

Assessment Task 2: Simulation Activity (Modelling Project)

Aligned subject learning outcomes	- relate principles of modelling to investigate business issues; - apply spreadsheet modelling skills to create decision models; - employ decision models to examine, analyse and solve business decision problems.
Aligned professional standards/competencies	https://www.cpaaustralia.com.au/cpa-program/professional-accreditation-guidelines/section-3-professional-skills-competency-areas-and-learning-outcomes .
Group or individual	Individual
Weighting	30%
Due date	

ASSESSMENT TASK 2: DESCRIPTION

The aim of this assessment is to apply modelling principles, data analytics and modelling skills to develop a decision model for a given business scenario using the information provided.

You are the business analyst of Omega Pty Ltd and have been given information regarding the business activities for the Year 2019, 2020 and 2021. The General Manager requests you to develop a decision model to analyse these information and submit a 1000 word summary report on the findings of your analysis and recommendation for the proposed Maroochydore store.

The business problem

Omega Pty Ltd, an Australian company selling whitegoods and consumer electronics including Washing Machines, Fridges, Computers and Tablets, Microwaves, TVs, Mobile Phones, Games and Consoles. Sales staff have been trained to sell all items.

Omega has sales outlets in Brisbane, Gold Coast, Townsville, and Cairns and *is considering opening a new store at Maroochydore*. The sales volumes and costs from this new store are expected to be similar to the Gold Coast, but there is an establishment cost of \$1million. The establishment cost are cost of setting up the new store (buying the building and renovation).

Mr Andy William, the financial analysis of Omega Pty Ltd, has worked up several options to financial the \$1 million establishment cost.

Omega Financing Options							
OPTION	Periods per Year	Annual Interest Rate	Duration in Years	Periodic Payment (PMT)	Present Value (PV)	Future Value (FV)	Annual Loan Payments
(1) MBank Loan	4	8.0%	5.00	\$ (61,157)	\$1,000,000	\$ 0	\$(244,627)
(2) Emergency Fund	12	3.5%	2.00	\$ 0	\$ (900,000)	\$ 965,159	
(3) Delay Project & Use Profits	12	4.0%	1.50	\$ (50,000)	\$ (69,736)	\$ 1,000,000	
(4a) Zbank w/\$150,000 Payments	2	8.5%	4.00	\$ (150,000)	\$1,000,000	\$ 0	\$(300,000)
(4b) Zbank Loan at 6.5% Rate	4	6.5%	2.91	\$ (95,000)	\$1,000,000	\$ 0	\$(380,000)

Andy has recommended Option 1 as the best option in financing the new store establishment cost. The annual loan amount of \$244,627 will be used in simulating the income statement Maroochyore store. (For detail analysis of the financing options - see Module 8: Topic 3)

The General Manager is uncertain what staffing levels should be set for this new Maroochyore outlet, and requests you to provide several staffing level options on the feasibility of the Maroochyore store.

You are the business analyst of Omega Pty Ltd and have been given information regarding the business activities for the Year 2019, 2020 and 2021. The General Manager requests you to develop a decision model to analyse these information.

The general manager specifically asks you to develop a decision model using Excel and develop some useful **KEY PERFORMANCE INDICATOR DASHBOARD (KPIs)** for analysis. The general manager also requests you to submit a 1000 words summary report to:

1. highlight the major findings of your analysis, and
2. recommend feasibility options of the proposed Maroochyore store.

The summary report will be use to brief the executive management meeting next month.

Instructions

In helping you to prepare the summary report, you **MUST** do the following to provide evidence to support your discussion and recommendation.

Part 1: Decision Model (75%)

You will be provided with a decision modelling template. The template contains many worksheets that has been designed to assist you to build the decision model for analysis and to build useful performance dashboard.

You are required to apply modelling principles, spreadsheet engineering technique and modelling skills to complete the template and develop an analytic decision model.

You are provided with series of videos in the learning activities to guide you to complete the template.

Part 2: Summary Report & Communication (25%)

Structure your summary report using headers. Focus the report on the findings of your analysis. Recommendation for Maroochyore store must be supported by your findings and analysis.

A sample report structure is provided for your reference.

Summary Report Sample



1. Profitability Analysis

Over the last three years, the outlets had contributed an accumulated total of A\$xxxxxx profit to Omega Pty Ltd. Brisbane outlet has been the major profit contributor for the past 3 years. Cairns outlet has outperformed Brisbane in 201X. Brisbane, Townsville and Cairns outlets show positive growth trends but *Gold Coast has demonstrated poor performance with a negative growth trend.* For product profitability, Hi-Fi Systems are most profitable follow by TVs and Fridges. (Your reference: worksheet)

2. Financial Performance Analysis

3. Sales Performance Analysis

4. Feasibility of Maroochydore store

Submission

1. Log on to you subject site on LearnJCU and select the assessment tab
2. Select the link to the assessment task 2 dropbox and upload your (1) decision model and (2) summary report.

Note:

- (1) Rename the template to include your name before submission (yourname.xlsx)
- (2) Include a cover page for the summary report. The cover page must have your name and student number.

Business Activities Information of Omega

Cost and revenue figures are available for the financial years ending 30 June 2018, 2019 and 2020. The staffing levels at each location for the past three years has been:

1. Staffing Levels

<i>Staff</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Manager	1	1	1	1
Admin staff	2	2	1	1
Sales staff	10	9	5	4

2. Labour cost for staff pa/person

The total labour cost (including salary and all salary related overheads) for staff are:

<i>Staff Level</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>
Manager	75,000	78,000	80,000
Admin staff	40,000	41,000	42,000
Sales staff	58,000	60,000	63,000

Apart from labour costs, all other costs are:

- Cost of goods sold (**COGS**)
- Fixed admin & operating costs (**FAOC**) (no increases in the past 3 years)
- Advertising and promotional costs (**APC**)
- Variable unit admin & operating costs (**VUAOC**) which is independent of location; where the total annual variable admin & operating cost for a location = $VUAOC \times \text{Average total inventory at that location for that year}$.

The average wholesale cost for each item, together with the average price the item was sold for during the past 3 years are:

3. Average wholesale cost and average sale price (\$/item)

<i>Item</i>	<i>Av wholesale cost (\$/item)</i>	<i>Av Sale Price (\$/item)</i>
Washing Machines	635	750
Fridges	550	650
Computers and Tablets	660	850
Microwaves	300	400
TVs	490	700
Mobile Phones	540	800
Games and Consoles	340	480

4. Fixed Admin & Operation Cost (FAOC) - (no increase in 3 years)

<i>Year</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
2019	300,000	285,000	130,000	115,000
2020	300,000	285,000	130,000	115,000
2021	300,000	285,000	130,000	115,000

5. Advertising and promotional cost (APC)

<i>Year</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
2019	95,000	90,000	60,000	40,000
2020	95,000	85,000	70,000	40,000
2021	100,000	85,000	75,000	42,000

6. Variable unit admin & operating costs (VUAOC)

A different VUAOC value has been assigned to each student for this assignment.

VUAOC Cost for locations (\$ per average item in inventory per year)

<i>Student</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Group 1	3,575	3,590	2,845	2,466
Group 2	3,598	3,866	3,445	2,639
Group 3	3,742	3,202	2,836	2,261
Group 4	3,507	3,735	3,403	2,696
Group 5	4,108	3,064	3,070	2,448
Group 6	4,062	3,350	2,901	2,315
Group 7	4,055	3,228	3,029	2,393
Group 8	3,772	3,395	3,155	2,190
Group 9	3,527	3,220	3,230	2,224
Group 10	3,808	3,809	3,336	2,274
Group 11	4,160	3,395	2,939	2,514
Group 12	3,646	3,438	2,826	2,427
Group 13	4,075	3,653	3,071	2,161
Group 14	4,249	3,036	3,248	2,582
Group 15	3,629	3,357	2,891	2,638
Group 16	4,204	3,126	3,222	2,447
Group 17	3,968	3,974	3,010	2,106
Group 18	3,646	3,482	3,199	2,786
Group 19	3,857	3,626	3,332	2,404
Group 20	4,199	3,393	3,357	2,036
Group 21	3,762	3,302	3,033	2,382
Group 22	3,852	3,254	3,460	2,194

Group 23	3,949	3,165	2,826	2,084
Group 24	4,372	3,679	3,442	2,140
Group 25	3,709	3,333	3,163	2,192
Group 26	3,588	3,580	3,267	2,471
Group 27	3,892	3,025	3,191	2,369
Group 28	3,678	3,570	3,217	2,633
Group 29	4,003	3,225	3,379	2,693
Group 30	4,083	3,105	3,373	2,758
Group 31	4,009	3,974	3,250	2,258
Group 32	4,155	3,075	3,356	2,263
Group 33	4,320	3,513	3,116	2,222
Group 34	4,441	3,741	2,996	2,217
Group 35	3,959	3,446	2,875	2,732
Group 36	4,438	3,639	2,912	2,765
Group 37	4,305	3,283	3,384	2,194
Group 38	4,159	3,382	3,437	2,159
Group 39	4,498	3,554	3,475	2,156
Group 40	4,373	3,720	2,944	2,011
Group 41	4,311	3,902	3,429	2,759
Group 42	3,979	3,715	3,330	2,524
Group 43	4,364	3,603	2,954	2,686
Group 44	3,867	3,545	3,258	2,753
Group 45	4,426	3,560	3,317	2,569
Group 46	4,166	3,579	3,437	2,592
Group 47	3,561	3,263	3,336	2,396
Group 48	4,456	3,716	3,156	2,362
Group 49	4,373	3,200	3,321	2,485
Group 50	3,523	3,213	3,324	2,231
Group 51	4,320	3,754	3,358	2,628
Group 52	3,690	3,583	2,815	2,487
Group 53	4,118	3,264	3,152	2,496
Group 54	3,680	3,972	3,246	2,689
Group 55	4,140	3,157	3,274	2,294
Group 56	3,761	3,134	3,172	2,747
Group 57	4,366	3,164	3,393	2,527
Group 58	4,230	3,747	3,301	2,512
Group 59	4,442	3,316	2,837	2,757
Group 60	3,688	3,227	3,101	2,665

7. Average inventories of each item/product during the past 3 years

7.1 Average Inventories (units) For Financial Year Ending June 2019

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	19	23	18	15
Fridges	31	26	17	14
Computers and Tablets	14	13	10	9
Microwaves	31	20	19	12
TVs	16	15	11	7
Mobile Phones	24	23	14	7
Games and Consoles	25	17	9	8

7. 2 Average Inventories (units) For Financial Year Ending June 2020

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	24	25	15	13
Fridges	30	26	16	14
Computers and Tablets	10	12	9	8
Microwaves	24	18	14	19
TVs	14	12	11	10
Mobile Phones	27	25	13	15
Games and Consoles	25	21	17	16

7.3 Average Inventories (units) For Financial Year Ending June 2021

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	28	20	25	13
Fridges	35	20	22	23
Computers and Tablets	14	19	6	5
Microwaves	32	26	28	17
TVs	27	12	16	17
Mobile Phones	34	27	23	16
Games and Consoles	23	14	24	18

8. Actual sales for each item/product for the past 3 years

8.1 Actual Sales (unit) For Financial Year Ending June 2019

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	1,837	1,316	871	683
Fridges	3,398	2,790	1,571	1,246
Computers and Tablets	884	542	516	640
Microwaves	2,487	1,968	1,255	1,150
TVs	1,712	1,364	714	686
Mobile Phones	2,238	1,709	1,104	972
Games and Consoles	2,281	1,729	1,121	914

8.2 Actual Sales (unit) For Financial Year Ending June 2020

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	1,928	1,512	1,116	1,073
Fridges	3,088	2,260	1,710	1,455
Computers and Tablets	769	679	589	601
Microwaves	2,740	1,927	1,310	1,066
TVs	1,655	1,057	768	779
Mobile Phones	2,381	1,579	1,200	1,123
Games and Consoles	2,289	1,564	1,201	884

8.3 Actual Sales (unit) For Financial Year Ending June 2021

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	2,396	1,288	1,536	1,249
Fridges	3,619	2,086	2,028	2,129
Computers and Tablets	878	424	467	665
Microwaves	2,656	1,642	1,729	1,360
TVs	1,837	856	998	1,267
Mobile Phones	2,927	1,462	1,511	1,578
Games and Consoles	2,600	1,210	1,347	1,467

9. Sales Target (units) for the past 3 years

9.1 Sales Target (unit) For Financial Year Ending June 2019

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	2,000	1,800	1,100	800
Fridges	3,000	2,600	1,600	1,100
Computers and Tablets	800	700	500	300
Microwaves	2,400	2,100	1,300	900
TVs	1,400	1,200	800	500
Mobile Phones	2,000	1,800	1,100	800
Games and Consoles	1,900	1,700	1,000	700

9.2 Sales Target (unit) For Financial Year Ending June 2020

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	2,000	1,600	1,100	900
Fridges	3,000	2,300	1,600	1,300
Computers and Tablets	800	700	500	400
Microwaves	2,400	1,900	1,300	1,000
TVs	1,400	1,100	800	600
Mobile Phones	2,000	1,600	1,100	900
Games and Consoles	1,900	1,500	1,100	800

9.3 Sales Target (unit) For Financial Year Ending June 2021

<i>Item</i>	<i>Brisbane</i>	<i>Gold Coast</i>	<i>Townsville</i>	<i>Cairns</i>
Washing Machines	2,140	1,400	1,300	1,100
Fridges	3,210	2,100	1,900	1,700
Computers and Tablets	856	600	500	500
Microwaves	2,568	1,700	1,500	1,300
TVs	1,498	1,000	900	800
Mobile Phones	2,140	1,400	1,300	1,100
Games and Consoles	2,033	1,400	1,200	1,100

Project Deliverables

In this simulation activity, students are to demonstrate their ability to apply modelling principles, data analytics and modelling skills to develop a decision model using Microsoft Excel for a given business scenario using the information provided.

Together with the decision model, students must also submit a summary report (word limit: 1000 words not including appendices) of their findings and recommendations.

Note: Students should keep a back-up copy of their decision model.

The assignment is due on **24/05/2020**. **This project contributes 30% to the overall subject grade.**

PROJECT ASSESSMENT CRITERIA

- Decision model (75%)
- Summary Report (25%)

(See attached criteria sheet for more details)

1. DECISION MODEL (75%) include the followings:

- a) Black Box Model (Full Model)
- b) Influence Diagram for Net Profit – (see Model Assumptions)
- c) Complete data analytics with income statement, “what if” analysis, pivot tables, and interactive Performance KPI Dashboards with slicers.
- d) Feasibility analysis of Maroochydhore store

2. SUMMARY REPORT (25%)

In the report, students **MUST** analyse and discuss the findings for General Manager

- a) Financial profitability analysis by location and by year
- b) Product profitability analysis by location by year
- c) Sensitivity Analysis (what-if-analysis)
- d) Analysis and recommendation for Maroochydhore store. You must justify your recommendation based on your analysis and findings.

(Note: Recommendation may varies for each students due to different in VUAOC cost)

Students will be given a template as a guide to assist in developing the decision model.

Model Assumptions (Formula for Excel Calculations)

Profitability & Financial Performance

(For Influence Diagram)

Net Profit before tax = Total Revenue – Total Operating Costs

- Total Revenue = Revenue 2019 + Revenue 2020 + Revenue 2021
 - o Revenue (2019) = Actual Sales (2019) * AV sales price (\$/item)
 - o Revenue (2020) = Actual Sales (2020) * AV sales price (\$/item)
 - o Revenue (2021) = Actual Sales (2021) * AV sales price (\$/item)
- Revenue = Actual Sales * Av Sales price (\$/item)
- Total Operating Cost = Operating Costs 2019 + Operating Costs 2020 + Operating Cost 2021
 - o Operation Costs (2019) = Labour Cost (2019) + FAOC (2019) + VUAOC(2019) + APC (2019) + COGS (2019)
 - o Operation Costs (2020) = Labour Cost (2020) + FAOC (2020) + VUAOC(2020) + APC (2020) + COGS (2020)
 - o Operation Costs (2021) = Labour Cost (2021) + FAOC (2021) + VUAOC(2021) + APC (2021) + COGS (2021)
- Labour Cost = Staffing Level * Labour Cost for staff pa/person
- FAOC (given)
- APC (given)
- COGS = Actual Sales * Av wholesale cost (\$/item)
- VUAOC = VUAOC Cost for Location * Total Av inventories for Location

Sales Performance

Sales Performance = (Actual Sales - Sales Target) / Sales Target

Revenue Contribution = Average Revenue / Total Average Revenue

Maroochydore Store Analysis

Assumptions:

- The sales volumes and costs of the proposed Maroochydore store are expected to be similar to the Gold Coast.
- There is an establishment cost of \$1 million. But financing through a 5 year Mbank loan. Annual loan payment is calculated using Financing Option 1.
- The Forecast Income Statement for Maroochydore is similar to the Gold Coast with additional annual establishment cost (annual loan payment)

Scenario Analysis

Scenario 1:

Setting staff level to 12 staff (1 Manager, 2 Admin Staff, 9 Sale Staff)

Construct a forecast income statement for Maroochydore and varying revenue (0% growth, 10% decrease, 10% increase and 20% increase) AND

Scenario 2:

Setting staff level to 6 staff (1 Manager, 1 Admin Staff, 4 Sale Staff) – 0% growth in revenue

Scenario 3:

Setting staff level to 6 staff (1 Manager, 1 Admin Staff, 4 Sale Staff) – 5% growth in revenue with establishment cost.

Scenario 4:

Setting staff level to 6 staff (1 Manager, 1 Admin Staff, 4 Sale Staff) – 10% growth in revenue with establishment

(You can use other settings, but the interpretation MUST be based on scenarios of your setting)

NOTE:

The power, interpretation and analysis of your results /findings are very much depends on the right types of graphs, charts, tables, what-if-analysis (goal seek, data tables, scenarios), and PIVOT table created.

ASSESSMENT TASK 2: CRITERIA SHEET

Modelling Project: grading criteria (30% of assessment)

Level of achievement

Criteria	Excellent 80-100%	Good 65 to 79%	Satisfactory 50 to 64%	Unsatisfactory 0 to 49%	Grade
Decision Model Building, Application and Analysis (75%)					
Model Building Demonstrate understanding of modelling principles and modelling process. Correct use of black box model and influence diagram. (SLO K1; CLO K1) Weight 15%	Excellent application of modelling process (e.g., well-structured spreadsheet with meaningful naming, modularise and parameterize with multiple spreadsheet, design for communication. Accurate use of black box model and influence diagram.	Good application of modelling process (e.g., evidence of well-structured spreadsheet with meaningful naming, modularise and parameterize with multiple spreadsheet, design for communication. Accurate use of black box model and influence diagram with some errors / incomplete variables.	Evident of application of modelling process (e.g., some evidence of well-structured spreadsheet. Evidence use of black box model and influence diagram with some errors / incomplete variables.	Poor application of modelling process (e.g., no evidence of well-structured. No black box model and influence diagram.	
Applications Application of Excel skills to analyse relevant data/information (SLO S1; CLO A1) Weight 30%	Demonstrates excellent competence in selection and application of correct Excel tools (e.g., graph/chart, what-if-analysis, pivot table) techniques to analyse data. Correct variables selected to address business problem. Tables, graphs and information are accurate.	Demonstrates sound competence in selection and application of appropriate Excel tools (e.g., graph/chart, what-if-analysis, pivot table) / techniques to analyse data. Some errors in variable selection to address business problem. Some improvements are required. Minor inconsistency and inaccuracy in information.	Demonstrates some competence in selection and application of appropriate Excel tools / techniques to analyse data. Some errors in variable selection to address business problem. Major improvements are required. Substantial errors and inconsistency in information.	Demonstrates little or no competence in selection and application of appropriate Excel tools / techniques. Errors in variable selection to address business problem. Significant improvements are required. Major errors in information	
Analysis Interpret numerical data and draw conclusions (SLO A1; CLO K2, S1) Weight 30%	Findings have been documented, interpreted in the appropriate spreadsheet. Clear connections are made between results, theory/concepts and business problem. Expected / unexpected findings were summarised. Recommendations and conclusions are clear and with logical connection between results, business problem. Implications of the results are discussed.	As a minimum, evidence of findings are documented and interpreted in the appropriate spreadsheet. Some connections to theory / concept are made but misses one or two important explanations. Findings are summarised. Recommendations are evident and conclusions are drawn with some connection between results, business problem. Some implications are discussed.	As a minimum, evidence of findings are documented. Major improvements are needed. Some connections to theory / concept are made but misses one or two important explanations. Findings are summarised. Basic connection between results, business problem. No implication is discussed.	Incomplete and/ or incorrect interpretation of findings. Indication of lack of understanding of results and connection to underlying theory/key concepts. No findings and recommendations. No connection between the results business problem.	
Reporting and Recommendations (25%)					
Content Development Logical flow, critical analysis, clear & relevant outcomes; concise and cohesive include executive summary. (CLO S3) Weight: 10%	Demonstrates excellent ability to develop, organise content in a logical, concise and cohesive manner with sound critical analysis, and outcomes supported with clear evidence from the modelling results. The executive summary flows concisely from the report.	Demonstrates sound ability to develop, organise content in a logical, concise and cohesive manner with basic critical analysis, and outcomes supported with some evidence from the modelling results. The executive summary flows from the report.	Demonstrates basic ability to develop, organise content in a logical, concise and cohesive manner with basic critical analysis, and outcomes supported with some evidence from modelling results. The executive summary has some relevant links to the report.	Demonstrate little or no ability to develop, organise content in a logical, concise and cohesive manner. Lacks critical analysis and/or outcomes supported with no evidence. The executive summary, if included, has few relevant links to the report.	
Conclusions and Recommendation Concise and logical link to the report; recommendation flows from the conclusions & critical issue adding stakeholder value (CLO S3) Weight: 10%	Conclusions are concise and logically linked to the body of the report. The outcome in the form of a recommendation flows from the conclusion/ critical issue adding excellent stakeholder value.	Conclusions provide good links to the body of the report. The outcome in the form of a recommendation is linked to the conclusion/critical issue adding good stakeholder value.	Conclusions provide basic links to the body of the report. The outcome in the form of a recommendation is loosely link to the conclusion/critical issue adding limited stakeholder value.	Conclusions provide little or no links to the body of the report. The outcome in the form of a recommendation is not linked to the conclusion/ critical issue and no added stakeholder value is evident.	
Control of Syntax and Mechanics Sentence construction; grammar; punctuation & spelling. (CLO S3) Weight: 5%	Uses appropriate language that conveys meaning to readers with clarity and no errors.	Uses appropriate language that conveys meaning to readers with clarity and minimal errors.	Uses appropriate language that generally conveys meaning to readers, although writing may include a few errors.	Language used is not clear and /or does not convey meaning to readers. It contains frequent grammatical errors.	
				TOTAL	/100%