2.2 What role does risk play in project selection and the Define step of DMAIC?

風險是可能選到的項目本身很大、但只專注於一些特定、狹窄的方面，而使整體進步效果不佳。

2.6 Explain the importance of the tollgates in the DMAIC process.

就像是高速公路的匝道，檢驗過程有沒有出現問題，該不該進行下一步，通過審核才能進行下一步

2.8 An important part of a project is to identify the key process input variables(KPIV) and key process output variables(KPOV). Suppose that you are in charge of a hospital emergency room. Discuss the KPIVs and KPOVs for this business. How do they relate to the possible customer CTQs?

KPIVs：服務時間、治療與診斷設備、人員分配、床位

KPOVs：等待時間、擁擠程度、人員的利用

CTQs 的關聯：急診室的病患通常無法等待，所以時間對他們來說非常的重要，而醫療人員與床位也是能否順利看診的重要因素

2.9 Suppose that your business is operating at the 4.5-Sigma quality level. If projects have an average improvement rate of 50% annually, how many years will it take to achieve Six Sigma quality?

4.5sigma(1.5σ shift) = 2699.8/2 = 1350ppm

6sigma = 3.4ppm

$3.4 = 1350(1 - 0.5)^x$

$0.5^x = 0.00252$

X=8.63236

It will take 8.63 years

2.11 Suppose that you manage an airline reservation system and want to improve service quality. What are the important CTQs for this process? What are the KPIVs and KPOVs? How do these relate to the customer CTQs that you identified?

CTQ	KPIVs	KPOVs
可以隨時查看	班機資訊與轉機消息	隨時查看所有相關消息
服務體驗優良	服務的技術流程	簡潔易用的介面
自由度高	經濟優惠	自由選擇班機與付款方式等、自由取消班機
處理事情的方法	客服處理、流程管控	顧客滿意度、處理流程時間