

Managerial Accounting Project

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ACCT6218: Managerial Accounting

Case Scenario Description

Three partners decide to start a video game company called Minibox Games whose goal is to develop software for the Apple iPhone and iPod Touch. In its first year of existence, the company plans to develop and release one game, along with a number of add-ons for that game. The game will involve users interacting with graffiti art on the touchscreen, and tapping on specific points along with a musical beat.

Due to the relative simplicity of iPhone games, this project will be completed with a small staff of 6 people. The staff will include the 3 founders doing administrative jobs (producer, marketing, and operations) and each being paid a monthly salary of \$3000. There will also be a programmer, artist, and game designer, each being paid a monthly salary of \$6000 (only in March through October when the game is in active development).

Like most video game development, the largest expense of the business will be labor. There will also be miscellaneous monthly costs such as renting an office, utilities, and insurance. In the first several months, there will be startup costs such as purchasing computers and software, paying legal fees, buying supplies, and installing network equipment. In addition, the game will use licensed songs and graffiti art, so there will be licensing fees. And near the game's release, there will be advertising costs.

The company will have several sources of revenue. The only way to sell iPhone games to consumers is via Apple's App Store. Apple provides the logistical and technical infrastructure to facilitate download of the applications and in exchange, they take 30% of each sale. Therefore, the largest source of revenue will be sales of the game from the App Store. Each copy of the game will sell for \$2, and the company will receive \$1.40 after Apple takes their 30%.

Another source of revenue will be sales of game add-ons through the App Store. Purchasing an add-on will give a user access to an additional level in the game. Each add-on will sell for \$1 and Apple again takes 30%. Finally, the game will feature in-game advertisements, showing products related to street culture and hip-hop (to tie in with the graffiti theme). These advertisement slots will be sold to various companies prior to the game's release for a flat fee (per ad).

To help cover startup costs, the three founders decide to get a small business loan for \$350,000 at 5% annual interest. The principal of the loan must be paid back at the end of year 3. Also, the founders decide to start the company as an LLC with no stock or dividends.

Cost Breakdown

Variable Costs:

App store sales fees (30% of sale price)

Fixed Costs:

Rent = \$15000 / 6 mo

Utilities = \$300 / month (fixed amount paid to the office building owner)

Insurance = \$1200 / 6 mo

Web Hosting = \$360 / year

Admin salaries = 3 x \$3000 / mo

Production salaries = 3 x \$6000 / mo

Payroll taxes

Music licensing = \$2000 / track

Graffiti licensing = \$2000 / piece

Advertising = \$14000 / mo

Product Costs:

– Direct Materials

– App store sales fees

– Direct Labor

– Production salaries

– Production payroll taxes

– Overhead

– Rent

– Utilities

– Depreciation

– Insurance

– Misc office supplies

– Indirect Labor

– Admin salaries

– Admin payroll taxes

– Indirect Materials

– Licensed music

– Licensed graffiti

Period Costs:

Advertising = \$14000 / mo

Rent = \$15000 / 6 mo

Utilities = \$300 / month (fixed amount paid to the office building owner)

Depreciation = \$510 / month

Insurance = \$1200 / 6 mo

Web Hosting = \$360 / year

Legal fees = \$1000 / Q1

Web design fees = \$4500 / Q1

Misc office supplies = \$75 / mo

Revenue Budget

Minibox Games					
2010 Revenue Budget					
	Q1	Q2	Q3	Q4	Total
Price of full game	\$2	\$2	\$2	\$2	\$2
Number of downloads	0	0	0	450000	450000
Full game income	\$0	\$0	\$0	\$900,000	\$900,000
Price of game add-ons	\$1	\$1	\$1	\$1	\$1
Number of downloads	0	0	0	125000	125000
Add-on income	\$0	\$0	\$0	\$125,000	\$125,000
Price per in-game advertisement	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Advertisements sold	0	3	6	0	9
Total ad income	\$0	\$15,000	\$30,000	\$0	\$45,000
Total revenue	\$0	\$15,000	\$30,000	\$1,025,000	\$1,070,000

The company will spend the first part of the year developing the game, and it will not be released until September. Therefore, the bulk of the sales revenue will occur in Q4. However, the company plans to sell a number of in-game ads, and these sales would occur earlier in the year.

Supplies Budget

Minibox Games 2010 Supplies Budget					
	Q1	Q2	Q3	Q4	Total
Variable supplies expense					
Copies of full game downloaded	0	0	0	225000	225000
Sales fee per download	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60
Total full game sales fees	\$0	\$0	\$0	\$135,000	\$135,000
Number of add-ons downloaded	0	0	0	125000	125000
Sales fee per download	\$0.30	\$0.30	\$0.30	\$0.30	\$0.30
Total add-on sales fees	\$0	\$0	\$0	\$37,500	\$37,500
Total variable supplies	\$0	\$0	\$0	\$172,500	\$172,500
Fixed supplies expense					
Music licensing per track	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Number of tracks licensed	0	6	4	0	10
Total music licensing cost	\$0	\$12,000	\$8,000	\$0	\$20,000
Graffiti licensing per piece	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000
Number of pieces licensed	0	6	4	0	10
Total graffiti licensing cost	\$0	\$12,000	\$8,000	\$0	\$20,000
Total fixed supplies	\$0	\$24,000	\$16,000	\$0	\$40,000
Total supplies expense	\$0	\$24,000	\$16,000	\$172,500	\$212,500

The company's game will be available strictly as a digital download. Therefore, the only variable costs are the 30% sales fees taken by Apple on each download from their App store. Even though it's not a variable cost, I also included the music and graffiti licensing fees on this supplies budget, because it seems like the most appropriate place for them.

Wages & Salaries Budget

Minibox Games					
2010 Wages & Salaries Budget					
	Q1	Q2	Q3	Q4	Total
Monthly salary per prod employee	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
Number of months worked in quarter	0	3	3	1	7
Total salary per prod employee	\$0	\$18,000	\$18,000	\$6,000	\$42,000
FICA tax per prod emp	\$0	\$1,377	\$1,377	\$459	\$3,213
FUTA tax per prod emp (on first \$7000)	\$0	\$56	\$0	\$0	\$56
SUTA tax per prod emp (on first \$9000)	\$0	\$23.40	\$0	\$0	\$23
Total payroll tax per prod employee	\$0	\$1,456	\$1,377	\$459	\$3,292
Number of prod emp per month	0	3	3	3	
Total wages cost	\$0	\$58,369	\$58,131	\$19,377	\$135,877

The Wages & Salaries Budget lists the pay of all employees who are directly working on the game, i.e. the production employees (programmer, artist, and designer). As you can see, these employees will only be paid during months when the game is in production. During Q1, they receive no salary because this time will be spent setting up the office, acquiring equipment, tending to legal matters, and getting a website. Also, the production personnel will cease working one month after the game is released, since the focus at that point will be on marketing the game, and therefore they will no longer be needed.

The production employees' payroll taxes are also included in this budget. The FICA tax listed here in the employer's matching portion of the tax, and it is calculated as 7.65% of annual income. The FUTA (Federal Unemployment) tax is calculated as 0.8% of the first \$7000 of an employee's income in a fiscal year. And finally, the SUTA (State Unemployment) tax is calculated as 0.26% of the first \$9000 of an employee's income in the fiscal year.

Overhead Budget

Minibox Games					
2010 Overhead Budget					
	Q1	Q2	Q3	Q4	Total
Rent	\$3,750	\$3,750	\$3,750	\$3,750	\$15,000
Utilities	\$450	\$450	\$450	\$450	\$1,800
Depreciation expense	\$765	\$765	\$765	\$765	\$3,060
Insurance	\$300	\$300	\$300	\$300	\$1,200
Misc office supplies	\$75	\$75	\$75	\$75	\$300
Total overhead costs	<u>\$5,340</u>	<u>\$5,340</u>	<u>\$5,340</u>	<u>\$5,340</u>	<u>\$21,360</u>
Less depreciation	<u>(\$765)</u>	<u>(\$765)</u>	<u>(\$765)</u>	<u>(\$765)</u>	<u>(\$3,060)</u>
Total overhead payments	\$4,575	\$4,575	\$4,575	\$4,575	\$18,300

This budget covers the overhead costs directly associated with the production of the game. The production employees and the administrative employees are sharing one office, and they are each taking up roughly half the space. Therefore, I split rent, utilities, insurance, and office supply expenses equally between this budget and the "Selling & Admin" budget.

The depreciation expense refers to depreciation on computer hardware, computer software, and office furniture. I assigned 60% of depreciation to this budget and 40% to Selling & Admin, since the production employees will use slightly more (and more expensive) equipment than the admin employees. The depreciation is calculated using the straight-line method, assuming a salvage value of \$5000 and 5 years of useful life.

Selling & Administrative Expense Budget

Minibox Games					
2010 Selling & Administrative Expense Budget					
	Q1	Q2	Q3	Q4	Total
Fixed wages S&A expenses					
Monthly salary per admin employee	\$3,000	\$3,000	\$3,000	\$3,000	\$6,000
Number of months worked in quarter	3	3	3	3	12
Total salary per admin employee	\$9,000	\$9,000	\$9,000	\$9,000	\$36,000
FICA tax per admin emp	\$688.50	\$688.50	\$688.50	\$688.50	\$2,754.00
FUTA tax per admin emp (on first \$7000)	\$72.00	\$56.00	\$0.00	\$0.00	\$128.00
SUTA tax per admin emp (on first \$9000)	\$23.40	\$0.00	\$0.00	\$0.00	\$23.40
Total payroll tax per admin employee	\$783.90	\$744.50	\$688.50	\$688.50	\$2,905.40
Number of admin emp per month	3	3	3	3	
Total wages cost	\$29,352	\$29,234	\$29,066	\$29,066	\$116,716
Other fixed S&A expenses					
Advertising	\$0	\$0	\$14,000	\$14,000	\$28,000
Rent	\$3,750	\$3,750	\$3,750	\$3,750	\$15,000
Utilities	\$450	\$450	\$450	\$450	\$1,800
Depreciation expense	\$510	\$510	\$510	\$510	\$2,040
Insurance	\$300	\$300	\$300	\$300	\$1,200
Web Hosting	\$90	\$90	\$90	\$90	\$360
Legal fees	\$1,000	\$0	\$0	\$0	\$1,000
Web Design fees	\$4,500	\$0	\$0	\$0	\$4,500
Misc office supplies	\$75	\$75	\$75	\$75	\$300
Total other fixed S&A costs	\$10,675	\$5,175	\$19,175	\$19,175	\$54,200
Total S&A expenses	\$40,027	\$34,409	\$48,241	\$48,241	\$170,916
Less depreciation	(\$510)	(\$510)	(\$510)	(\$510)	(\$2,040)
Total S&A payments	\$39,517	\$33,899	\$47,731	\$47,731	\$168,876

The Selling & Admin Expense Budget contains the salaries and payroll taxes for the three administrative employees. It also includes the other half of the office-related expenses, such as rent, utilities, and office supplies.

There are also a number of new expenses on this budget. For example, it includes the advertising expenses, as well as one-time startup fees for legal counsel and website design. In addition, this budget includes web hosting fees, since these are related to “selling” (the website is primarily designed to function as an advertisement for the game).

Budgeted Service Cost Sheet

Minibox Games 2010 Budgeted Service Cost Sheet		
		Total
Annual variable supplies cost	\$172,500	
Annual wage cost	<u>\$135,877</u>	
Total annual variable service costs	\$308,377	
Annual volume of units sold	<u>287500</u>	
Total variable cost per unit		\$1.07
Annual fixed supplies cost	\$40,000	
Annual fixed overhead cost	<u>\$21,360</u>	
Total annual fixed service cost	\$61,360	
Total volume of units sold	<u>287500</u>	
Fixed cost allocated per unit		\$0.21
Total service cost per unit sold		\$1.29

These numbers on this budget are fairly self-explanatory, since they are pulled directly from other budgets.

Cash Budget

Minibox Games					
2010 Cash Budget					
	Q1	Q2	Q3	Q4	Total
Receipts					
Collections from customers	\$0	\$15,000	\$30,000	\$1,025,000	\$1,070,000
Payments					
Variable supplies	\$0	\$0	\$0	\$172,500	\$172,500
Direct labor	\$0	\$58,369	\$58,131	\$19,377	\$135,877
Overhead	\$5,340	\$5,340	\$5,340	\$5,340	\$21,360
Fixed supplies	\$0	\$24,000	\$16,000	\$0	\$40,000
Selling & Admin exp	\$40,027	\$34,409	\$48,241	\$48,241	\$170,916
Interest payments (5% annual)	\$0	\$0	\$0	\$17,500	\$17,500
Equipment purchase	\$30,500	\$0	\$0	\$0	\$30,500
Total payments	<u>\$75,867</u>	<u>\$122,118</u>	<u>\$127,712</u>	<u>\$262,958</u>	<u>\$588,653</u>
Financing					
Beginning cash bal	\$350,000	\$284,272	\$178,090	\$108,994	\$921,356
Total receipts	\$0	\$15,000	\$30,000	\$1,025,000	\$1,070,000
Total payments	<u>(\$75,867)</u>	<u>(\$122,118)</u>	<u>(\$127,712)</u>	<u>(\$262,958)</u>	<u>(\$520,653)</u>
Cash available	\$274,133	\$177,155	\$80,379	\$871,036	\$1,470,703
Min cash desired	<u>(\$100,000)</u>	<u>(\$100,000)</u>	<u>(\$100,000)</u>	<u>(\$100,000)</u>	<u>(\$400,000)</u>
Cash excess (deficiency)	\$174,133	\$77,154	(\$19,621)	\$771,036	\$1,002,703
Borrowings			\$19,621		\$19,621
Repayments of principal				(\$19,621)	(\$19,621)
Total financing inflows (outflows)			<u>\$19,621</u>	<u>(\$19,621)</u>	<u>\$0</u>
Ending Cash Balance	\$274,133	\$177,155	\$100,000	\$851,415	

The cash budget indicates that the company will have a relatively healthy cash flow. Of course, the cash becomes somewhat low at the beginning of Q3, since the game is not released until Q4. Therefore, it may be necessary to borrow \$19,621 in order to maintain the minimum desired cash level of \$100,000.

Budgeted Income Statement

Minibox Games	
Budgeted Income Statement	
	2010
Revenues	
Ad Sales	45000.00
Game Sales	575000.00
App Store sales fees	172500.00
Production Wages	144000.00
Production Salary tax	11254.20
Licensing Fees	40000.00
Total Cost of Services	367754.20
Gross Margin	252245.80
Gross Margin %	43.87%
Operating Expenses	
Advertising expense	28000.00
Admin Wages expense	108000.00
Admin payroll tax expense	8500.20
Interest expense	17500.00
Depreciation expense	5100.00
Utilities expense	3600.00
Web Hosting expense	330.00
Insurance expense	2400.00
Rent expense	30000.00
Supplies expense	600.00
Legal Fees	1000.00
Web Designer fees	4500.00
Total Operating Expenses	209530.20
Profit Before Interest & Taxes	42715.60
Interest Expense	17500.00
Income Taxes	8573.30
Net Profit	34142.296
Net Profit/Sales	5.94%

As you can see on the Budgeted Income Statement, the company's net profit for the first year of operation will be quite low. However, it is fairly normal for a video game company to initially have very little profit (or even a net loss). The company plans to remedy this situation in future years by releasing two games per year, which should be possible with no additional employees or equipment.

Budgeted Balance Sheet

Minibox Games	
Budgeted Balance Sheet	
	2010
Assets	
Short-term Assets	
Cash	254774.10
Game Sales Receivable	200000.00
Less Sales Fees	-60000.00
Office Supplies	0.00
Prepaid Web Hosting	30.00
Total Short-term Assets	394804.10
Long-term Assets	
Network Hardware	5500.00
Office Computers	8000.00
Office Furniture	9000.00
Software	8000.00
Accumulated Depreciation	-5100.00
Total Long-term Assets	25400.00
Total Assets	420204.10
Liabilities and Capital	
Salaries payable	6811.50
Federal W/H payable	1500.00
FICA payable	1377.00
Utilities payable	300.00
Income Tax payable	8573.30
Note payable	350000.00
Interest payable	17500.00
Total Liabilities	386061.80
Owner's Equity	
Retained Earnings	0.00
Net Profit	34142.30
Total Capital	34142.30
Total Liabilities and Owner's Equity	420204.10

As you can see, the numbers on the Budgeted Balance Sheet do not match up with those on the Cash Budget. This is because the Cash Budget assumes that all income and expenses that are incurred in the calendar year will be collected and paid in that year.

However, when I examined this same company last semester, I created the financial statements using accrual accounting. Realistically, the company would probably operate using accrual accounting, and would have a substantial amount of outstanding payables and receivables at the end of the year. Therefore, I wanted to include that perspective in this budget.

Also, a note about the salaries payable: This is listed as \$6811.50 because it covers the three admin employees who each have a salary of \$3000 per month. After subtracting the federal withholding and the employees' share of the FICA taxes (\$688.50), the result is \$6811.50.

C-V-P Analysis

Break-even point

Sales revenue – Variable Costs – Fixed Costs = \$0

$(\$2 * X) - (\$1.07 * X) - \$366,113 = \0

$2X - 1.07X - \$366,113 = \0

$0.93X = \$366,113$

$X = 393,670$

Contribution Margin

Sales revenue – Variable Costs = Contribution Margin

$\$1,070,000 - \$308,377 = \text{Contribution Margin}$

Contribution Margin = \$761,623

Targeted Income

Target Income = Sales revenue – Variable Costs – Fixed Costs

Target Income = $\$1,070,000 - \$308,377 - \$366,113$

Target Income = \$395,510

Summary / Evaluation

My project turned out to be moderately profitable. Due to high labor and startup costs, the net income was fairly low. However, as noted above, it is fairly normal for video game companies to not be profitable for several years. Theoretically, the company could release more games in future years (without adding any more staff) and make a larger profit as a result. I am definitely going to keep mobile game development in mind as a future career path, especially since it has a lower barrier to entry than other types of game development.

From my analysis, I also learned that categorizing expenses for a service company that delivers a purely digital product is extremely tricky and ambiguous. For products that have no physical manifestation, and that are infinitely reproducible, it is very difficult to determine a variable cost. Many internet, digital media, and software companies could be described in this way. Effectively, the variable cost for many of these companies is zero.

Interestingly, this ties into a discussion we had during our Intro to Digital Media Class, where we read an article by Chris Anderson titled "Free". In this article, he argued that due to the unique economics of this medium, digital media companies could make money by giving away their product for free and selling services or add-ons around that product. The concept for my company approaches this idea by making the initial game very cheap and selling add-ons. However, I could potentially push this concept even further by making one level of the game entirely free and selling the rest of it as a series of add-ons.