commerce
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society

COMMERCE MENTORSHIP PROGRAM

FINAL REVIEW SESSION

COMM 294

PREPARED BY
HARRISON YE

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Topic 1:

Standard Costs & Balanced Scorecard

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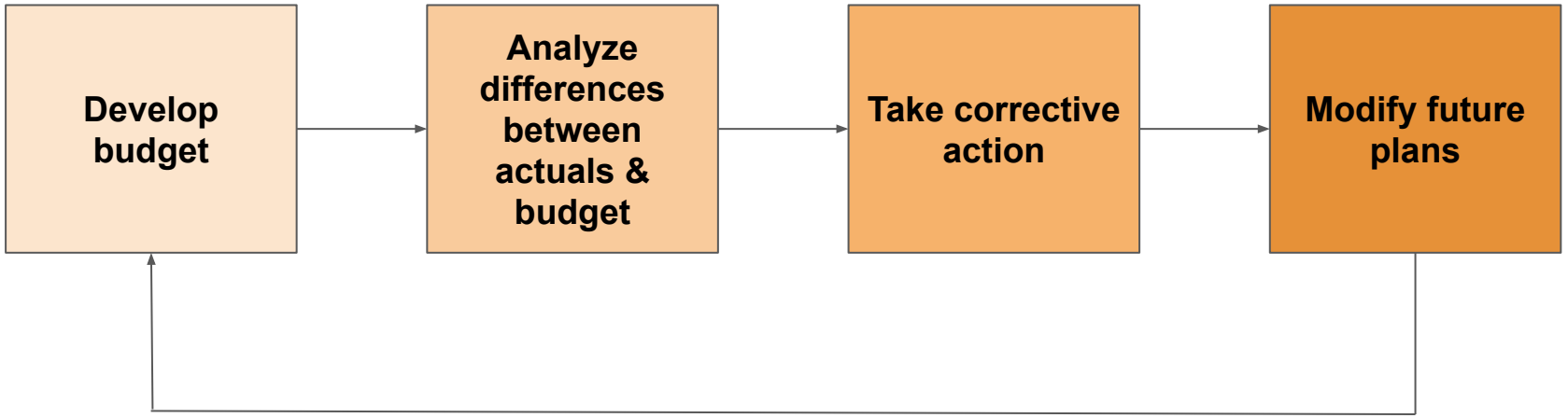
Budgetary Control Process



Static VS Flexible Budget

Static Budget

- Projection of budget data at a **single level of activity** before actual activity occurs
- **Only effective** if actual level of activity closely approximates budgeted activity level, or if costs are predominantly fixed

Flexible Budget

- Projection of budget data at **various levels of activity** (E.g. Marriott Hotels can budget revenues and net income on the basis of 60%, 80%, and 100% of room occupancy)
- Much more effective for evaluating overall performance and variances

Barton Robotics
Manufacturing Overhead Static Budget Report
For the Year Ended December 31, 2022

	Budget	Actual	Difference Favorable - F Unfavorable - U	
Production in units	10,000	12,000		
Costs				
Indirect materials	$ 250,000	$ 295,000	$ 45,000	U
Indirect labor	260,000	312,000	52,000	U
Utilities	190,000	225,000	35,000	U
Depreciation	280,000	280,000	0	
Property taxes	70,000	70,000	0	
Supervision	50,000	50,000	0	
	$1,100,000	$1,232,000	$132,000	U

Barton Robotics
Manufacturing Overhead Flexible Budget Report
For the Year Ended December 31, 2022

	Budget	Actual	Difference Favorable - F Unfavorable - U	
Production in units	12,000	12,000		
Variable costs				
Indirect materials ($25)	$ 300,000	$ 295,000	$5,000	F
Indirect labor ($26)	312,000	312,000	0	
Utilities ($19)	228,000	225,000	3,000	F
Total variable costs	840,000	832,000	8,000	F
Fixed costs				
Depreciation	280,000	280,000	0	
Property taxes	70,000	70,000	0	
Supervision	50,000	50,000	0	
Total fixed costs	400,000	400,000	0	
Total costs	$1,240,000	$1,232,000	$8,000	F

Intro to Standard Costs

What are standard costs?	- Predetermined unit costs: the typical, normal cost for something - Estimated per unit, as opposed to budgets which are estimated as totals - Used to determine variances between **actual costs** and **expected costs**

Setting Standard Costs

Determine **standards for DM, DL and MOH** to **determine standard cost per unit**	Accumulate **actual amounts** over the year	Calculate **variances** (differences between actual costs and standard costs)

Intro to Variances

Variance = Flexible Budget - Actual Results

Favourable Variances (-)

- Actual Costs < Budgeted Costs
- Actual Income > Budgeted Income

Unfavourable Variances (+)

- Actual Costs > Budgeted Costs
- Actual Income < Budgeted Income

	Static Budget	Flexible Budget	Actual Results	Variance
Production in Units	10,000 units	12,000 units	12,000 units	
Variable Costs				
Indirect Materials ($25)	$ 250,000	$ 300,000	$ 295,000	$ 5,000 F
Indirect Labour ($26)	260,000	312,000	312,000	0
Utilities ($19)	190,000	228,000	225,000	3,000 F
Total Variable Costs	$ 700,000	$ 840,000	$ 832,000	$ 8,000 F
Fixed Costs				
Depreciation	$ 280,000	$ 280,000	$ 280,000	$ 0
Property Taxes	70,000	70,000	70,000	0
Supervision	50,000	50,000	50,000	0
Total Fixed Costs	$ 400,000	$ 400,000	$ 400,000	$ 0
Total Costs	$ 1,100,000	$ 1,240,000	$ 1,232,000	$ 8,000 F

Total Variance = Materials Variance + Labour Variance + Overhead Variance

Variance Formula Notation

AH: Actual Hours Used	SH: Standard Hours
AP: Actual Price	SP: Standard Price
AQ: Actual Quantity	SQ: Standard Quantity
AR: Actual Rate Per Hour	SR: Standard Rate Per Hour

Standard = Budgeted / Expected

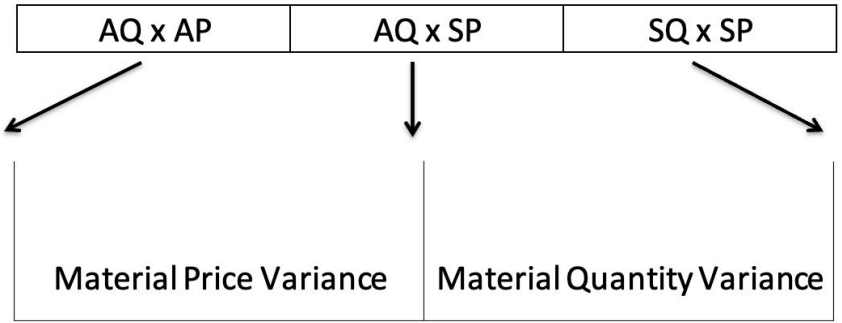
Direct Material Variances

Total Variance = **Materials Variance** + Labour Variance + Overhead Variance

AP: Actual Price	SP: Standard Price
AQ: Actual Quantity	SQ: Standard Quantity

Material Price Variance	MPV = $AQ_{purchased}$ x (AP - SP)

Material Quantity Variance	MQV = SP x (AQ - SQ)



Total Materials Variance	**(AQ x AP) - (SQ x SP)**

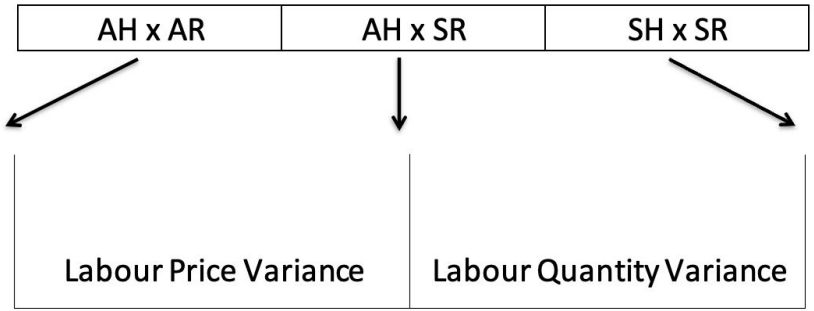
Direct Labour Variances

Total Variance = Materials Variance + **Labour Variance** + Overhead Variance

AH: Actual Hours Used	SH: Standard Hours
AR: Actual Rate Per Hour	SR: Standard Rate Per Hour

Labour Price Variance	LPV = AH x (AR - SR)

Labour Quantity Variance	LQV = SR x (AH - SH)



Total Labour Variance	**(AH x AR) - (SH x SR)**

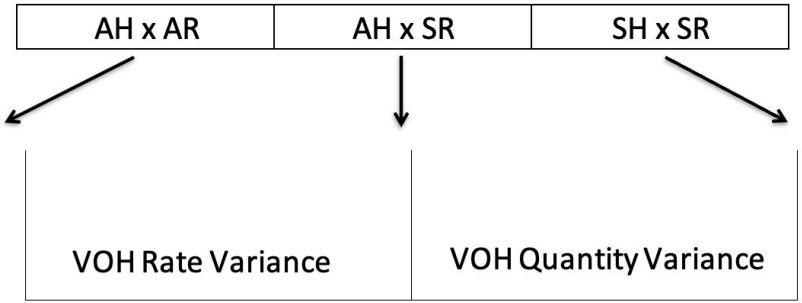
Manufacturing Overhead Variances

Total Variance = Materials Variance + Labour Variance + **Overhead Variance**

AH: Actual Hours Used	SH: Standard Hours
AR: Actual Rate Per Hour	SR: Standard Rate Per Hour

Variable OH Rate Var.	VORV = AH x (AR - SR)

Variable OH Quantity Var.	VOQV = SR x (AH - SH)



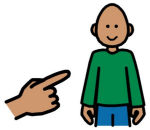
Total Overhead Variance	**(AH x AR) - (SH x SR)**

Variance Equation Summary

Total Variance = Materials Variance + Labour Variance + Overhead Variance

Material Price Variance	MPV = $AQ_{purchased}$ x (AP - SP)
Material Quantity Variance	MQV = SP x (AQ - SQ)
Total Materials Variance	(AQ x AP) - (SQ x SP) **or** MPV + MQV
Labour Price Variance	LPV = AH x (AR - SR)
Labour Quantity Variance	LQV = SR x (AH - SH)
Total Labour Variance	(AH x AR) - (SH x SR) **or** LPV + LQV
Variable OH Rate Var.	VORV = AH x (AR - SR)
Variable OH Quantity Var.	VOQV = SR x (AH - SH)
Total OH Variance	(AH x AR) - (SH x SR) **or** VORV + VOQV

Practice Problem #1



Lebron James Jersey Co. (LJJ Co.) produces high-quality authentic NBA jerseys. Bryce James, the controller, is looking to calculate the end-of-month variances to see how the company has been performing.

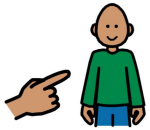
In April, LJJ Co. produced and sold 10,000 jerseys using 1,000 reams of polyester and 19,000 hours of labour. Total labour costs were $221,000.

Bryce James originally thought each jersey would use 0.2 reams of polyester and 3 hours of labour. He expected that the company would purchase polyester at a rate of $5 per ream and pay workers at a rate of $10 per hour.

Help Bryce calculate:

1. The Material Quantity Variance
2. The Labour Price Variance

Practice Problem #1



Balanced Scorecard

Incorporation of financial and nonfinancial measures in an integrated system that links **performance measurement with company strategic goals.** Measures **differ by industry.**

Key Perspectives & Examples of Measures	
Financial: measures directly related to your income statement	E.g. profit margin, cost per unit manufactured, % increase in sales, cost of spoilage, cost of securing new customers
Customer: customer satisfaction, perception of company and products	E.g. cost per customer, customer satisfaction ratings, % of market share, # of customer complaints, # of return customers
Internal Process: internal operations and efficiencies within company	E.g. % of spoilage, input cost per unit, % of capacity used, # of process improvements implemented, cost of quality inspection
Learning & Growth: intangible resources within company such as innovation and employee knowledge	E.g. # of employees trained on manufacturing process/customer service, # of employee initiatives implemented, employee turnover

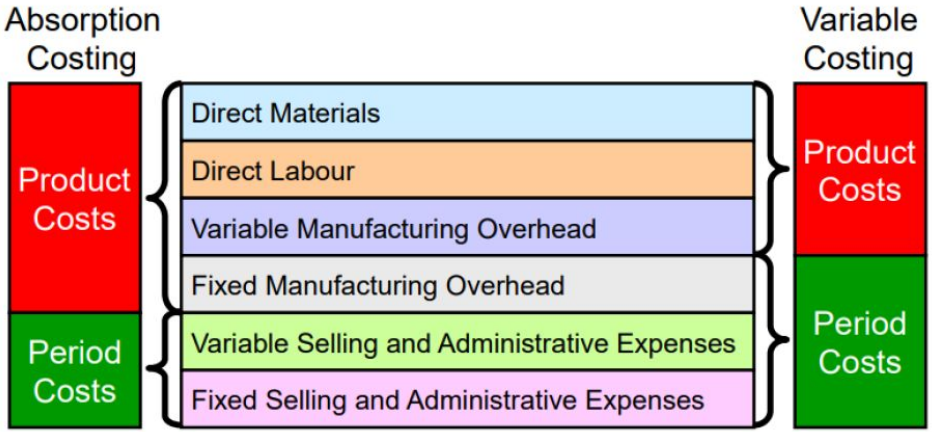
Topic 2:

Absorption & Variable Costing

Review: Product & Period Costs

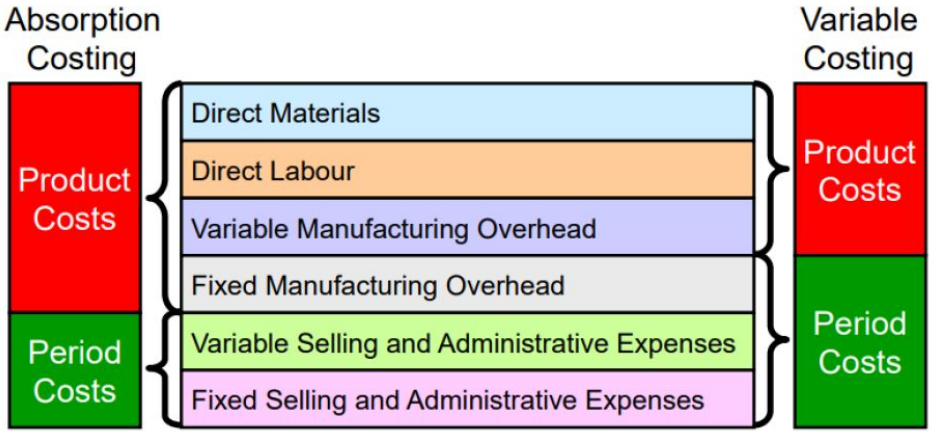
Manufacturing (AKA Product) Costs	Non-Manufacturing (AKA Period) Costs
- **Direct Materials (DM), Direct Labour (DL), Manufacturing Overhead (MOH)** - **DM/DL** directly associated with finished product; e.g. workers paid by production level - **MOH** = indirectly associated costs; e.g. depreciation, insurance, maintenance on factory, factory manager salary - **Recorded as inventory** and expensed as sold (to COGS)	- Marketing/selling/admin expenses (e.g. advertising, shipping, sales travel, commissions, sales salaries, warehouse for manufactured goods) - Includes selling costs and admin costs - **Selling Costs:** help secure customer orders and get product into customer hands - **Admin Costs:** general management costs - **NOT** included in inventory; expensed when incurred

Absorption vs. Variable Costing



Absorption Costing	Variable Costing
- Used for **financial accounting** (proper IFRS & ASPE requirements) - Fixed MOH classified as **product cost**	- Used for **managerial accounting** (variable costs matter more in decision making) - Fixed MOH classified as **period cost**

Absorption vs. Variable Costing (cont.)



Absorption Costing	Variable Costing
- Accumulate **ALL manufacturing costs** as product costs **in inventory** until sold - DM + DL + VMOH + FMOH	- Accumulates **variable manufacturing costs** ONLY **in inventory** until sold - DM + DL + VMOH

Absorption vs. Variable Costing Statements

Absorption Costing Income Statement

Sales (1,600 × $500)		$800,000
Cost of goods sold		
Direct materials (1,600 × $185)	$296,000	
Direct labor (1,600 × $100)	160,000	
Manufacturing overhead	40,000	496,000
Gross profit		**304,000**
Operating expenses		
Sales commissions (1,600 × $15)	24,000	
Sales personnel salaries	10,000	
CEO salary	150,000	184,000
Net income		**$120,000**

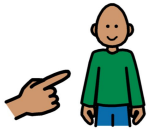
Variable Costing Income Statement

Sales (1,600 × $500)		$800,000
Variable costs		
Direct materials (1,600 × $185)	$296,000	
Direct labor (1,600 × $100)	160,000	
Sales commissions (1,600 × $15)	24,000	480,000
Contribution margin		**320,000**
Fixed costs		
Manufacturing overhead	40,000	
Sales personnel salaries	10,000	
CEO salary	150,000	200,000
Net income		**$120,000**

Determining Target Selling Prices

Absorption Costing	Variable Costing
1. Compute manufacturing cost per unit - DM per unit + DL per unit + Variable MOH per unit + Fixed MOH per unit **2. Compute markup percentage** - (Desired Return per unit + S&A expenses per unit) / manufacturing cost per unit **3. Set target selling price** - Manufacturing cost per unit + (markup percentage * manufacturing cost per unit)	**1. Compute variable cost per unit** - DM per unit + DL per unit + Variable MOH per unit + Other VC per unit **2. Compute markup percentage** - (Desired Return per unit + Fixed costs per unit) / variable cost per unit **3. Set target selling price** - Variable cost per unit + (markup percentage * variable cost per unit)
Our target selling price will cover desired return and all S&A costs	Our target selling price will cover desired return and all fixed costs

Practice Problem #2



UBC has built a new flower store on campus, Pushing Petals, offering affordable prices to romantic students. The following information reflects their 2024 sales and costs:

Number of Units Produced Annually: 22,000

Desired Return per unit: $10

Variable costs per unit:

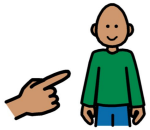
- DM, DL and VMOH $6
- Selling & Admin Expenses $4

Fixed costs per year:

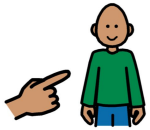
- Manufacturing Overhead $88,000
- Selling & Admin Expenses $55,000

Determine Pushing Petal's **markup percentage under variable costing.**

Practice Problem #2



Practice Problem #3



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Variable costs per unit:

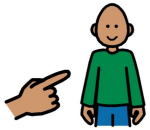
- DM, DL and VMOH $6
- Selling & Admin Expenses $4

Fixed costs per year:

- Manufacturing Overhead $88,000
- Selling & Admin Expenses $55,000

Determine Pushing Petal's **target selling price under absorption costing.**

Practice Problem #3

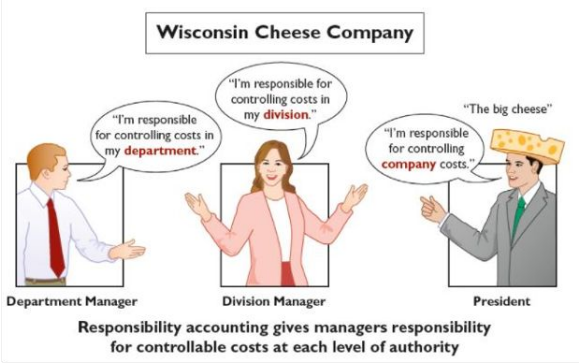


Topic 3:

Responsibility Accounting

Segment Reporting

Responsibility Accounting	- Identifying and reporting costs and revenues on the basis of the manager who makes day-to-day decisions about the items - A manager's performance is evaluated ONLY on matters directly under their control



Responsibility accounting gives managers responsibility for controllable costs at each level of authority

Traceable (Direct) Fixed Costs

- Fixed costs that only apply to a specific segment
- If we removed that segment, the cost would not exist anymore either
- E.g. production manager for Tesla battery cells -> direct labour costs for the cell division

Common (Indirect) Fixed Costs

- Fixed costs that can be identified with multiple segments
- If we removed a specific segment, the cost would still exist
- E.g. cost of software update for an entire organization

Responsibility Centres

Cost Centre	Profit Centre	Investment Centre
Managers responsible to operate within a budget **<u>Not</u> evaluated on how much income they can generate**	Managers responsible for improving the 'bottom line' profits **Evaluated on ability to achieve profit targets**	Managers responsible for making investment decisions **Evaluated on return on investment (ROI)**
E.g. production lines and customer service centres	E.g. retail stores, bank branches and McDonalds franchises	E.g. investments in new product lines, mergers & acquisitions

Responsibility Report for Profit Centres

Controllable Fixed Costs

Most direct fixed costs (traceable costs) are **controllable** by a profit centre

E.g. profit centre supervisor salary, payroll for profit centre employees

Non-Controllable Fixed Costs

Indirect fixed costs (common costs) are **non-controllable** by a profit centre

E.g. property tax on head office, HR department costs

	Budget	Actual	Favourable (F) Unfavourable (U)
Sales	XXX	XXX	XXX
- Variable Costs	(XXX)	(XXX)	(XXX)
= Contribution Margin	XXX	XXX	XXX
- Controllable FC	(XXX)	(XXX)	(XXX)
= Controllable Margin	XXX	XXX	XXX

Controllable Margin = Contribution Margin - Controllable FC

Cost Centres vs. Profit Centres

Cost Centre Example

Fox Company
Finishing Department
Responsibility Report
For the Month Ended January 31, 2022

Controllable Costs	Budget	Actual	Difference Favorable - F Unfavorable - U	
Indirect materials	$13,500	$14,000	$ 500	U
Indirect labor	18,000	17,000	1,000	F
Utilities	4,500	4,600	100	U
Supervision	4,000	4,000	0	
Total	$40,000	$39,600	$ 400	F

Manager able to control all MOH costs except depreciation, property taxes and their own salary

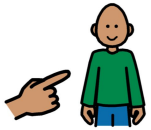
Profit Centre Example

Mantle Company
Marine Division
Responsibility Report
For the Year Ended December 31, 2022

	Budget	Actual	Difference Favorable - F Unfavorable - U	
Sales	$1,200,000	$1,150,000	$50,000	U
Variable costs				
Cost of goods sold	500,000	490,000	10,000	F
Selling and administrative	160,000	156,000	4,000	F
Total	660,000	646,000	14,000	F
Contribution margin	540,000	504,000	36,000	U
Controllable fixed costs				
Cost of goods sold	100,000	100,000	0	
Selling and administrative	80,000	80,000	0	
Total	180,000	180,000	0	
Controllable margin	$ 360,000	$ 324,000	$36,000	U

All indirect costs are omitted from the report

Practice Problem #4

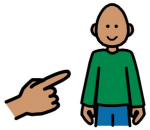


Bob has decided to shut down Bob's Burgers and open up a McDonald's franchise instead. Now, Mac Donald, CEO of McDonald's is determining the performance of Bob's franchise for the previous year, using the following information. Assume McDonald's only sells one item - the Big Mac.

Big Mac selling price per unit:	$7
Big Mac variable cost per unit:	$3
Total units sold:	50,000
Fixed costs:	
Payroll at Bob's franchise:	$120,000
McDonalds head office rent:	$400,000
Manager's salary (not Bob):	$40,000
National advertising costs:	$68,000

Determine the controllable margin per unit for Bob's franchise.

Practice Problem #4



Topic 4:

ROI vs. Residual Income

Responsibility Report for Investment Centres

Controllable Fixed Costs

ALL FIXED COSTS are controllable by the manager of an investment centre

Return on Investment

In addition to the profit centre report inclusions, this report also shows **budgeted and actual ROI**

ROI for an investment centre =

$$\frac{\textbf{Controllable Margin}}{\textbf{Average Operating Assets}}$$

	Budget	Actual	Favourable (F) Unfavourable (U)
Sales	XXX	XXX	XXX
- Variable Costs	(XXX)	(XXX)	(XXX)
= Contribution Margin	XXX	XXX	XXX
- Controllable FC	(XXX)	(XXX)	(XXX)
= Controllable Margin	XXX	XXX	XXX
Return on Investment	**XXX %**	**XXX %**	**XXX %**

Return on Investment (ROI)

$$\frac{\text{Controllable Margin}}{\text{Average Operating Assets}}$$

OR

$$\frac{\text{Net Income}}{\text{Total Assets}}$$

Average Operating Assets = $\frac{\text{(This year's operating assets + Last year's operating assets)}}{2}$

Operating assets = current assets and factory assets used in operations and controlled by the manager

Non-Operating assets = idle factory assets, land held for future cost; excluded from equation

Application of ROI

Can increase ROI by:
- Increasing sales
- Reducing operating expenses
- Reducing operating assets

Compare calculated figure against company's prev ROI or ROI of similar company

Manager evaluated ONLY on ROI may reject profitable investment opportunities

Residual Income (RI)

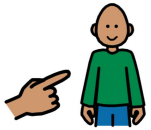
Residual Income = Controllable Margin - (Minimum Rate of Return x Average Operating Assets)

Benefits	Drawbacks
- Encourages managers to make profitable investments that would be **rejected by managers under ROI** - i.e. If an investment would decrease ROI, the manager evaluated on ROI would reject it. However, if evaluated on RI, the manager would accept it if RI is positive.	- Cannot be used to compare performance of different- sized divisions ($1 million operating income vs. $100,000 operating income) - Does not indicate what earnings should be (need an external benchmark) - Does not incorporate non-financial indicators

If Residual Income > 0, **accept project**

If Residual Income < 0, **reject project**

Practice Problem #5

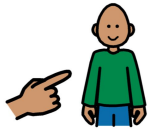


The Dunder Mifflin Scranton branch has a controllable margin of $72,000. This year's operating assets are $500,000 and last year's were $385,000. The minimum required rate of return for Dunder Mifflin is 15%.

Determine:

1. The ROI of the branch
2. The RI of the branch
3. If the manager of the branch is evaluated on ROI, will an investment of $21,000 that generates additional controllable margin of $3,250 be accepted or rejected?
4. Following the last question, if they are instead evaluated on RI, will the investment be accepted or rejected?

Practice Problem #5



Topic 5:

Transfer Pricing

What are Transfer Prices?

Price that one division in an organization charges another division for products or services

Company's net income stays the same no matter what the transfer price is

Normally will occur between a parent and its subsidiary

Example: *If Division A charges Division B $18 for Product X, this will produce the same company-wide net income as if they charged $15 for Product X to Division B.*

$18 charged

	Division A	Division B
Sales	**$18**	$30
COGS	$5	**$18**
= Net Income	$13	$12

$15 charged

	Division A	Division B
Sales	**$15**	$30
COGS	$5	**$15**
= Net Income	$10	$15

Transfer Pricing Methods

Negotiated	Selling division and buying division negotiate a price to transfer at that leaves both parties better off.
Market-Based	Company uses market price of similar goods traded on external market to determine internal transfer prices.
Cost-Based	Divisions sell items to other division at the cost of production (COGS). **Results in improper transfer pricing, causing losses in profitability and ignoring opportunity cost.**

E.g. Doc Martens states that the Sole Division must use a transfer price based on the variable cost of the sole.

Before

Boot Division		Sole Division	
Selling price of boots	$90	Selling price of sole	$18
Variable cost of boot (not including sole)	35	Variable cost per sole	11
Cost of sole purchased from outside supplier	17	Contribution margin per unit	$ 7
Contribution margin per unit	$38		
Total contribution margin per unit	$45 ($38 + $7)		

After

Boot Division		Sole Division	
Selling price of boots	$90	Selling price of sole	$11
Variable cost of boot (not including sole)	35	Variable cost per sole	11
Cost of sole purchased from sole division	11	Contribution margin per unit	$ 0
Contribution margin per unit	$44		
Total contribution margin per unit	$44 ($44 + $0)		

Negotiated Method: Minimum Transfer Price

Negotiated	Selling division and buying division negotiate a price to transfer at that leaves both parties better off.

The Selling Division must not be worse off - they will determine the lower limit, i.e. the minimum transfer price.

Incremental Costs

Technically, this includes both **variable costs** and **relevant fixed costs**

Relevant fixed costs are rare

- Additional costs required for internal transfer to occur (new equipment/supervisor)
- Does not include fixed costs that occur regardless of internal transfer

Minimum Transfer Price = Incremental costs per unit incurred up to point of transfer + Opportunity costs per unit to the supplying divisions

= Variable Cost + Per-unit Lost Contribution Margin on outside sales

= **Variable Cost** + $\frac{\textbf{Total CM lost}}{\textbf{\# units transferred}}$

Negotiated Method: Minimum Transfer Price

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= Variable Cost + Per-unit Lost Contribution Margin on outside sales

= **Variable Cost** + $\frac{\textbf{Total CM lost}}{\textbf{\# units transferred}}$

Opportunity Costs

Applies when selling division **does not have excess capacity**

i.e. If the selling division would be able to sell the goods to external buyers instead of transferring internally, **there is an opportunity cost**. If they wouldn't be bought regardless, then there is **no opportunity cost.**

Negotiated Method: Minimum Transfer Price

There are three scenarios that can occur to determine our minimum transfer price.

Selling division **has excess capacity.**	*Minimum Transfer Price = Variable Cost*
Selling division **does not have excess capacity.**	*Minimum Transfer Price = Variable Cost +* $\frac{\text{Lost CM from lost sales } \textbf{for all units transferred}}{\text{\# of units transferred}}$
Selling division **has partial excess capacity.**	*Minimum Transfer Price = Variable Cost +* $\frac{\text{Lost CM from lost sales } \textbf{(only for \# units of lost sales)}}{\text{\# of units transferred}}$

Negotiated Method: Maximum Transfer Price

Negotiated	Selling division and buying division negotiate a price to transfer at that leaves both parties better off.

The Buying Division must not be worse off - they will determine the upper limit, i.e. the max transfer price.

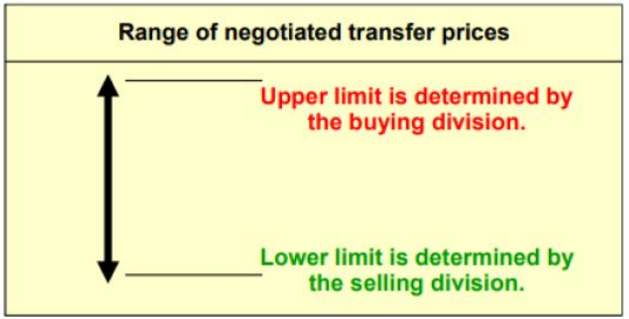
Market Price

The max transfer price will be dictated by the **selling price of an external supplier.**

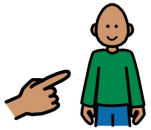
i.e. If the external supplier sells the product at $17/unit while the transfer price is $20/unit, why would the buying division transfer internally?

Maximum TP > Minimum TP, Transfer!

Maximum TP < Minimum TP, Don't Transfer!



Practice Problem #6



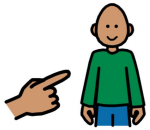
New Balance has a Leather Division and a Sneaker Division. The Leather Division has a production capacity of 100,000 leather squares per year. Currently, they sell each square for $15 and it costs $8 to produce.

The Sneaker division is currently purchasing 40,000 leather squares per year from an outside supplier at $20 each. They now are considering buying internally from the Leather Division.

Part 1:

1. If the Leather Division is already operating at capacity selling externally, what is the minimum transfer price they would accept from the Sneaker division? Will this transaction be accepted?
2. The Leather Division is still operating at capacity, but they can avoid $2 in sales commission expenses per square sold if they divert to selling internally. What is the minimum transfer price they would accept from the Sneaker division?

Practice Problem #6



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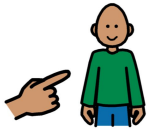

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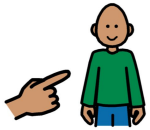
The Sneaker division is currently purchasing 40,000 leather squares per year from an outside supplier at $20 each. They now are considering buying internally from the Leather Division.

Part 2:

1. Suppose the Leather Division instead has excess capacity of 12,000 leather squares. If the Sneaker Division offers them $12.50 per square, will they accept this transaction?
2. Suppose the Sneaker Division requires special textured leather that is different to the squares currently produced by the Leather Division. The additional variable cost of texturing is $3 per square. The Leather Division is currently operating at full capacity and taking on the special order would displace production of 25,000 regular squares. What is the minimum transfer price the Leather Division would accept?

Practice Problem #6



Topic 6:

Incremental Analysis

Types of Decisions

Types	Strategy
Scrap OR Keep	Pick **one side or the other** and find **relevant costs** for that side
Make OR Buy	Pick **one side or the other** and find **relevant costs** for that side
Sell OR Process Further	Compare **extra revenues** to **extra costs** and calculate net impact
Keep OR Drop	Compare **Segment CM lost** to **Controllable Fixed Costs saved**
Accept OR Reject Special Order	**VC + Relevant FC + Opportunity Costs** vs. **Revenue**

Scrap OR Keep / Make OR Buy

Strategy

1. Pick one side or the other (not both)
2. Find **relevant costs** for that side
3. Determine whether each relevant cause causes an **inflow (+) or outflow (-)**
4. Add up **all relevant costs** and determine positive or negative impact
5. Choose decision w/ **positive impact**

Relevant Costs VS Irrelevant Costs

Relevant: avoidable (differential) costs, opportunity costs

Irrelevant: unavoidable costs, sunk costs, joint costs

E.g. Scrap or Keep

An employee at Enterprise Rent-A-Car accidentally drives one of the rental cars into a pole, damaging it. Enterprise purchased the car 3 years ago for $50,000. Since then, they have added a GPS system for $100. The rental car has depreciated by $10,000 and has a useful life of 7 years.

The rental manager contacts the scrap yard, who offers the company $10,000 for the damaged car. If Enterprise goes with this option, they will need to purchase a replacement car for $12,000.

Alternatively, Enterprise can keep and fix the vehicle. This will require parts costing $800 and safety inspection costing $400.

Scrap OR Keep / Make OR Buy

E.g. Scrap or Keep

An employee at Enterprise Rent-A-Car accidentally drives one of the rental cars into a pole, damaging it. ~~Enterprise purchased the car 3 years ago for $50,000. Since then, they have added a GPS system for $100. The rental car has depreciated by $10,000 and has a useful life of 7 years~~.

The rental manager contacts the scrap yard, who offers the company $10,000 for the damaged car. If Enterprise goes with this option, they will need to purchase a replacement car for $12,000.

Alternatively, Enterprise can keep and fix the vehicle. This will require parts costing $800 and safety inspection costing $400.

Scraping it results in an **outflow,** so keeping it results in an **inflow.**

Decision: Keep the Car

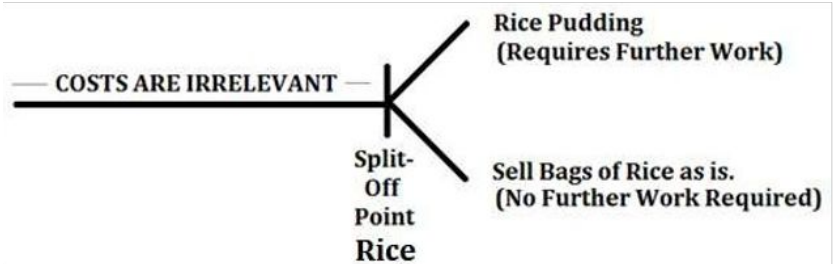
Process

1. Cross out any irrelevant costs (historical price, GPS, depreciation)
2. Choose a side - let's choose "Scrap"!
3. Calculate as follows:

Sale of Vehicle	10,000	I
Purchase of Vehicle	(12,000)	O
New Parts	800	I
Safety Inspection	400	I
Total	(800)	O

Sell OR Process Further

Strategy
1. Cross out all costs that will be **incurred regardless of decision.** This includes any costs prior to the **"split off point".** 2. Compare extra revenue to extra costs.



Extra Revenue > Extra Costs, then process further

Extra Revenue < Extra Costs, then sell as is

Extra Considerations	Should production occur at all or would we be better off without it? What should we produce and sell to maximize contribution margin?

Keep OR Drop a Segment

E.g. Keep or Drop

Lebron James Jersey Co. has two departments: one that sells authentic jerseys and one that sells replica jerseys. The company info is presented below:

	Authentic	Replica	Total
Sales	9,000	4,500	13,500
- VC	(7,050)	(3,020)	(10,070)
= CM	1,950	1,480	3,430
- Direct FC	(500)	1,500	(2,000)
= Controllable Margin	1,450	(20)	1,430

Direct fixed expenses include depreciation on equipment of $40 for the Authentic Department and $30 for the Outdoor Department.

Strategy

1. Compare **segment CM lost** to **direct FC saved** if we were to **drop the segment.**

2. **Add inflows and outflows to get net effect.** Ensure that these do not include non-controllable fixed costs or sunk costs.

3. **Keep segment if:**

   CM lost > (FC avoided + CM gained)

Keep OR Drop a Segment

E.g. Keep or Drop

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= Controllable Margin	1,450	(20)	1,430

Direct fixed expenses include depreciation on equipment of $40 for the Authentic Department and $30 for the Outdoor Department.

Should we shut down the Replica department?

Segment CM Lost = **1,480 O**

Direct Fixed Costs saved = 1,500 - 30 = **1,470 I**

1,470 I - 1,480 O = (10) O

Answer: We should keep the Replica department because we lose $10 more in Contribution Margin by shutting it down.

Other reasons to keep the Replica dept:

1. Replica dept may drive sales to other segments
2. We don't want to lose loyal customers
3. Company morale and overall reputation

Accept OR Reject Special Orders

Strategy
1. Find costs (outflows) pertaining to the special order. 2. Compare to revenues (inflows).

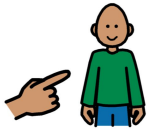
Relevant Costs > Relevant Revenues, then reject!

Relevant Costs < Relevant Revenues, then accept!

Outflows	Variable Costs such as DM, DL, VMOH, Relevant Fixed Costs Typically, there will be an opportunity cost (current capacity)

E.g. Suppose the Sneaker Division requires special textured leather that is different to the squares currently produced by the Leather Division. The additional variable cost of texturing is $3 per square. The Leather Division is currently operating at full capacity and taking on the special order would displace production of 25,000 regular squares…

Practice Problem #7

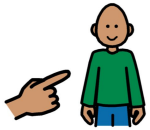


Tesla incurs the follow annual costs in producing 500,000 battery cells for their new Roadster model launch.

Direct materials	1,000,000
Direct labour	1,500,000
Variable MOH	800,000
Fixed MOH	900,000
Total Manufacturing Costs	4,200,000

Instead of producing in-house, Tesla may purchase battery cells externally for $10 per unit. $500,000 of the fixed MOH will still be incurred if the cells are purchased. What should Tesla and Elon Musk do?

Practice Problem #7



Questions?