ECONOMICS OF INFORMATION SYSTEMS
TEST_YOURSELF BANK 2
CHAPTER 2

1. The London Metro has renewed its entire information system for ticketing. They decide to use a system that distributes the costs of the ticketing system accross the different metro-stations according to the number of tickets sold. Do you agree with this solution ? What may be the advantages and the disadvantages of this proposal (max. 1 page).

2. In a case when the budget of an organisation is distributed along the business lines according to their revenues, the distribution of the ICT-costs according to the overhead-based approach is equivalent with a cost-accounting on the basis of revenue generating units. Do you agree with this statement. Explain yourself (max ½ page).

3. Consider the following value and cost functions for the user:

   $TV(Q) = 20 \times Q - 4 \times Q^2$
   $TC(Q) = 4 \times Q$

   Determine the optimal quantity Q for the user. What happens when $Q > 5$?

4. 3 universities in the same town would like to share a common wide-area network. The implementation costs are the following. In isolation, university A would pay 6M$, university B 4M$ and university C 3M$. The groupings can result in significant cost savings, as A and B together would pay 8M$, A and C together 5,2M$, mainly because they reach together a volume level that results in a significant discount for some products, and B and C together would pay 4,2$. The total of A,B and C together would cost 7,5M$. How would you distribute this total joint costs across the three universities ?

5. An organisation has 200.000 customers and 40 employees, 10 in marketing and 30 in production activities. The marketing department is measured in terms of the number of customers. The production departement is measured in terms of numbers of employees. The marketing departement uses on average 10 queries per year per customer against a customer database. The production department has on average 50 queries per employee per day against the same database, and every employee generates on a daily basis 1 batch report. A database query costs on average 0,4 CPU-sec on the current machine, and on average reporting job takes 10 CPU-sec. The database is 1 GB, with additional 1KB per query. The reporting software requires 0,2GB fixed and 2MB per job. Determine the current CPU utilisation and the disk storage needs.

6. What would happen in the above example with the CPU if the number of customers would double, without additional employees ?