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Report 1

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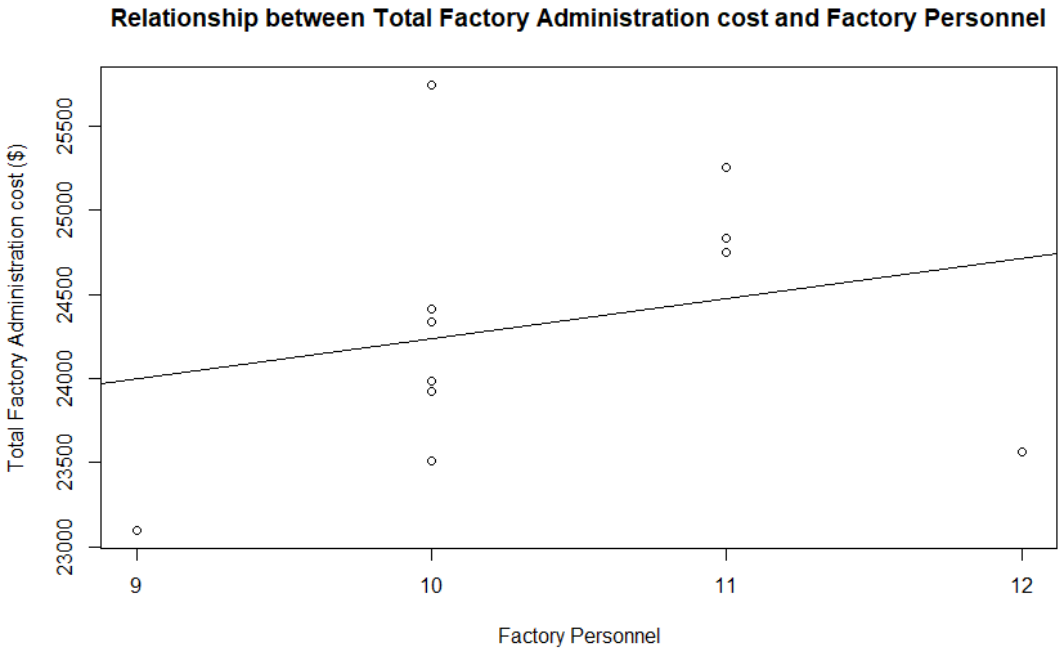
I Introduction

Akia Ltd. currently confronts a significant problem as to whether there is an urgent need to adjust the product prices that they manufactured. The primary focus of this report is placed on an investigation about if the present selling price for each type of product is sufficient to cover their respective costs and leads to a profitable outcome. These results are summarised in the Schedules. In section II, a simple regression is generated to identify the most appropriate base to allocate factory administration cost under the ABC approach. In Section III, the profitability of the three products under the three methods are also computed. Section IV purports to advise Akia on possible decisions that can improve its profits.

II Task 1 – Regression Analysis

1. Factory Personnel

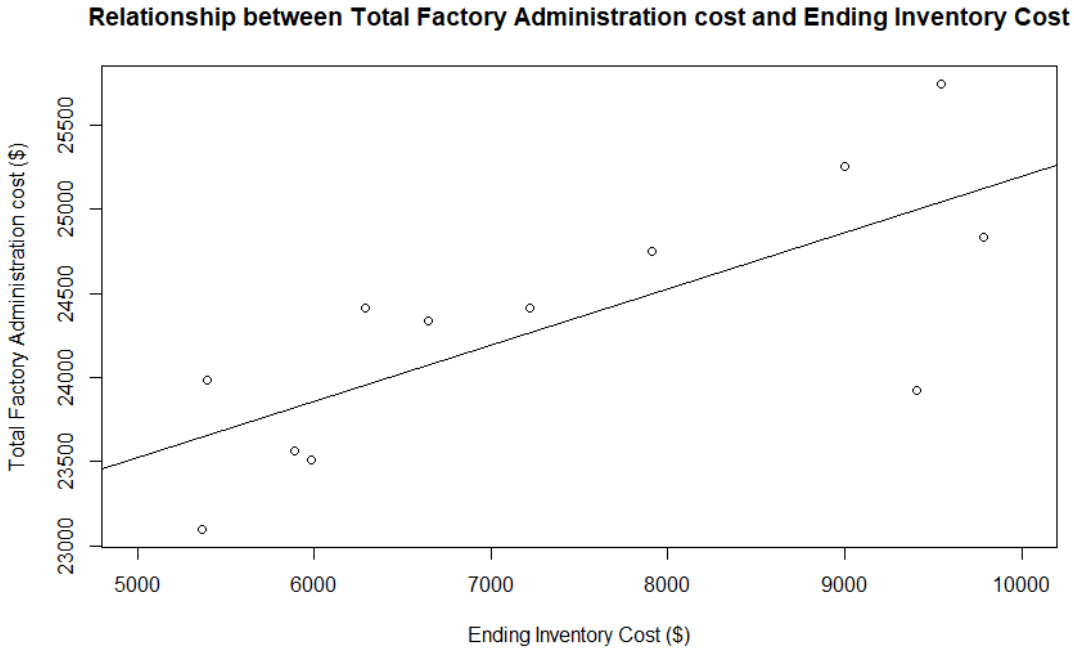


SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.244930393							
R Square	0.059990897							
Adjusted R Square	-0.034010013							
Standard Error	770.8433044							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	379215	379215	0.638194855	0.442925337			
Residual	10	5941994	594199.4					
Total	11	6321209						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	21854	3092.99375	7.065646349	3.43363E-05	14962.38046	28745.61954	14962.38046	28745.61954
X Variable 1	238.5	298.5463281	0.798870988	0.442925337	-426.7026727	903.7026727	-426.7026727	903.7026727

It is reasonable to expect a positive relationship between total factory administration cost and factory personnel. As the number of factory personnel increases, more resources are dedicated to the coordination of employees and the monitoring of their behaviours, leading to a higher total factory administration cost. However, the regression line does not appear to fit the data to a satisfactory degree as the vertical differences between the predicted and actual costs are arguably quite large. The R-

squared value also indicates that only around 6.00% of the variation in the response variable can be explained by the independent variable. While the scatterplot depicts a curvilinear relationship, the independent variable is also not statistically significant as its t-value is only approximately 0.80 compared to the t-critical value of 2.228. Therefore, it is inappropriate to allocate total factory administration cost based on factory personnel.

2. Ending Inventory Cost

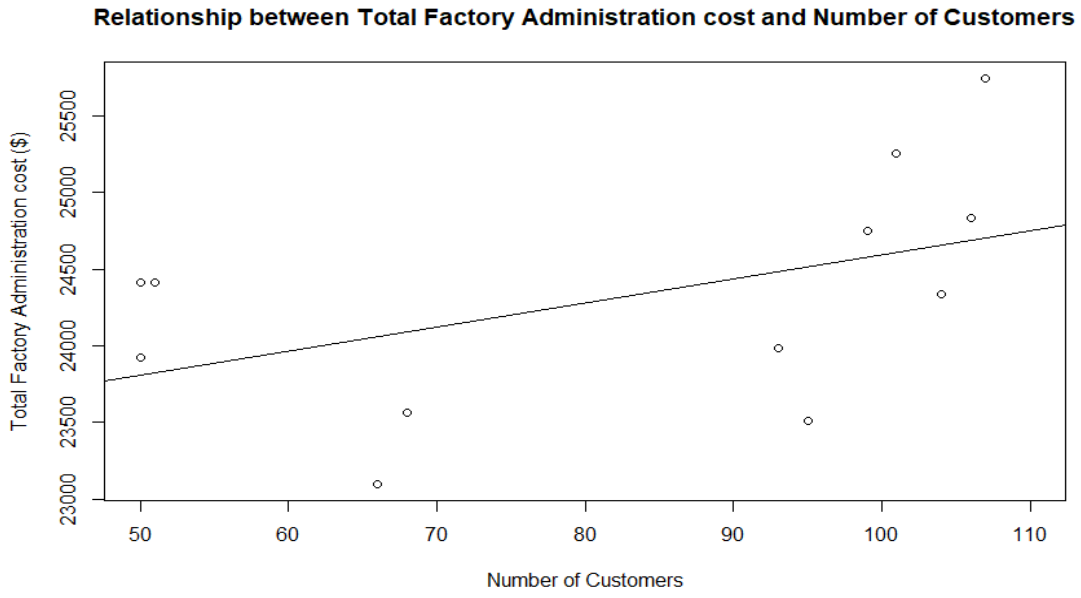


SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.743973584							
R Square	0.553496693							
Adjusted R Square	0.508846362							
Standard Error	531.2664795							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	3498768.278	3498768.278	12.3962507	0.005530759			
Residual	10	2822440.722	282244.0722					
Total	11	6321209						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	21858.65217	715.2900204	30.559146	3.29978E-11	20264.88668	23452.41765	20264.88668	23452.41765
X Variable 1	0.333844242	0.09481973	3.520830967	0.005530759	0.122572717	0.545115766	0.122572717	0.545115766

The relationship between ending inventory cost and total factory administration cost is economically plausible because the costs incurred by the company to manage the stock

would be higher given the level of ending inventory cost increases. Besides, the R-squared value is sufficiently large, representing that more than 50% of the variance in the dependent variable can be predicted by the ending inventory cost. Moreover, not only does the scatterplot shows a linear relationship, the independent variable is also statistically significant in that the associated t-value is far greater than the t-critical value. Therefore, it is justifiable to allocate total factory administration cost on the basis of ending inventory cost.

3. Number of Customers

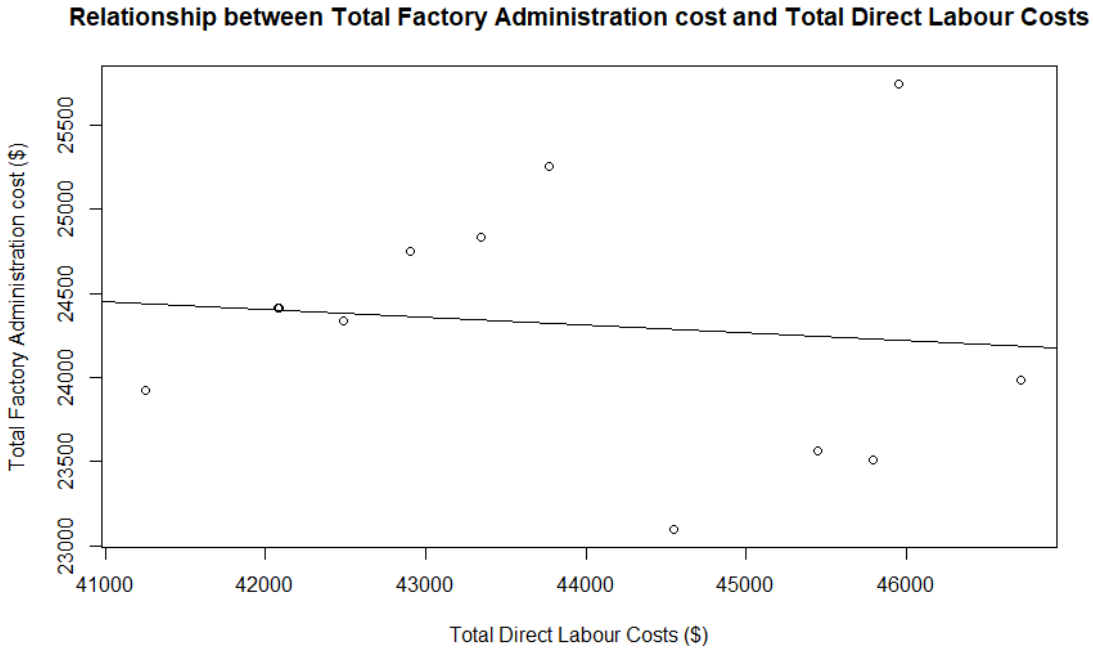


SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.490051596							
R Square	0.240150567							
Adjusted R Square	0.164165623							
Standard Error	693.0488493							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	1518041.924	1518041.924	3.160502019	0.105807843			
Residual	10	4803167.076	480316.7076					
Total	11	6321209						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	23015.22242	759.9021515	30.2870868	3.60531E-11	21322.05492	24708.38993	21322.05492	24708.38993
X Variable 1	15.79730396	8.885971962	1.777780082	0.105807843	-4.001875405	35.59648333	-4.001875405	35.59648333

It is arguable that there is a positive association between the number of customers and the total factory administration cost, as one key component of the latter is selling costs

which will vary depending on the number of customers. However, the graph shows that this relationship is likely to be curvilinear. The R-squared value also indicates that less than 30% of the variance is accounted for by the regression model, suggesting unsatisfactory goodness of fit. The t-value, on the other hand, is smaller than the t-critical value, signifying that the slope is not sufficiently steep to be qualified as being statistically significant. Hence, this allocation base is inappropriate.

4. Total Direct Labour Costs

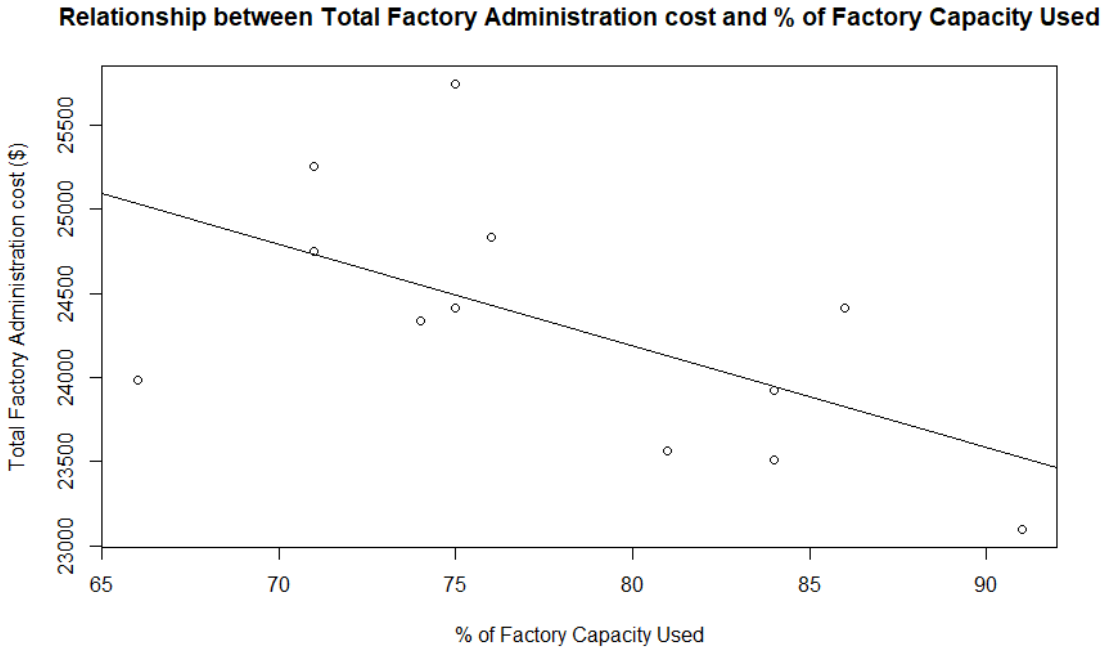


SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.109300325							
R Square	0.011946561							
Adjusted R Square	-0.086858783							
Standard Error	790.2969246							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	75516.70902	75516.70902	0.12091007	0.735257461			
Residual	10	6245692.291	624569.2291					
Total	11	6321209						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	26342.70676	5825.81766	4.521718375	0.001105413	13361.97609	39323.43743	13361.97609	39323.43743
X Variable 1	-0.046147073	0.132712835	-0.347721253	0.735257461	-0.341849698	0.249555551	-0.341849698	0.249555551

Arguably, there is no logical relationship between total factory administration cost and total direct labour costs as the former is a type of indirect costs that is mutually exclusive from the direct labour costs. It is also noticeable that potentially by reason of

heteroscedasticity the scatterplot of residuals versus predicted values reveals a slightly cone-shaped pattern in the distribution instead of a linear one. While the R-squared value is nowhere near the threshold value of 0.3, the independent variable is also not statistically significant as manifested by the absolute value of t-statistics being far smaller than the t-critical value. Therefore, using total direct labour costs as the allocation base is illegitimate.

5. Percentage of Factory Capacity Used



SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.584173363							
R Square	0.341258518							
Adjusted R Square	0.27538437							
Standard Error	645.2939317							
Observations	12							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	2157166.417	2157166.417	5.180461951	0.046093189			
Residual	10	4164042.583	416404.2583					
Total	11	6321209						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	29010.26362	2069.750454	14.01630982	6.69743E-08	24398.57222	33621.95502	24398.57222	33621.95502
X Variable 1	-60.27961819	26.48416279	-2.276062818	0.046093189	-119.2900103	-1.269226116	-119.2900103	-1.269226116

It is reasonable to expect that as the percentage of factory capacity used in manufacturing products increases, the company will start to enjoy the benefit of cost savings brought about by the occurrence of economies of scale. As a result, total factory

administration cost is negatively associated with the level of factory capacity used. Moreover, the regression line is self-evidently linear with a relatively high level of goodness of fit to the actual data. The R-squared value represents that more than 30% of the variance is accounted for. In addition, the absolute value of t-statistics is also greater than the t-critical value. Therefore, the percentage of factory capacity used might also serve as an effective allocation base.

6. Conclusion

As such, a decision pertaining to the superior allocation base must be made between ending inventory cost and percentage of factory capacity used. Given the larger R-squared value and t-value, it is arguable that ending inventory cost retains a stronger relationship with total factory administration cost. Thus, ending inventory cost should be the most appropriate allocation base.

III Task 2 – Costs and Profitability Analysis

1. Drivers of the differences

When the volume-based costing method is implemented, the product line of small ornaments yields the lowest profitability rate of -18.36%, in contrast with specialty ornaments with the highest profitability rate of 40.99%. However, the profitability ratio for each individual product line becomes radically different under the total of direct materials and direct labour costs allocation method. Small ornaments seem to possess the highest profitability rate and both the large and specialty ornaments retain a moderate level of profitability. By contrast, the ABC costing method — a method that captures a number of allocation bases — leads to another profitability distribution, notwithstanding the fact the results under this approach are similar to the ones under the volume-based costing method where the small ornaments have the lowest profitability and the special ornaments are of the highest profitability. In this case, the product line of small ornaments yields, albeit still the smallest among the three products, a positive profitability rate of 11.73%. The specialty ornaments, on the other hand, have the highest profitability of 25.14%. Therefore, it is apparent that the different allocation base used results in the differences in total manufacturing costs and profitability of the three products under three allocation methods.

2. Best allocation method

It is evident that manufacturing overhead costs represent a significant portion of the total costs incurred by the company, with each key component of it is driven by different allocation base. It is inappropriate to simply allocate this large amount of indirect costs over the three products merely using one or two cost pools as that would inevitably lead to inaccurate output costs, which in turn causes cross-subsidisation problems and irrational product mix decision. Also, if the company decided to adopt volume-based costing method or the total of direct material and direct labour costs method, it would obtain completely different results with respect to the costs and profitability of each individual product line simply by using different allocation base. Therefore, in such circumstance, it is more appropriate to adopt the ABC costing method in which total

manufacturing overhead is effectively allocated to the activities involved and then to the cost objects. By doing so, multiple potential cost drivers are considered and output costs will be more accurate.

IV Task 3 – Recommendations

1. Pricing and Product-Mix Decisions

Given that the highest profitability of specialty ornaments, it is recommended that the company should focus on producing specialty ornaments to maximise its profits. As the total manufacturing cost per box for specialty ornaments is the least amongst the three products, the company may consider to slightly cut its price to stimulate the purchase of this type of products while still ensuring a reasonable amount of profits ensuing from the selling.

2. Cost Reduction and Process Improvement Decisions

As both product scheduling and machine setup costs are driven by the number of batches, it is possible to improve the profit by increasing batch size. As batch size increases, the number of batches will drop and fewer setups are required. Therefore, the time and costs related to machine setups are reduced. Besides, the company can also automate the process of inspection for the product line of specialty ornaments. By doing so, the number of inspections and the cost each time of inspection are reduced.

3. Design Decisions

The company can also consider shortening the manufacturing cycle to reduce the factory administration costs for small ornaments by cutting its ending inventory costs. Further, the company may choose to simplify its packaging design to cut the costs and improve the profits.

4. Planning and Managing Analysis

The company should anticipate the budgeted cost for activities and estimate the budgeted manufacturing cost per unit to its products. At the end of the year, the company can compare the actual and budgeted costs to discover any deficiencies within the current activities and processes and make necessary refinements.

V Conclusion

This report has provided the total manufacturing costs and profitability for each product that Akia manufactured under different approach. It concludes that ABC costing method is the most appropriate allocation method. In the end, it proposed, from four different aspects, some possible decisions that Akia can consider to improve its profits.

(Word Count: 1497)

VI Appendix

- Number of boxes:

  Small ornaments: $\frac{960{,}000}{10} = 96{,}000$

  Large ornaments: $\frac{540{,}000}{4} = 135{,}000$

  Specialty ornaments: $\frac{150{,}000}{1} = 150{,}000$

- Total number of ornaments (Planned Production):

  960,000 + 540,000 + 150,000 = 1,650,000

Planned production as the allocation base for indirect costs

Cost	**Small ornaments**	**Large ornaments**	**Specialty ornaments**	**Total**
Total Direct Materials (DM) and Direct Labour (DL) Costs	$768,000 ($8×96,000)	$1,350,000 ($10× 135,000)	$1,500,000 ($10×150,000)	$3,618,000
Total Factory Overhead Costs	$1,163,636.36 ($2,000,000 $\times\frac{960}{1650}$)	$654,545.45 ($2,000,000 $\times\frac{540}{1650}$)	$181,818.18 ($2,000,000 × $\frac{150}{1650}$)	$2,000,000
Total manufacturing Costs	$1,931,636.36	$2,004,545.45	$1,681,818.18	$5,618,000
Total manufacturing cost per box	**$20.12**	**$14.85**	**$11.21**	

Total direct material and direct labour costs as the allocation base

Cost	Small ornaments	Large ornaments	Specialty ornaments	Total
Total Direct Materials (DM) and Direct Labour (DL) Costs	$768,000 ($8×96,000)	$1,350,000 ($10× 135,000)	$1,500,000 ($10×150,000)	$3,618,000
Total Factory Overhead Costs	$424,543.95 ($2,000,000 $\times\frac{768}{3,618}$)	$746,268.66 ($2,000,000 $\times\frac{1350}{3618}$)	$829,187.40 ($2,000,000 × $\frac{1500}{3618}$)	$2,000,000
Total manufacturing Costs	$1,192,543.95	$2,096,268.66	$2,329,187.40	$5,618,000
Total manufacturing cost per box	**$12.42**	**$15.53**	**$15.53**	

Activity-based Costing

Activities	Total Cost	Cost Driver	Units of cost driver	Allocation rate
Production Scheduling	$150,000	Number of batches	3,000 (800+1,200+1,000)	$50 per batch
Machine Setups	$300,000	Number of batches	3,000 (800+1,200+1,000)	$100 per batch
Equipment depreciation	$340,000	Number of Machine Operations	6,390,000 (960,000×3+540,000× 4+150,000×9)	$0.05 per machine operations

Factory depreciation	$200,000	Factory Area	20,670 (96,000×0.07+135,000×0.07+150,000×0.03)	$9.68 per factory area
Quality inspection	$140,000	Number of Inspections	1,266,000 (96,000×1+135,000×2+150,000×6)	$0.11 per inspection
Packaging	$570,000	Number of Boxes	381,000 (96,000+135,000+150,000)	$1.50 per box
Factory administration	$300,000	Ending inventory cost	85,500 (51,300+21,600+12,600)	$3.51 per inventory cost

Activities	**Small ornaments**	**Large ornaments**	**Specialty ornaments**	**Total**
Total Direct Materials (DM) and Direct Labour (DL) Costs	$768,000 ($8×96,000)	$1,350,000 ($10×135,000)	$1,500,000 ($10×150,000)	$3,618,000
Production Scheduling	$40,000 ($50×800)	$60,000 ($50×1,200)	$50,000 ($50×1,000)	$150,000
Machine Setups	$80,000 ($100×800)	$120,000 ($100×1,200)	$100,000 ($100×1,000)	$300,000
Equipment depreciation	$153,239.44 ($0.05×960,000×3)	$114,929.58 ($0.05×540,000×4)	$71,830.99 ($0.05×150,000×9)	$340,000

Factory depreciation	$65,021.77 ($9.68×0.07×96,000)	$91,436.87 ($9.68×0.07×135,000)	$43,541.36 ($9.68×0.03×150,000)	$200,000
Quality inspection	$10,616.11 ($0.11×1×96,000)	$29,857.82 ($0.11×2×135,000)	$99,526.07 ($0.11×6×150,000)	$140,000
Packaging	$143,622.05 ($1.50×96,000)	$201,968.50 ($1.5×135,000)	$224,409.45 ($1.5×150,000)	$570,000
Factory administration	$180,000 ($3.51×51,300)	$75,789 ($3.51×21,600)	$44,211 ($3.51×12,600)	$300,000
Total manufacturing Costs	$1,440,499.37	$2,043,981.77	$2,133,518.87	$5,618,000
Total manufacturing cost per box	$15.01	$15.14	$14.22	

Profitability of three products

- Small ornaments

Allocation Method	**(i) planned productive volume**	**(ii) the total of direct material and direct labour costs**	**(iii) activity-based costing**

Sales ($17×96,000)	$1,632,000	$1,632,000	$1,632,000
Total Cost	$1,931,636.36	$1,192,543.95	$1,440,499.37
Net Profit	$-299,636.36	$439,456.05	$191,500.63
Profitability ($\frac{Profit}{sales}$)	-18.36%	26.93%	11.73%

- Large ornaments

Allocation Method	**(i) planned productive volume**	**(ii) the total of direct material and direct labour costs**	**(iii) activity-based costing**
Sales ($19× 135,000)	$2,565,000	$2,565,000	$2,565,000
Total Cost	$2,004,545.45	$2,096,268.66	$2,043,981.77
Net Profit	$560,454.55	$468,731.34	$521,018.23
Profitability	21.85%	18.27%	20.31%

- Specialty ornaments

Allocation Method	**(i) planned productive volume**	**(ii) the total of direct material and direct labour costs**	**(iii) activity-based costing**
Sales ($19× 150,000)	$2,850,000	$2,850,000	$2,850,000

Total Cost	$1,681,818.18	$2,329,187.40	$2,133,518.87
Net Profit	$1168181.82	$520812.6	$716,481.13
Profitability	40.99%	18.27%	25.14%

Report 2

Table of Contents

I Introduction

Activity-based costing (ABC) is an accounting method where the costs are firstly identified and assigned to activities involved and then assigned to the ultimate cost objects. This report purports to discuss three problems in a university setting, including the benefits and limitations of ABC system, the signals suggesting the adoption of ABC system are likely to provide benefits and the possible activities related to teaching. It is produced to advise UNS University on the employment of the ABC system.

II Advantages and Disadvantages

1. Benefits

On the one hand, it helps university managers understand the information about the costs incurred. Such information includes, but not limited to, “where the costs are, what drives them to occur, and which cost may be low-valued-added to the cost object” (Krishnan 2006, p. 87). It is arguable that the adoption of ABC costing system has the potential to unmask the real cost incurred by each division in the university by means of removing activities of no actual values (Krishnan 2006, p. 87). This is achieved by the fact that it provides more accurate information regarding the amount of costs and the justifiability of these costs in delivering the services to the students who are the ultimate cost objects (Krishnan 2006, p. 87).

On the other hand, the ABC system is able to generate highly intricate data that university executives can utilise to allocate various resources in a more efficient fashion and share with external bodies, such as policymakers, to assist them in acquiring a more sophisticated understanding over the activities undertaken by the colleges (Hurlburt, Kirshstein & Patrick 2014, p. 5). It is evident that this costing method facilitates the formation of future planning, “whether for a multiyear strategic plan or the targeting of specific initiatives in a shorter time period” (Hurlburt, Kirshstein & Patrick 2014, p. 5).

2. Limitations

Firstly, the educational activities are multifarious, of which some are interconnected. It is difficult to determine the specific cost of some activities. For instance, given there are no traditional working hours on the part of teaching staff, it is difficult to ascertain the specific working hours for lecturers spent on teaching, doing research and rendering other professional service (Lutisky & Dragija 2012, p. 36). In universities, the users of the teaching services, such as PhD candidates, can also be the service providers (Lutisky & Dragija 2012, p. 36). Under such circumstances, the identification of the

activities involved is implausible and it becomes almost impossible to allocate the total costs incurred over these activities, let alone over the ultimate cost objects.

Secondly, it might be costly and time-consuming to implement an ABC costing system. As this system requires the identification of all possible allocation bases (Goddard & Ooi 1998, p. 33), it necessitates the efforts on the part of the university to approach different colleges and inquire into the amount of costs incurred by the respective college as well as the cost drivers that they perceive to be. Arguably, such a process would inevitably entail a huge amount of labour costs and require a long period of time to complete.

III Signals

1. Continuous Unsatisfactory Profits and Growth

As observed by Cropper and Cook (2001, p. 67), in contemporary times universities continue to "function in a period characterised by limited resources and constraints on growth". That is, only a small amount of profits can be obtained by the university when delivering its teaching services for students' tuition fees. This situation may be further exacerbated by the growing pressure from the government that requires the institution to demonstrate the effectiveness of its fund management (Cropper and Cook 2001, p. 67). Under such circumstances, the traditional costing system may be archaic as the small profits may be occasioned precisely because of the implementation of the traditional approach that underestimates the costs of services provided by the university. Therefore, a more comprehensive costing method, such as ABC system that accounts for an array of cost drivers, needs to be adopted to estimate the costs with a high level of accuracy to sever the continuous unsatisfactory growth.

2. Large Amount of Overhead Costs

In producing its primary products such as teaching and research, universities inevitably incurred costs from activities such as renting, utility usage, database maintenance and administration. It is apparent that these overhead costs represent a significant proportion of the total costs incurred by the university. According to Coy and Goh (1995, p. 9), such a large amount of overhead costs may render the cost calculated under a single-basis approaches misleading as they "fail to capture the cause and effect relationships". As a result, it seems more appropriate to implement an activity-based costing method in which the overhead costs are initially allocated to activities and then to the cost objects.

3. Different Consumption of Resources

It is widely recognised that apart from teaching services, universities also produce other “products” such as academic research, public services, policy advisory and new technology research and development. It is evident that universities will incur very different type of costs and consume different type of resources in undertaking these activities. Moreover, the products and services provided by universities are likely to expand given the “increasing differentiation of institutions by function” (Alejandro 2000, p. 36). Therefore, the simplistic single-basis costing method to compute unit cost becomes untenable and a more advanced method such as ABC costing system is needed.

IV Activities Related to Teaching

In the university context, it is evident that the primary products produced by these institutions are teaching services.

1. **Unit-level activities**

a. Lecturing and Tutoring Activities

It is arguable that lecturing and tutoring activities are an essential segment of the broad notion of teaching services. As more teaching services, being the product of a university, are delivered, more lecturing and tutoring activities are automatically involved. Therefore, this type of activity could be properly classified as a unit-level activity and the faculty wages, as the associated costs with lecturing and tutoring services, can be regarded as unit-level costs.

b. Assessment-Marking Activities

Assessment-marking activities are a routine but significant component of teaching services. As professors provide more teaching services, the number of activities of marking students' assessments also increase accordingly. As such, these activities could be considered as unit-level. Meanwhile, the faculty wages, being a reward for teachers dedicating more time in marking assessments, also become greater with the increasing number of assessment-marking activities and should be categorised as unit-level costs.

2. **Batch-level activities**

Lecture-Recording Activities

Universities often contract with third-party application service providers to record lectures delivered. It can be reasonably expected that in concluding these contracts, universities need to make a lump sum payment to the third party for the unlimited usage of the software over a pre-specified period of time. Once the payment has been forwarded to the application service provider, there are no further costs that may be

incurred as a result of the increasing number of lectures provided by the university within the contracting period. Only after the contracting period, the university may consider renewing the contract by making another lump sum payment. Therefore, the lecture-recording activities should be considered as batch-level.

Other activities such as submitting assignments through Turnitin and receiving course grades through E-mails are arguably analogous to the lecture-recording activities.

3. Product-Sustaining Activities

a. Timetable-Arranging Activities

It is arguable that timetable-arranging activities are not an inherent part of the teaching services in the university but they play a significant role in preventing clashes and supporting the effectiveness of the delivery of such services. As teaching services such as classes planned to be delivered increase, administrative staffs need to devote more time in arranging timetables. The labour costs associated will, therefore, increase accordingly.

b. Supporting activities

Supporting activities include, but not limited to, renting examination rooms and providing utilities on campus. These activities are not directly related to the teaching services offered in the university, but are the necessary conditions for the successful performance of these services. As more teaching services are rendered by the university, more classrooms need to be rented and more utilities need to be used. As a result, more costs are incurred by the university to support the teaching activities. Therefore, these supporting activities are effectively product-sustaining activities.

4. Organisation-Sustaining Activities

IT Department Activities

IT department is in charge of course enrolment website development and database maintenance. It is evident that these activities are not beneficial for any specific

teaching service delivered by the university; however, they are conducted to benefit the university as a whole, by rendering the overall interaction between students and teachers more efficient. Therefore, the associated costs do not vary with the teaching services delivered in the university.

V Conclusion

This report not only listed a series of advantages and disadvantages of ABC systems but also provides signals suggesting the adoption of such a system. In the end, it discussed the activities related to teaching by using a hierarchy of activities structure. In general, it is recommended that UNS University should adopt the ABC system.

(Word Count: 1500)

VI References

Alejandro, J 2000, 'Utilizing an Activity-Based Approach for Estimating the Costs of College and University Academic Programs', *EdD Dissertation*, Baylor University, Texas.

Coy, D & Goh, G 1995, 'Overhead Cost Allocation by Tertiary Education Institutions', *Journal of Institutional Research in Australasia*, vol. 4, no. 1, pp. 1-10.

Cropper, P & Cook, R 2000, 'Activity-based costing in universities — Five years on', *Public Money and Management*, vol. 20, no. 2, pp. 61-68.

Goddard, A & Ooi, K 1998, 'Activity-Based Costing and Central Overhead Cost Allocation in Universities: A Case Study', *Public Money and Management*, vol. 18, no. 3, pp. 31-38.

Hurlburt,S, Kirshstein, R & Rossol-Allison, P 2014, 'The ABCs of Activity-Based Costing in Community Colleges', Washington, DC: American Institutes for Research and Johnson County Community College.

Krishnan, A 2006, 'An Application of Activity Based Costing in Higher Learning Institution: A Local Case Study', *Contemporary Management* Research, vol. 2, no. 2, pp. 75-90.

Lutilsky, ID & Dragija, M 2012, 'Activity Based Costing as a Means to Full Costing — Possibilities and Constraints for European Universities', *Management: Journal of Contemporary Management Issues*, vol. 17, no. 1, pp. 33-57.