Case Study – Software Economics

Disclaimer: Although based on a real-world company, the case study below is fictitious and should not be construed as reflecting the views or plans of the company in question.

Context: Sangar.ee in December 2010
Tartu-based shirt manufacturer “Sangar” (sangar.ee) is considering the option of expanding its online presence. Currently (December 2010) Sangar’s Web site offers standard e-shop functionality. The Web site gives customers allows customers to browse the catalogue of shirts sold by Sangar, to add shirts to then shopping cart and to check-out and pay online. Shirts are shipped to the designated address via “smart post” or regular post.

The application has been receiving 3000 visits per month since its deployment. About 20% of these visits lead to purchases. On average, each purchase is for 2 shirts and each shirt costs an average of EUR 20. The profit margin per shirt is EUR 4.

It is estimated that about 50% of these online purchases would not occur if the manufacturer did not have an online presence, because customers would prefer to go to a competitor’s site.

In October 2010, Sangar started to consider the possibility of manufacturing and selling customized shirts online. Customers would be able to select not only the shirt size, but also the fabric, the type of collar, the types of buttons, etc. Such a mass-customization approach is already offered by international shirt retailers such as Blank Label (https://www.blank-label.com). One of the advantages of selling customized shirts is that they have a higher margin (EUR 8 per customized shirt, as opposed to EUR 4 for traditional shirts).

Sangar hired a consultancy company (RightConsultants) to make a market analysis in order to assess the potential benefits of selling customized shirts. The consultants concluded that if Sangar extended their current e-shop application by a fully-fledged multi-language online shop, where customers could also design their own shirts, the number of customers using the customization option would be about 2000 per month (in addition to the existing customer visits), and the conversion rate of customers who design their own customized shirts would be 50%. Customers of customized shirts would buy 2 customized shirts per purchase on average and no standard shirts.

Sangar’s management would now like to determine if the e-shop customization project is worth pursuing.

Please prepare a business case for this project. First establish the baseline for the scenario where no development is started. Then develop the upside scenario where the application is built with mass-customization support and compare this upside scenario to the baseline scenario. The business case should include discounted cash flow, NPV, IRR and payback period. Please use the economic indicators (NVP, IRR, payback period) to either justify a rejection or an acceptance of the project. Please reason your decision with two to three sentences.

The following assumptions should be made:
- The discount factor is 25%
Regardless of the estimate that you obtained in Part I of the exam, please assume that the software development costs are EUR 150,000 for the web shop with mass customization functionality. Half of this amount is payable at the start of the development project (in year 0) and the other half at the end of the development project.

Also, please assume that the development time is 12 months (even if you obtained a different estimate above).

The software maintenance effort is 1 person-month per year at present and would be four person-months per year in case of switching to offering customizable shirts. EUR 50,000 per year salary costs can be assumed for software maintenance employees.

In addition to the software development costs, WorkingMouse have stated that the design of the web site (including stylesheets and basic images) would cost EUR 30,000 and would be paid in year 1. Also, an image processing tool would be needed to produce the images of the customized shirt (see requirement 13). This tool would cost EUR 50,000 and would also be paid in year 1. In order to make the application multi-language, an additional upfront investment of EUR 20,000 would be needed to hire a translation agency for translating the contents of the web-site.

RightConsultants have said that an online marketing campaign worth EUR 100,000 would have to be launched in order to create awareness of the new e-shop. This marketing campaign would be launched in year 1 and paid in year 2.

For simplicity, you can assume that neither taxes nor depreciation need to be taken into account in the analysis.

The application will be used for a period of 6 years.