EVALUATION GUIDELINES - Written examination

EXC 21221
Strategic Management Accounting

Department of Accounting, Auditing and Business Analytics

Start date:	04.05.2018	Time 09:00
Finish date:	04.05.2018	Time 14:00

For more information about formalities, see examination paper.

Exercise 1 (20%)

Question a) (5%)

A cost driver is a factor that determines the level of cost. A cost driver analysis can be carried out both on an overall company level as well as on an activity and business process level to answer the following questions:

- What determines the level of costs for the company as a whole?
- What determines the level of costs for a certain activity, group of activities or business process?

This will contribute to a deeper understanding of important causal relationships, which will help the company to put resource and cost issues on the strategic agenda. If a company can determine what influences the cost, there is also a chance that something can be done to keep costs at an acceptable level. Achieving a higher operational effectiveness than industry average is one way of securing a competitive advantage, according to Michael Porter.

Porter and Riley both listed 10 generic cost drivers after having conduct research in this area in the 1980-ies. They have three in common:

- Economies of scale
- The degree of utilization of capacity
- Learning and experience

Other particularly relevant cost drivers are:

- Localization
- Utilization of technology
- Efficient production systems
- Smart product design

Question b) (5%)

The VRIN framework was developed in 1991 by Jay Barney as a further development of the ideas conceived by Birger Wernerfelt in 1984, who formed the basis for what we call The Resource Based View.
In short, the VRIN framework tells us that a company is able to sustain long-term competitive advantages by focusing on creating resources that are valuable, rare, difficult to imitate and not possible to substitute by other resources. Such resources can for instance be:

- Specific competence and skills
- A valuable network
- Access to sufficient capital
- Sufficient capacity and flexibility
- Particular management skills and a healthy organizational culture

When we compare this approach with the ideas behind The Balanced Scorecard, we see that there are some similarities. In The Balanced Scorecard model we group critical success factors in four strategic perspectives, where the infrastructural perspective is considered to be the first level that consist critical success factors that are crucial to success in the three other perspectives.
In the infrastructural perspective we will often find critical success factors linked to areas such as:

- Production and administration capacity
- Unique competence and skills
- Technology

- Strategic alliances and other network
- Financial resources

In the infrastructural perspective the company has a continuous focus to secure valuable and rare resources that will also be relevant in the VRIN model.

Question c) (5%)

If the purpose of the budget is to make a forecast of the financial development of the company, rather than to carefully distribute limited funds to prioritized areas, we may define a connection as follows:

- The budget is the financial consequences of an activity plan for a defined period, for instance a year, and the various activities and measures in this plan
- The activity plan will be anchored in the long-term overall strategies of the company and the targets defined in the strategy plan. The activity plans consist of prioritizations and actions necessary to come one step further in the direction that the strategy plan wants us to go

When the main purpose of the budget is to simulate the financial consequences of a given plan, the budget must also be able to tell us if we have to change the plans before we actually start executing them. Relevant questions will then be:

- How will financial KPIs such as growth rate, ROA, rate of return on sales and gross margins be influenced by the plans?
- Do we have sufficient cash to finance the plans? If not, should we change the level of ambition and postpone some of the plans or seek additional funds from investors and/or creditors?

Question d) (5%)

Three characteristics of a standardized business process with a high degree of efficiency are:

- Short process cycle time (from start of first activity until completion of the last)
- Most of the process cycle time is spent on actual processing and not time consumed in waiting or transportation activities
- The processing as such adds to value, where we get maximum output out of limited input of the various resources needed.

The five main principles of classical lean may contribute to the process efficiency improvement as follows:

Principle no. 1: Define product value the way the customer perceives it

- The customer has the final word when we determine value creation, because this is a consequence of customers' willingness (and ability) to pay
- What is important for the customers? Analyze what they need and want!
- Source of waste: Unnecessary product attributes, simplify where possible

Principle no. 2: Eliminate non value-creating activities

- If what we do adds value for the user and is necessary for internal purposes (support activities that help us to do the primary activities) we should continue as before
- But if there something in the process that does not add value or the company can do without, we should eliminate these activities as soon as possible!

- Source of waste: Waiting, particularly if we don't have alternative use of the resources in the waiting time and these are held up, waiting for the next step to happen
- Source of waste: Transportation, both unnecessary moving of information, materials and people

Principle no. 3: Create a smooth process flow
- Unevenness is a main source of the costs pertaining to excess capacity
- System overload creates technical and organizational stress
- Source of waste: Fixing errors and defects, inefficient production planning
- Source of waste: Overproduction

Principle no. 4: Just in Time
- Synchronize production to demand as much as possible ("pull" instead of "push")
- Can we influence demand? "Demand levelling"
- What we need, when we need it
- Source of waste: High stock levels of raw material, components and/or finished products

Principle no. 5: Continuous improvements ("Kaizen")
- Where is there still room for improvement?
- Better utilization of technology?
- Better training of personnel?
- Out-of-the box thinking?

Exercise 2 (25%)

<u>Question a) (5%)</u>

Although we do not have detailed budget information, it is possible to make some projections on the expected financial performance of the company:
- From 1st August 2018 to 31st December 2019 we know that the monthly costs will be approximately 20 mill NOK. In the same period the company expects a loss of 80 mill NOK. The budgeted sales income of the first 17 months of operation must then be 260 mill NOK (on average 15,3 mill per month) since the costs amount to 340 mill NOK.
- In 2020, the company expects to have a positive cash flow from its operational activities. We don't know exactly how much depreciation costs to add to this, but it may seem that the company will be close to break-even in 2020. If monthly costs are still NOK 20 mill per month, monthly sales must then be at the same level.
- The company must continue to grow in 2021, in order to reach the necessary activity level in 2022 that may secure an ROA of 18 per cent. We don't exactly know how the balance sheet will look in 2022, but book value of fixed assets will probably be between 300 and 325 mill NOK. If we add additionally 25-50 mill NOK for current asset, the total capital could amount to approximately 350 mill NOK. With an ROA target of 18 per cent, the profit must exceed 60 mill NOK in year 2022.
- If monthly costs by then have increased to 25 mill NOK per month, monthly sales must be around 30 mill NOK per month in 2022, around twice as much as the average in the first year.

The Return on Assets can, according to the DuPont model, be influenced by two main factors; the capital turnover rate and the rate of return on sales ("bottom line profit"):

ROA = Profit/total capital
ROA = Profit/sales * Sales/total capital

If the cost structures and the asset structures are difficult to influence, the main focus must be on increased sales, because this will then be the overall value driver. We know that the company after 3-4 years of operation must secure monthly average sales of approximately 30 mill NOK and securing sales income is therefore a critical success factor.
When measuring and reporting financial performance *sales statistics* are important such as:

- Number of active members, private and business clients
- Net change in active members last month/last 12-month period, with trend indicator
- Number of medical treatments last month/last 12-month period, with trend indicator, split in the various groups of treatments
- Sales to private customers and sales to business customers, last month/last 12-month, with trend indicator

In addition, *other relevant financial KPIs* can be:

- Rate of return on sales last month/last 12-month period, with trend indicator
- Salaries and personnel costs last month/last 12-month period, with trend indicator
- Other fixed costs budget variance
- Working capital last month/average last 12 months

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

An indicative solution:

Finance	Return on Assets (overall target) Growth in sales income (1) Increased rate on return on sales (1) Acceptable capital turnover rate (1)
Customers/market and other external stakeholders	Active and loyal customers Increase in private and business members Good reputation and image High level of market and media activities
Internal processes	Low medical risk for patients Quality controlled and standardized medical treatments Risk of breach of code of conduct standards Efficient and secure handling of patient information
Infrastructure and resources	Employees feel appreciated Three different cultures should work hand in hand Good cooperation with suppliers High level of technical continuity (IT and hardware that work well) Good routines for training of personnel Highly competent personnel, recruiting, hiring and keeping them

(1) These are a consequence of the overall long-term target of the company (high ROA)

Not all of the above critical success factors are easily detected just by reading the strategy summary, but a good solution should contain success factors of a more generic nature that is also relevant for Empatia, such as hiring and keeping competent personnel.

Question c) (10%)

It is important to understand that a company using a Balanced Scorecard model normally will encounter areas where performance measurement is difficult. This is of course frustrating, because a well-functioning Balanced Scorecard model should only focus on critical areas. When these turns out to be a challenge to measure in real life, the model will lose some of its holistic approach to value creation.

We can a take a further look at the non-financial critical success factors listed above:

Customer/market and other external stakeholders

- Active and loyal customers – A valid and reliable KPI here can be the number of medical treatments per member. A high score here will indicate a high rate of returning customers
- Increase in private and business members – These members can be counted and reported with a high degree of validity
- Good reputation and image – This is normally not easy to measure without external help. Market survey score may be a valid and reliable indicator in this area, but such surveys cannot be conducted very often because they are costly.
- High level of market and media activities – This can to a certain extent be logged and reported but quality and efficiency of these activities are more important than the frequency itself.

Internal processes

- Low medical risk for patients – This is a lag indicator where we should focus on factors that contribute to such low risk, such as variance from a quality assurance system (see below)
- Quality controlled and standardized medical treatments – The ISO 9001 quality certification system will be able to report variances from the standards, how many of the medical treatments that are not carried out according to the standard procedure
- Risk of breach of code of conduct standards – The Norwegian health personnel act comprises detailed regulations as to how employees in the health care sector should behave towards the patients. In addition, Empatia can have own rules that apply, for instance on how the personnel should relate to each other. The number of reported breaches of these standards can be reported.
- Efficient and secure handling of patient information – When it comes to IT security we enter an area where the tolerance for errors is very low. The company must be armed against any cyber-attacks and maintain a maximum level of confidentiality. Cases from real life remind us about how difficult it is to have a total control over this risk, but the use of competent external consultants may prove valuable.

Infrastructure and resources

- Employees feel appreciated – Job satisfaction can be measured with internal surveys, where question concerning perception of being appreciated are valid enough, but where the information not always have a high level of validity. Employees can report back that they are more motivated and loyal then what they actually are, or vice versa. Employee retention rate can be a more reliable source of information.
- Three different cultures should work hand in hand – It is difficult to measure how good people and their organizational cultures are in collaboration with each other. The actual prevalence of known conflicts will of course be a relevant indicator.
- Good cooperation with suppliers – This is also a difficult area to measure in real life
- High level of technical continuity (IT and hardware that work well) – Empatia can log operational errors in applications and technical equipment and weigh these factors in terms of how serious they are by using an error index

- Good routines for training of personnel – Learning is a difficult process to monitor and evaluate. The company must design a training program that is relevant and efficient and gradually evaluate how purposeful this program is.
- Highly competent personnel, recruiting, hiring and keeping them – The hiring of personnel as such is easy to measure, but their level of competence more difficult.

Exercise 3 (55%)

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

Sales income	16 000 * 900 = 14 400 000
Costs of goods sold	14 400 000/1.6 = 9 000 000
Salaries	(3 * 25 000 * 12) + (35 000 * 12) = 1 320 000
Bonuses	14 400 000 * 4% = 576 000
Employers' contribution to social security	(1 320 000 + 576 000) * 40% = 758 400
Sales and marketing	12 * 60 000 = 720 000
Payable operating costs	12 * 80 000 = 960 000
Management fee to Norwegian company	390 000
Depreciation	(1 200 000/10) + (240 000/3) = 200 000

Budgeted profit 2019	475 600

<u>Question b) (15%)</u>

We have to design a cash flow model and may use either the direct or the indirect method, based on the following assumptions:

- Opening balance of the bank deposits 1st January is zero and the closing balance 31st December is 400 000, hence the net cash flow is +400 000.
- The part of this that is not covered from operational activities and/or investment activities must be covered by the financing activities
- The net cash flow from financing activities is therefore identical with the need for funding in the first year of operations

If we choose the indirect method, will the need for capital be as follows (all figures in SEK):

Budgeted profit in 2019	475 600
+ Depreciation	200 000
- Paid taxes	0
Increased balance of accounts receivable	- 1 400 000
Increased balance of inventory (1 000 units at SEK 562.50)	-562 500
Increased balance of accounts payable	+800 000
Increased balance of other short-term liabilities	+600 000
Paid to rent deposit account	- 300 000

Budgeted cash flow from operational activities	-186 900
Purchase of fixed assets	-1 440 000

Budgeted cash flow from investing activities	-1 440 000

Budgeted cash flow from financing activities	x
= Budgeted net cash flow 2019	400 000

x = 2 026 900, which means that the company needs an external funding of SEK 2 026 900 during year 2019.

An alternative way of presenting this, based on *the direct method*, is as follows:

Payments from customers		14 400 000 – 1 400 000 = 13 000 000
- Paid to suppliers		(9 000 000 +562 500) + (720 000 + 960 000) – 800 000 = 10 442 500
- Paid salaries and other personnel costs		1 320 000 + 576 000 + 758 400 = 2 654 400
- Paid management fee		390 000
+ Increased balance of short-term liabilities		600 000
- Rent deposit		300 000

= Cash flow from operational activities		- 186 900

Question c) (10%)

We have concluded that the company needs an external funding of SEK 2 026 900 to cover the start-up of their planned Swedish subsidiary, and there are two main sources for this funding; investors or long-term creditors.
If the *investors* cover the funding, there are several decisions to be made:

- First the company needs to decide how much of the funding needed that should be covered as share capital in the new Swedish company. If the plan is to keep Radioactive AB a fully owned subsidiary it is probably not necessary to lock up more than for instance SEK 100 000 for this and let the parent company be subject for the remaining capitalization.
- When we knew how much to be paid in directly to the Swedish company, we also know how much the Norwegian parent company needs, which has to be given as loan from Norway to Sweden. It is practical to this in two turns; first sufficient funds are transferred to get the company up and running, then new shares must be emitted in Radioactive AS to cover the rest.
- This emission of new shares can be directed towards existing shareholders or new investors can be attracted. In both cases must the current shareholders arrange a shareholders' meeting to discuss the pricing of the company and the terms for issuing new shares. Because the new shares will have the same nominal value as the existing ones, there is a need to decide the share premium when new shares are issued.

An alternative, or in real life often more of a supplement, is the to let *external creditors* fund the company. Here we also need to make several decisions:

- How much of the creditor funding should be long-term and how much should be more of a short-term nature? Since the source for some of the need for capital is related to financing the working capital, it may be wise not only to have long-term debts.
- The company may seek local financing. It is probably possible to finance as much as 70-75 per cent of the investment in the company cars, so here we may have covered almost half of the need for external funding already
- If the company approaches a bank for the additional funding, they should expect that it would be necessary to offer additional collateral for the credit, such as inventory and receivables and/or using the parent company as guarantor.

- Another option is to borrow money from the existing shareholders as a substitute or supplement to emitting new shares.

Question d) (10%)

We have the following activity rates:

Customer meetings: 1 200 000/600 = 2 000 per meeting
Other customer support: 800 000/1 200 = 666.67 per hour
Complaints and returns: 600 000/400 = 1 500 per complaint

Under the assumption that the sales and marketing costs for 2018 can be considered to be fixed, at least in 2018, we can make the following calculation of costs of excess capacity:

Customer meetings: (600-460) * 2 000 = 280 000
Other customer support: (1200-900) * 666.67 = 200 000
Complaints and returns: (400-300) * 1 500 = 150 000
Total costs for excess capacity in sales and marketing related costs: 630 000

Costs of excess capacity will only prevail if all of the following three assumptions are met:

- Available capacity must be higher than planned utilization of capacity
- The activity costs (or at least a part of them) must be fixed within the planning horizon
- We cannot have an alternative use of these resources elsewhere in the organization

If we shall try do something with the costs of the excess capacity, we must work with one of more of these assumptions:

- If we plan for growth, the gap between available capacity and the planned utilization of it will gradually be closed.
- If we can try to make some of the activity costs variable, we will pay less for any excess capacity. One strategy here can be to outsource activities to an external party that will charge according to actual use of the resource. This is probably difficult in this particular case
- If we plan for higher organization flexibility, we can utilize resources that are in a waiting mode elsewhere in the organization, so we are able to move personnel to areas where they can add more to the value creation process.

Question e) (10%)

	ElektroGiganten	**Claes Frantzon**	**QuickPower**	**Total**
Sales income	15 000 000	9 000 000	8 000 000	32 000 000
Costs of goods sold	9 375 000	5 625 000	5 000 000	20 000 000
Gross margin	5 625 000	3 375 000	3 000 000	12 000 000
Customer meetings	440 000	360 000	120 000	920 000
Other customer support	333 333	200 000	66 667	600 000
Complaints/returns	240 000	180 000	30 000	450 000
Adjusted gross margin	**4 611 667**	**2 635 000**	**2 783 333**	**10 030 000**
Costs of excess capacity				630 000
Profit before adm costs				9 400 000

We see that the smallest customer adds more to the profit than the next smallest, due to the split between the activities and the corresponding costs of the various customer.