EVALUATION GUIDELINES - Take-home examination

EXC 21221
Strategic Management Accounting

Department of Accounting, Auditing and Business Analytics

Start date:	16.12.2015	Time 12:00
Finish date:	18.12.2015	Time 12:00

For more information about formalities, see examination paper.

Part one (25%)

a)

The five main elements of classical lean-philosophy may all contribute to increasing the process efficiency at an airport. We can ask the following questions:

1. Which activities add to value?
In lean-philosophy, product value is defined the way the customer perceives it. This means that it is only the product attributes that the customer actually asks for and are willing to pay for that can justify the use of resources.
LAA must liaise with the airline companies to gain more knowledge about how travelers perceive the experience of departing from Lumumbia's main airport

2. How can we eliminate non value-creating activities?
Waiting and transportation are activities that do not add to value.
LAA must analyze each step in the process to see if there activities that neither add to value nor are value bearing (necessary to carry out value adding activities).

3. How can we create a smooth process flow?
A smooth process ties up less production capacity and creates less organizational problems - avoid "mura", which is Japanese for unevenness, and "muri", which means *system* overload.
LAA must work together with the airline companies to try having fewer flights in typical busy hours.

4. How can we create just-in-time processes?
We shall strive for a situation where production is synchronized as much as possible with demand to avoid overproduction or waiting time. ("Pull" instead of "push").
LAA must organize resources so that passenger-handling resources are sufficient in busy parts of the day; at the same time reduce the use of resources in slow periods.

5. How can we have a focus on constant perfection?
We must look for new goals for operational efficiency and not rest on our laurels. *Kaizen* means continuous improvement; even if we are highly efficient today, must we continue to strive for increased efficiency!
LAA must understand that efficiency improvements are constant processes where there is always a room for further improvement in the future.

b)

This question is probably best answered by looking at how modern airports handle departing passengers today, where at least the following points seem to be relevant:

- It is important that the airline companies can design efficient routines without the airport authorities limiting their efficiency. The role of airport must therefore be to facilitate efficient passenger-handling processes together with the airline companies rather than holding on to time-consuming routines.
- With self-check-in, passengers do some of the work that airport clerks normally have done. The customers seem to accept this, because they don't perceive these tasks to be *value adding*, especially not when they have to stand in line for a long time waiting for somebody to carry out some check-in activities that they could themselves.

- Technology improves check-in speed, particularly when passports are scanned automatically and baggage tags can be printed directly. Boarding cards can be digital and the passengers do not need airport personnel for the baggage drop and can proceed directly to security check-in. Special needs, such as wheelchair transport or checking in sports equipment or other bulky luggage may be clarified early in the process.
- Boarding cards can be checked digitally prior to security control, so the first airport employee a departing passenger will see is a security officer. The efficiency of the security control can be improved by informing passengers about the handling of computers, overcoats, belts and other items that may trigger the security alarm.
- Hand luggage size can be checked in the security control instead of at the gate to make it easier for passengers with oversized hand luggage to check this in as ordinary luggage.
- The airline companies will with such a routine be able to trace each passenger by checking status; who has checked in and who has gone through security control as well as who is travelling with checked in luggage. This eliminates the need for communication between airport and airline personnel.

Airports focusing on lean-philosophy will simplify the check-in process by using technology to replace costly personnel. Queueing and transportation are regarded as sources of time waste and should be kept to a minimum.

c)

The demand for a company's products can be unstable due to seasonal changes or market campaigns and a consequence of such fluctuations is that production resources are unevenly used over time.
Many companies want to have a constant weekly production output, because this simplifies production planning and reduces risk of personnel and machinery stress. This is also the idea behind the lean concept Heijunka, where the goal is to avoid periods of extraordinary production workload. By using this concept, companies will increase their inventories of finished goods in period of low demand. In periods with high demand, the company can deliver goods without the need to immediately increase production output.
The advantages with this method is that the ability to deliver on time is secured as well as costs for production personnel working overtime and other stress factors such as the coordination with the suppliers are highly reduced. These advantages must though be measured against the cost of having high inventory levels.

The Just-in-time concept stresses that it is a big risk for the company to produce goods that are not yet sold and that high inventory levels as such hardly add to value. Instead of pushing goods through production, the production should be pulled by the demand from the market. With such a model, the level of material and components will also be kept as low as possible and we strive for a situation where we get what we need when we need it. Just-in-time systems require good coordination and monitoring to reduce the vulnerability that may occur when something prevents efficient system flow.
These two operation modes can be conflicting but many companies try to combine them in a way that production is levelled out to a certain extent at the same time inventory levels are kept as low as possible. A manufacturer of windows for example will probably not risk much if the company on a slow day produces windows in standards measures as they will most probably be sold quite soon and the ability to delivery standard goods is important.

Part two (25%)

a)

Already in its early development stages, Balanced Scorecard had two advantages over traditional periodical management reporting:

- The reports focused on performance in both financial and non-financial areas
- The performance was evaluated by the management in a way that it made it possible to see if the company was able to gain control over critical success factors

Many companies realized that the Balanced Scorecard was the tool management needed to evaluate its ability to succeed with the implementation of their strategies. Because it is not possible to reach the overall goals without having a focus on important factors within the company's infrastructure, internal processes and external relations, the Balanced Scorecard visualizes the importance of such non-financial value drivers.
Early adapters of the Balanced Scorecard would also focus on critical success factors for the firm. In addition, if something was critical, management could concentrate on how to measure performance in this area, by identifying and using valid and reliable Key Performance Indicators.

b)

When companies around the millennium started to adopt the Balanced Scorecard models, the traditional financial reports where a period's revenues and costs where measured against budgeted figures to find areas with significant variances, were suddenly less relevant. Many companies felt that they did not need budgets any longer because budget figures could not explain important questions about how and why the revenues and costs ended up as they did. That gave birth to the "beyond budgeting"-view.

Nowadays, "beyond budgeting" does not necessarily mean that a company has stopped using budgets as such. The budgets will still be important tools for the simulation of financial consequences of a company's plans, but in a "beyond budgeting" regime, the budgets do not have the role as *the only tool* to follow up if the overall long-term goals are met.
In a company that has a well-functioning control model that focuses on all relevant value drivers, the purpose of the budgets is primarily to simulate the effects of various activities. Companies still need to know that their plans can be financially funded and that financial risk is under control, so a budget is now more of simulation tool rather than a goal itself.

Within the public sector and some companies there is also still a need to allocate and set aside limited resources for given purposes, because the organizations have to prioritize between different alternative uses for their resources, simply because they cannot afford to do everything at the same time as well as they need to know that costs are under control. Such control is difficult to gain without budgets.
In a "beyond budgeting world" there is also still a need for (an often detailed) cash flow planning, where the forecasting models require an input of budgeted income statement figures to analyze differences between incoming payments and revenue and outgoing payments and costs.

c)

The purpose of a Key Performance Indicator (KPI) is to measure the extent of control an organization has over a factor that is regarded as critical for the long-term achievement of overall goals, normally of a financial nature.
A KPI will then measure actual performance in a key area and the KPI is only well functioning if the parameter we have chosen is relevant and reliable enough to actually measure what we are aiming to achieve.

In some cases, what we measure is exactly what we want to achieve. If a critical success factor linked to customer satisfaction is that less than 2% of the customers shall submit complaints after they have bought a product, and such customer complaints are logged by the company, we can measure the prevalence of such to say something about our ability to have this are under control.
In other cases, finding a good KPI may prove to be a bigger challenge. Developing and keeping unique resources in different intellectual capital areas is often crucial for success, but difficult to measure, such as for example:

- Development of competence
- Innovation and creativity
- Ability to learn, individually and collectively
- Value of network building
- Employee motivation and satisfaction

The SMART-criteria tell us that we should not define a goal, which is not possible to measure. Many companies are therefore tempted to leave intellectual capital measurement out of their business control models; if they cannot measure it, they will not follow up in these areas.
But, if something is crucial for achieving success, we must know that our various measures to improve in these areas have their intended effects in the future, so if for instance motivated employees are one of the keys to success, management must find ways to measure this.

Part three (30%)

a)

Budgeted income statement 2016:

	Scenario 1	Scenario 2	Scenario 3
Total production and sales volume	110 000 units	140 000 units	210 000 units
Sales income (1)	2 640 000	3 200 000	3 570 000
Direct production costs, variable (2)	700 700	988 624	1 257 438
Direct production costs, fixed (3)	286 650	300 300	313 950
Royalty costs (4)	132 000	160 000	178 500
Sales and marketing costs	756 000	792 000	828 000
Administration and other overheads	714 000	748 000	782 000
Additional depreciation	0	60 000	110 000
Finance costs	73 500	77 000	80 500
Forecasted profit 2016	-22 850	74 076	19 612

(1) Sales price per unit
(2) Variable production costs per unit 2015: ($ 910 000 * 70%)/100 000 = $ 6.37. In scenario 2 this drops to $ 6.1789 and in scenario 3 this is $ 5.9878
(3) Fixed production costs 2015: $ 910 000 * 30% = $ 273 000, increases by 5, 10 or 15%
(4) Royalty costs: 5% of sales income, as in 2015

Conclusion: Scenario 2 is the most profitable alternative

b)

Profit before taxes	19 612	(according to forecast)
- Paid taxes for 2015	30 000	(paid in 2016)
+ Depreciation	170 000	(60 000 + 110 000)
- Increase of inventory	96 000	(320 000 * 30%)
- Increase of accounts receivable	176 000	(440 000 * 40%)
+ Increase of accounts payable	180 000	(450 000 * 40%)
+ Increase of short-term liabilities	78 000	(260 000 * 30%)

Cash flow from operational activities	+145 612	
- Investments	330 000	
Cash flow from investing activities	-330 000	
Cash flow from financing activities	0	
= Forecasted change in cash flow 2016	-184 388	

Conclusion: According to the forecast the net change in cash reserves will be $ -184 388. With an expected balance of bank deposits of $ 180 000 in the beginning of year 2016, PowerBox Inc. has insufficient cash reserves and should not choose scenario 3 unless financing activities could cover the expected negative cash flows from its operational and investing activities.
Relevant sources for such financing activities could be:

- Emission of new shares to existing share holders
- Emission of new shares to new share holders
- Loans from share holders
- Bank loans

Part four (20%)

a)

The main purpose of Activity Based Costing is to provide the companies with deeper understanding on the relationship between activities and processes and their use of costly resources. A cost driver is in general a factor that determines the level of cost and cost driver analyses can be carried out both on an overall organizational level and by looking at activities, activity groups and processes.
In Activity Based Costing, we seek increased knowledge of the link between what we do and what it costs us. The purpose of the cost driver analysis will then be to increase our understanding of the *underlying reasons* for the use of resources. When we know more about the mechanisms that trigger the use of resources, it is easier to change systems, routines and behavior to keep costs down.
Therefore, a basic assumption in ABC is that we must find relevant cost drivers before we start to calculate activity rates and use these in various costing models. If defining costs drivers turns out to be difficult, it is often because costs are unavoidable and therefore irrelevant for our decisions.

b)

Activity rate quality assurance: $ 30 000/150 quality tests = $ 200 per quality test
Activity rate procurement: $ 66 000/250 purchases = $ 264 per purchase order
Activity rate maintenance: $ 72 000/240 jobs = $ 300 per maintenance job

Costs of excess capacity in the production management:

Quality assurance: (150-120) * 200 =	$ 6 000	
Procurement: (250-140) * 264 =	$ 29 040	
Maintenance: (240-160) * 300 =	$ 24 000	

Total	$ 59 040	which equals 21.63% of the fixed prod. costs.

One of the reasons why PowerBox Inc. has costs for excess capacity could be that the company has invested for future growth and that they currently are not able to utilize the resources ideally.
In general, costs for excess capacity are reduced by using one or more of the following strategies:

- Increasing the activity frequency due to volume growth
- Finding alternative uses for excess capacity
    - Internally, by organizing activities in a way that personnel works in other areas than their main area when they have excess capacity
    - Externally, by offering the excess capacity to other companies
- Reorganizing to make fixed costs variable, for instance by outsourcing work to external suppliers that charge according to actual activity.

In the case of PowerBox Inc., reducing excess capacity by increasing production volume is probably the most relevant strategy. In the meantime, some of the excess capacity can be used in an alternative way if procurement and maintenance officers assisted in production for instance to keep overtime work down.

c)

Activity rates in Sales and Marketing Department
Meetings with retailers: $ 160 000/125 = $ 1 280 per meeting
Other contact with retailers: $ 144 000/2 400 = $ 60 per hour
Handling customers' complaints: $ 48 000/3 200 = $ 15 per complaint

	CarMart	Honest Pete's	McGill	Total
Sales income	$ 1 716 000	$ 364 000	$ 520 000	$ 2 600 000
Production costs	$ 600 600	$ 127 400	$ 182 000	$ 910 000
Contribution margin	$ 1 115 400	$ 236 600	$ 338 000	$ 1 690 000
Meetings with retailers	$ 89 600	$ 25 600	$ 44 800	$ 160 000
Other contact with retailers	$ 48 000	$ 12 000	$ 84 000	$ 144 000
Handling customers' complaints	$ 24 000	$ 750	$ 23 250	$ 48 000
Adjusted contribution margin	$ 953 800	$ 198 250	$ 185 950	$ 1 338 000

We see that the small chain Honest Pete's creates more value to the company than the large supermarket chain McGill does and management must draw their conclusions from these findings.