EVALUATION GUIDELINES - Take-home examination

EXC 21221
Strategic Management Accounting

Department of Accounting, Auditing and Business Analytics

Start date:	19.12.2016	Time 12:00
Finish date:	21.12.2016	Time 12:00

For more information about formalities, see examination paper.

Part one (30%)

Question 1 (10%)

A good answer to these questions should cover most of the below arguments:

- Excess capacity occurs when a company has the actual resources to carry out a certain activity, group of activities or a work process *more often* that it does or plan to in the future.
- Available capacity in an activity area *must exceed actual utilization* of this capacity for excess capacity to exist.
- The excess capacity represents a cost when the company is paying for resources not only connected to the actual use but also pay for costs that occur as a result of the fact that ideally the company could have carried out these activities more often than they actually do.
- If the company has an alternative and immediate value-adding utilization for these excess resources, the excess capacity cannot be regarded as a cost for the company.

Assumed that:

- The company is able to analyze the use of resources on an activity level (activities, activity groups or processes being the cost objects),
- The company is able to analyze the actual number of activities carried out in different relevant areas as well as having an idea about what the ideal (not always the maximum) activity frequency is,
- The costs (or parts of them) are considered fixed, at least within the relevant planning horizon,
- And the company has no alternative utilization of the resources that actually cause these costs

The cost of such excess capacity can be calculated in a costing model:

- The company defines an area for further analysis, such as for instance indirect production costs, sales activities or some administrative support function
- The activities carried out in this area are monitored over a period and the actual activity frequency is measured.
- For each of the activities/groups of activities the actual activity frequency is benchmarked against an ideal utilization of the capacity. Where there is a difference between actual utilization and available utilization, the fixed costs can be split in two: Costs for what we are actually doing and cost for what we ideally could have done.
- By dividing the fixed total activity costs by the available capacity, we get an activity rate for each activity or group of activities.
- When we multiply the difference between available and actual utilization by the activity rate, we have calculated the part of the fixed cost that correspond with the excess capacity.

Example:
A company has a routine for quality control of finished products that costs $ 1,200,000 per year. The variable costs are considered to amount to $ 200,000. The company has the capacity to carry out 10,000 controls annually, but currently only 7,000 controls are actually done each year.
The cost of excess capacity is then (1,000,000/10,000) * (10,000-7,000) = $ 300,000. Of the total quality control costs, 25% is an unavoidable part of the cost because the company cannot utilize its quality control function optimally.

Excess capacity will not merely represent a cost for the company, but in some cases, this can also can be regarded as an infrastructural success factor, which also may be critical for the company's ability to reach its overall and long-term goals. Relevant arguments to support this statement are:

- In a Balanced Scorecard model, capacity issues are relevant when analyzing critical success factors in the infrastructural perspective. Most learning/growth/change projects require that the companies have sufficient capacity to secure well-functioning internal processes.
- If the company has utilized its capacity in various areas to full extent, there is normally not room for much development and growth.
- Such infrastructural capacity (personnel, machinery and other assets, systems) is often represented in the accounts as step costs. Companies invest in capacity in a way that after the investment is done the excess capacity immediately increases. If for instance a manufacturing company has a growth strategy, capacity will increase when the company buys new machinery and/or employs new personnel.
- Hence, excess capacity can be a necessary pre-condition for success in other areas and can therefore not only solely be regarded as a problem for the company, at least not if the company has growth and/or development plans.

<u>Question 2 (10%)</u>

A good answer to these questions should cover most of the below arguments:

- A cost driver is a factor that explains the underlying reasons for the actual level of the costs that a company experiences
- The analysis of costs drivers can be done on an overall business level as well as on a more detailed level, where the link between what we do (the activities) and what this costs us (the activity costs) are subject to further studies.
- In strategic cost management, the company tries to understand the causal relationship between future cost levels and various explaining factors. These explaining factors may be on an overall level such as:
    - Economies of scale
    - Effects of co-operation with others (horizontal and/or vertical integration)
    - Ability to utilize technology
    - The degree of capacity utilization
    - Learning and experience
    - Efficient product design/production processes
    - Localization
- Or the costs drivers can be analyzed on an activity level:
    - Volume-based
    - Serial-based
    - Product-based

Hence, a cost driver that is relevant for the company as a whole must be able to explain *the general level of costs* in the company
Example: A company's production takes place in costly Norway and therefore is localization relevant when we should try to explain for instance the personnel costs.

A cost driver that is relevant for a process or an activity must be able to explain the underlying reasons for the level of costs relevant for a part of the enterprise:
Example: We use the same machinery to make various type of products produced in different production series. Therefore is machinery set-up and adjustments an activity that can explain some of the production costs, which again is a part of a greater picture.

The management of a mid-sized European manufacturing company may consider monitoring a number of cost drivers on different levels. If the development of these are critical for overall success

and the companies' ability to take control of these factors is crucial, the company should attempt to measure its performance in these areas if well-functioning KPIs can be established and measurement is possible.
On an overall business-unit level the company will not only have to think about economies of scale and the other general cost drivers mentioned above, but also macroeconomic factors such as foreign currency and interest development and national regulations that may affect the way the business is carried out is relevant. When companies move production or development, support or other administrative functions to another country, it is to avoid costly location-relevant cost drivers.

On a production activity level the focus must be on continuously streamlining the value-adding processes, where a way to improve may be to implement the principles in the lean philosophy. Understanding the various sources of waste and being able to turn the use of resources from non-value to value adding activities may have a positive effect on production cost levels. Hence, the degree of understanding and continuously improving the value chain can therefore also be regarded as a cost driver.

Question 3 (10%)

A good answer to these questions should cover most of the below arguments:

- Michael Porters generic value chain is based on the following assumption: In a business setting, values are created when we carry out activities that contribute to producing goods or services that someone has a willingness to pay for.
- Hence, non-value creating activities will therefore not add anything to these goods or services that anyone wants to pay for.
- The value chain of a company consists of the activities that are necessary to develop, produce, market and distribute products and services to the customers. Value creation happens as a result of the process' output being more valuable than its input of resources.
- In Porters model, we distinguish between primary and supporting activities:
    - Typical supporting activities are management at different levels, administration, procurement, accounting, recruitment and training.
    - The primary activities will primarily comprise activities related to bringing resources through production (in a broad definition of the term), getting goods and services out to their users and following up these users' needs in the future.
- A crucial point is then that the use of resources at the *supporting activities must be justifiable* compared to the corresponding primary activities. The supporting activities are therefore "necessary evils" that consume costly resources, which require our focus and control.

When we compare Michael Porter's model with Lean Manufacturing, we see many similarities:

- In Lean Manufacturing, we are focused on directing the activities toward what creates values (as users perceive it) and it is therefore of utmost importance to analyze which activities in a given process that are:
    - Value adding – the activities that the customer/user are willing to pay for, carried out in a way that meets the quality standards
    - Value bearing – which in the lean-philosophy is regarded as "necessary waste", as they are activities not asked for by the customer/user, but are necessary for internal purposes and cannot be entirely eliminated ("muda type 1")
    - Non-value adding – the activities that neither add value for customer/user nor internally (”muda type 2”) and therefore can be regarded as absolute waste.

When we compare Michael Porter's model with The Balanced Scorecard, we will also see similarities:

- In its early phase was the Balanced Scorecard primarily a measuring and reporting tool. After a while, the Balanced Scorecard was developed to give the companies *better support for executing strategy*. Empirical research showed that the majority of the businesses were unsuccessful implementing plans that were crucial to create a necessary change needed, which could move the company from its current state to how things should look in the future.
- The Balanced Scorecard operationalizes strategy, when relevant indicators (KPIs) measure the degree of control over various critical success factors and where gaps between targets and actual performance are reported back to management.
- The overall, long-term goals, such as a higher return on assets for instance, will not be reached before success is secured in other areas, such as in the customer/market areas as well as with the various internal processes of the company.
- The Balanced Scorecard is therefore based on an underlying structure of four perspectives in a cause and effect hierarchy:
    - At the bottom we have the infrastructural (learning and growth) perspective that covers competence and skills, capacity, systems and technology, access to capital and infrastructural network in general
    - Well-functioning infrastructural systems will increase the probability of success in the company's internal processes. Relevant success factors here can be within areas such as production efficiency and quality as well as the ability to deliver on time.
    - With well-functioning internal processes, we have laid the foundation for success with customers and other external stakeholders. Keywords here are brand recognition and image, customer satisfaction and loyalty.
    - Financial success is hard to achieve without market success and the financial perspective will therefore consist of factors that are a consequence of success in the three other perspectives. Relevant indicators of success here may be overall profitability as well as return to shareholders. Other factors measure on a more detailed level, such as cash-flow surplus and profitability and margins within different business areas.
    - The cause and effect relationship between the various success factors can be visualized in a strategy map, where the road to overall success is shown as one success that may (but not guarantees) a success in another.
- The various forces that drive profitability can in such a model be described as value drivers. Financial value will not be created unless the company is successful in many areas, often of a non-financial area. Measurement of financial value making is therefore a consequence of success with non-financial value drivers.
- Many of these non-financial value drivers will be discovered in a detailed value chain analysis. Such an analysis shall attempt to answer why values are created and a key word here is how input resources are utilized in a process to create something that has a market value. A balanced scorecard model and particularly the strategy map will help us to understand these relationships better.

Part two (40%)

Question 4 (5%)

Calculation of sales income

Title	Sales income 2015	Sales income 2016	Sales income 2017
Modern Dog Breeding	9 600 * 280.00 = 2 688 000	4 400 * 280.00 = 1 232 000	2 500 * 280.00 = 700 000
Vintage Tractors	5 300 * 240.00 = 1 272 000	4 800 * 240.00 = 1 152 000	2 000 * 240.00 = 480 000
Winter Poems	0	900 * 220.00 = 198 000	700 * 220.00 = 154 000
The Joy of Arctic Sailing	0	11 500 * 320 = 3 680 000	7 200 * 320.00 = 2 304 000
Famous Danish Athletes	0	0	8 000 * 300.00 = 2 400 000
100 Best Political Scandals	0	0	12 000 * 250.00 = 3 000 000
Total	**3 960 000**	**6 262 000**	**9 038 000**

Question 5 (5%)

Calculation of inventory values

Book no.	Printed units	Cost per unit	Total costs	Sales 2015	Sales 2016	Sales 2017	Value 31.12.15	Value 31.12.16	Value 31.12.17
1	18 000	80.00	1 440 000	9 600	4 400	2 500	672 000	320 000	120 000
2	14 000	70.00	980 000	5 300	4 800	2 000	609 000	273 000	133 000
3	8 000	60.00	480 000	0	900	700	0	426 000	384 000
4	25 000	100.00	2 500 000	0	11 500	7 200	0	1 350 000	630 000
5	16 000	90.00	1 440 000	0	0	8 000	0	0	720 000
6	20 000	75.00	1 500 000	0	0	12 000	0	0	600 000
Total							**1 281 000**	**2 369 000**	**2 587 000**

Question 6 (15%)

Expected income statement 2016

Sales income		6 262 000
- Printing purchases	480 000 + 2 500 000 =	2 980 000
+ Change in inventory	(1 281 000 – 2 369 000) =	1 088 000
- Royalty to authors	6 262 000 * 12% =	751 440

Contribution margin		3 618 560
Salaries and other personnel expenses		3 300 000
Other operational costs		1 500 000
Depreciation		100 000
Financial costs		100 000

Total fixed costs		5 000 000
Expected loss 2016		**-1 381 440**

Budgeted income statement 2017

Sales income		9 038 000
- Printing purchases	1 440 000 + 1 500 000 =	2 940 000
+ Change in inventory	(2 369 000 – 2 587 000) =	218 000
- Royalty to authors	9 038 000 * 12% =	1 084 560

Contribution margin		5 231 440
Salaries and other personnel expenses		
Editorial Dept.	1 100 000 * 1.05 =	1 155 000
Marketing Dept.	1 000 000 * 1.20 =	1 200 000
Administration Dept.	1 200 000 * 1.10 =	1 320 000
Other operational costs		
Editorial Dept.	100 000 * 1.05 =	105 000
Marketing Dept.	600 000 * 1.20 =	720 000
Administration Dept.	800 000 * 1.10 =	880 000
Depreciation		100 000
Financial costs		200 000

Total fixed costs		5 680 000
Budgeted loss 2017		**-448 560**

Question 7 (10%)

Loss before taxes		-448 560
+ Depreciation		200 000
- Paid corporate tax		0
+ Royalty to be paid in January 2018 (from 2017)		1 084 560
- Royalty to be paid in January 2017 (from 2016)		751 440
- Increase in net working capital	1 600 000 * 30% =	480 000
- Investing activities		800 000

= Net cash flow		**-1 195 440**

In order to maintain a bank deposit of kr 1 200 000 on the company's operational bank account at the end of 2017, Media Nova AS will need to borrow or emit new shares that entail an incoming cash flow of kr 1 195 440.

Question 8 (5%)

Budgeted sales income 2017		9 038 000
Budgeted balance of A/R with 45 days credit	9 038 000 * 45/365 =	1 114 274
Budgeted balance of A/R with 30 days credit	9 038 000 * 30/365 =	742 849
Increased cash flow		**371 425**

Budgeted purchase of printing services in 2017	2 940 000
Budgeted balance of A/P with 15 days credit	2 940 000 * 15/365 = 120 822
Budgeted balance of A/P with 30 days credit	2 940 000 * 30/365 = 241 644
Increase cash flow	**120 822**
Total net effect of above changes in credit period	**492 247**

Part three (30%)

<u>Question 9 (10%)</u>

The most relevant messages and arguments in a presentation for the management in Realis AS are:

<u>1. We need to convert strategies to actions and actions to results we can measure!</u>

- Strategy development is only the first part of the job, the real challenge is to implement the strategies and make changes that stick
- There is a tool that can help us to focus on strategy implementation; The Balanced Scorecard
- With The Balanced Scorecard we measure our performance, both financial and non-financial in critical areas and report on the gaps that need to be closed along the way
- The scorecard is balanced because it focuses not only on financial targets and the result of the value creation, but how values are created
- We need to extract the critical success factors from our strategy plan and structure these first, before we shall start to look for indicators that measure our level of control over these

<u>2. We must increase our understanding of four different strategic perspectives!</u>

- Our strategic plan can be divided into four different strategic perspectives, and these perspectives relate to each other:
    - At the bottom we have the infrastructural (learning and growth) perspective that covers competence and skills, capacity, systems and technology, access to capital and infrastructural network in general
    - Well-functioning infrastructural systems will increase the probability of success in the company's internal processes. Relevant success factors here can be within areas such as production efficiency and quality as well as the ability to deliver on time.
    - With well-functioning internal processes, we have laid the foundation for success with customers and other external stakeholders. Keywords here are brand recognition and image, customer satisfaction and loyalty.
    - Financial success is hard to achieve without market success and the financial perspective will therefore consist of factors that are a consequence of success in the three other perspectives. Relevant indicators of success here may be overall profitability as well as return to shareholders. Other factors measure on a more detailed level, such as cash-flow surplus and profitability and margins within different business areas.

<u>3. What is critical for achieving and sustaining overall success?</u>

- In order to reach our overall targets, a number of things must happen along the way
- We are not talking "nice to have", but "need to have"! A critical success factor is a condition that is absolutely necessary, but not always sufficient alone, for reaching a certain goal
- Success in one area can contribute to success in another area – improved IT-systems can help us to improve our maintenance processes

- The critical success factors link to each other in a cause and effect-relationship. We need to start at the first step of the causal ladder to ensure that trigger these effects.

4. Let's design the road map to strategy fulfillment!
- When we know our critical areas and how they are linked together, we can draw a map that can guide all of us on our future journey
- We will see that almost all the development processes have a starting point in the infrastructural perspective. That is because infrastructure deals with basic resources; people, capital, network, systems, technology, management and culture
- Some of the roads to success are wide freeways where there is going to be a lot of traffic and congestion, while other pathways are roads less travelled by all of us. In any case, the traffic must flow in the right direction – towards the summit.

5. There is a lot of this we can measure, but we shall measure what we need to gain control over!
- We shall not measure for the sake of measuring, but spend efforts in finding actual indicators of success
- It is only the KPIs that are valid and reliable that can measure a trend within a critical area
- Measuring, evaluating and reporting will give us valuable experience along the way – we have to start somewhere, but we will improve in our measurement routines with experience
- Finding relevant Key Performance Indicators (KPIs)

6. Measuring and reporting does not always give us all the answers we need!
- Traditional periodical management reporting has always focused on financial performance, but that is not enough
- Financial performance is the outcome of the value creation process and does not tell us how and why
- The management reports must focus on what is relevant. That means that areas where there is a room for (immediate) improvement must get the necessary attention. The other areas where we face known but unavoidable costs will get less attention.
- With The Balanced Scorecard, we report the periodical measurement of various KPIs in the four strategic perspectives. The areas that are under control will been in the green region, while other areas might come up as yellow or red.
- This way we turn the attention in the direction towards the areas that still require additional development. This helps management to prioritize better and to allocate resources where those are needed the most.

Question 10 (10%)

Realis AS actually has *three overall targets* in the strategic planning period:
- To be the preferred company for the owners (existing and prospective investors)
- To be the preferred company for the customers
- To be the preferred company for people who want to work in the real estate business

Because financial targets are a consequence of performance in the three other strategic perspectives, it is probably best to focus on the *high return on owners' investment* as the overall goal and treat market and personnel targets apart from this. Then the critical success factors may be grouped like this (indicative solution):

Overall target	High return on owners' investments
The financial perspective	Increased performance at lower cost (maintenance) Good rent revenues Low level of vacant space (3) Optimal financial gearing
The customer and external relations perspective	Ensure customer retention and loyalty Attractive tenants Better collaboration with banks and other external partners (2)
The internal processes perspective	Develop attractive properties, suited to our tenants needs (1) Increased efficiency in understanding markets (1) Improved maintenance processes Better follow-up of customer needs and complaints Improved project control and planning
The infrastructural (resource) perspective	Increased operational capacity Recruit highly experienced personnel Improve incentive and bonus programs Invest in an IT-based system for maintenance and repair jobs

(1) This could alternatively also be placed in the customer and external relations perspective
(2) Depending on the type of partner, this can also be placed in the infrastructural perspective
(3) This is placed under the financial perspective, as it is a consequence of market success and directly influences financial performance

Question 11 (10%)

The overall target, high return on owners' investment can be measured with the *Return on Equity ratio* (profits in percent of average book value equity). From a value-adding perspective, the ROE can be regarded as an insufficient way of measuring profitability, because it measures profits against equity and not all capital employed. The Return on Assets ratio is therefore generally a better indicator of financial success.
It may prove difficult to measure the degree of control over some of the defined success factors; here is *suggested list of KPIs*:

Strategic perspectives	Critical success factors	Possible Key Performance Indicators
The financial perspective	• Increased performance at lower cost • Good rent revenues • Low level of vacant space • Optimal financial gearing	• Maintenance cost per m2 • Rent levels per m2 • Vacant space in m2 • Mortgage loans vs. property values
The customer and external relations perspective	• Ensure customer retention and loyalty • Attractive tenants • Better collaboration with banks and other external partners	• Portion of the tenants that renew their rent contract • Establish A-list of existing and potential clients • Difficult to measure?
The internal processes perspective	• Develop attractive properties, suited to our tenants needs • Increased efficiency in understanding markets • Improved maintenance processes • Better follow-up of customer needs and complaints • Improved project control and planning	• Time used to secure rent contracts on a certain % of rentable space • Difficult to measure? • A lead-factor leading to lower maintenance costs • A lead-factor leading to a high portion of renewed contracts • Difficult to measure?
The infrastructural (resource) perspective	• Increased operational capacity • Recruit highly experienced personnel • Improve incentive and bonus programs • Invest in an IT-based system for maintenance and repair jobs	• Available maintenance hours • Number recruited • Difficult to measure quality? • Make the investment, implement and train personnel