text{ tons} = \$6.25/\text{ton}$
- Did we miss anything?
Change in Inventory
- Cash basis vs GAAP
Matching Principle

Results	
Sales Volume	100,000 tons
Production Volume	80,000 tons
Avg Sales Price	\$8.00 / ton
Variable Cost	\$5.00 / ton
Fixed Costs	\$100,000

Revenue	100,000 x \$ 8.00 = \$ 800,000
Variable Costs	80,000 x \$ 5.00 = \$ (400,000)
Fixed Costs	\$ (100,000)
Gross Profit	\$ 300,000

How Did We Do?

- How does the answer change if inventory was valued at \$4.00/ton?
- Inventory Variance?

	Results
Sales Volume	100,000 tons
Production Volume	80,000 tons
Avg Sales Price	\$8.00 / ton
Variable Cost	\$5.00 / ton
Fixed Costs	\$100,000

Revenue	100,000	x	\$8.00	=	\$ 800,000
Variable Costs	80,000	x	\$5.00	=	\$(400,000)
Fixed Costs					\$(100,000)
Inventory Variance	20,000	x	\$4.00	=	<u>\$ (80,000)</u>
Gross Profit					<u><u>\$ 220,000</u></u>

Inventory Variance

- Sales Contribution
 - Match cost of inventory with tons sold = Cost of Goods Sold
- Production Contribution
 - Move production cost to balance sheet = Cost of Goods Produced
- What does the difference mean?
 - Cash Basis = \$300,000
 - GAAP Basis = \$220,000

Sales Contribution			
Revenue	100,000	x \$8.00	= \$ 800,000
COGS (Inventory)	100,000	x \$4.00	= \$(400,000)
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Sales Contribution			\$ 400,000
Production Contribution			
Variable Costs	80,000	x \$5.00	= \$(400,000)
Fixed Costs			\$(100,000)
Cost of Goods Produced	80,000	x \$4.00	\$ 320,000
<hr/>			
Production Contribution			\$(180,000)
Gross Profit			<u><u>\$ 220,000</u></u>

Costly Inventory Example

- What if inventory was valued at \$7.00/ton?
- What does the difference mean?
 - Cash Basis = \$300,000
 - GAAP Basis = \$220,000
 - Costly Inventory = \$160,000
 - 20,000 tons x \$7.00/ton = \$140,000
 - 20,000 tons x (\$7.00-\$4.00) = \$60,000
- Any difference in actual operation?
- Any changes to cash?

		<u>Results</u>	
Sales Volume			100,000 tons
Production Volume			80,000 tons
Avg Sales Price			\$8.00 / ton
Variable Cost			\$5.00 / ton
Fixed Costs			\$100,000
Revenue	100,000 x \$8.00 =	\$	800,000
COGS (Inventory)	100,000 x \$7.00 =	\$	(700,000)
Sales Contribution		\$	100,000
Variable Costs	80,000 x \$5.00 =	\$	(400,000)
Fixed Costs		\$	(100,000)
Cost of Goods Produced	80,000 x \$7.00	\$	560,000
Production Contribution		\$	60,000
Gross Profit		\$	160,000

Out Produce Example

- Return to inventory value of \$4.00/ton, but let's produce more
- What do you think will happen?
 - 40,000 more tons produced with an inventory value of \$4.00/ton
 - 40,000 tons x \$4.00 = \$160,000 more inventory "credit"
- Why didn't the bottom line improve?
 - 40,000 more tons inventoried at \$4.00/ton
 - 40,000 more tons produced at \$5.00/ton
- What about cash?

		Results	
Sales Volume			100,000 tons
Production Volume			120,000 tons
Avg Sales Price			\$8.00 / ton
Variable Cost			\$5.00 / ton
Fixed Costs			\$100,000
Revenue	100,000	x	\$8.00 = \$ 800,000
COGS (Inventory)	100,000	x	\$4.00 = \$(400,000)
Sales Contribution			\$ 400,000
Variable Costs	120,000	x	\$5.00 = \$(600,000)
Fixed Costs			\$(100,000)
Cost of Goods Produced	120,000	x	\$4.00 \$ 480,000
Production Contribution			\$(220,000)
Gross Profit			\$ 180,000

Capped Production

- Capped inventory occurs when you have more inventory than you can sell
 - Most cases, set at 12 months of sales
 - You only get “production credit” when you actually sell material
- Let’s assume:
 - None of the material sold was capped
 - 20,000 tons of production was capped material
- Results?
- What about cash?

Results	
Sales Volume	100,000 tons
Production Volume	80,000 tons
Avg Sales Price	\$8.00 / ton
Variable Cost	\$5.00 / ton
Fixed Costs	\$100,000

Revenue	100,000 x \$8.00 =	\$ 800,000
COGS (Inventory)	100,000 x \$4.00 =	\$(400,000)
Sales Contribution		\$ 400,000
Variable Costs	80,000 x \$5.00 =	\$(400,000)
Fixed Costs		\$(100,000)
Cost of Goods Produced	60,000 x \$4.00	\$ 240,000
Production Contribution		\$(260,000)
Gross Profit		\$ 140,000

Capped Production

- Why does production care about capped inventory sales?
 - Production tons = uncapped tons produced + capped tons sold
 - Used for cost / ton calculations
- Original example cost / ton?
\$6.25/ton
- 20,000 tons are capped, what does that do to cost / ton?
\$500,000 / 60,000 tons = \$8.33/ton

Results	
Sales Volume	100,000 tons
Production Volume	80,000 tons
Avg Sales Price	\$8.00 / ton
Variable Cost	\$5.00 / ton
Fixed Costs	\$100,000

Revenue	100,000 x \$8.00 =	\$ 800,000
COGS (Inventory)	100,000 x \$4.00 =	\$(400,000)
Sales Contribution		\$ 400,000
Variable Costs	80,000 x \$5.00 =	\$(400,000)
Fixed Costs		\$(100,000)
Cost of Goods Produced	60,000 x \$4.00	\$ 240,000
Production Contribution		\$(260,000)
Gross Profit		\$ 140,000

Different Priced Products

- What happens if products are sold at different prices, still assuming \$4.00/ton inventory
- Product D is capped

Material	Produced	Sales	Price	Capped	Inventory
A	20,000	30,000	\$ 11.50	No	Down
B	20,000	35,000	\$ 8.50	No	Down
C	20,000	25,000	\$ 5.00	No	Down
D	20,000	10,000	\$ 3.25	Yes	Up
Total	80,000	100,000	\$ 8.00		

Results	
Sales Volume	100,000 tons
Production Volume	80,000 tons
Avg Sales Price	\$8.00 / ton
Variable Cost	\$5.00 / ton
Fixed Costs	\$100,000

Revenue	100,000 x \$8.00 =	\$ 800,000
COGS (Inventory)	100,000 x \$3.60 =	\$ (360,000)
Sales Contribution		\$ 440,000
Variable Costs	80,000 x \$5.00 =	\$ (400,000)
Fixed Costs		\$ (100,000)
Cost of Goods Produced	60,000 x \$4.00	\$ 240,000
Production Contribution		\$ (260,000)
Gross Profit		\$ 180,000

Different Priced Products

- We need to stop selling product D, it's below our inventory cost!
 - $\$3.25 - \$4.00 = (\$0.75)$
 - Projected Improvement = \$7,500
 - Projected Profit = \$187,500
 - Is this correct?
- Sales tons drop to 90,000 tons
- ASP increases to \$8.53
- Projected Profit vs Actual
\$20,000 difference
- What about cash?

Material	Produced	Sales	Price	Capped	Inventory
A	20,000	30,000	\$ 11.50	No	Down
B	20,000	35,000	\$ 8.50	No	Down
C	20,000	25,000	\$ 5.00	No	Down
D	20,000	-	\$ 3.25	Yes	Up
Total	80,000	90,000	\$ 8.53		

Revenue	90,000 x \$8.53 =	\$ 767,500
COGS (Inventory)	90,000 x \$4.00 =	\$(360,000)
Sales Contribution		\$ 407,500
Variable Costs	80,000 x \$5.00 =	\$(400,000)
Fixed Costs		\$(100,000)
Cost of Goods Produced	60,000 x \$4.00 =	\$ 240,000
Production Contribution		\$(260,000)
Gross Profit		\$ 147,500

Scenarios

Scenario	Production		Sales	ASP	Inventory		
	Production	Cost			Value	Profit	Cash
Cash Basis	80,000	\$6.25	100,000	\$8.00	n/a	\$300,000	\$300,000
GAAP Basis	80,000	\$6.25	100,000	\$8.00	\$4.00	\$220,000	\$300,000
Increased Inventory Value	80,000	\$6.25	100,000	\$8.00	\$7.00	\$160,000	\$300,000
Out Produce	120,000	\$5.83	100,000	\$8.00	\$4.00	\$180,000	\$100,000
Capped Production	80,000	\$8.33*	100,000	\$8.00	\$4.00	\$140,000	\$300,000
Different Priced Product	80,000	\$8.33*	100,000	\$8.00	\$4.00	\$180,000	\$300,000
Higher ASP	80,000	\$8.33*	90,000	\$8.53	\$4.00	\$147,500	\$267,500

- Which scenario/s produced the least cash?
- Which scenario/s had the highest production cost/ton?
- Inventory values can alter results
- It can be tempting to push expenses to the balance sheet, but they will come back

Thank You!

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