國立中央大學工業管理研究所102學年度碩士在職進修專班入學考試試題卷

考試科目：工業管理實務　　共　頁，第　頁

第一題(50%)

(a)請解釋集中式配銷系統與分散式配銷系統之優缺點。(15 points)

(b)試以風險共擔(Risk Pooling)的觀點來分析上述配銷系統。(25 points)並討論在何種情境下，風險共擔的效果較低。(10 points)

國立中央大學工業管理研究所102學年度碩士在職進修專班入學考試試題卷

考試科目：工業管理實務　　共1頁，第1頁

第二題（50%）

台灣各型製造業現正積極進行產業升級，以提升全球競爭力，擺脫代工模式下利潤日趨微薄的困境，而「服務」似已成為各製造業努力最重要的方向。

請問在此趨勢下，有那些工業管理的議題必須受到特別的重視？其原因為何？

請以條列方式，提出五個您認為最重要的議題及其原因。所提議題請盡量明確（比方說，「供應鏈管理」是一個包山包海的大議題；相對而言，「供應鏈管理中的供應商管理」則較為明確）。您的論述請力求精簡確實，切勿作文式的長篇大論。

國立中央大學工業管理研究所102學年度碩士在職進修專班入學考試試題卷

考試科目：經營管理個案分析　　共　頁，第　頁

第一題(50%)：**不景氣還想分紅利?** 取自哈佛個案研究第72期，請花點時間看完之後寫下一些自己的看法。

露易莎把車子開進西班牙賽維爾市郊區的超勝連鎖超市一家分店後面的停車場，但沒有立即下車。這通常是她在一週當中最好的時刻；視察公司旗下一家超市，和分店經理談話，穿行在各個走道，看著員工與顧客互動。

她還是小女孩時，就一直跟在父親後面做這件事；她父親把賽維爾市中心的一家小店，發展成全國數一數二的雜貨零售商，在西班牙各地擁有超過一千家分店。他持續作了三十年的現場考察，即使在他生病後也沒有停過。他過世後，露易莎接任執行長，矢言要維持這個傳統。

然而，露易莎今天感到心神不寧。她正要去視察的這家分店經理豪爾赫曾要求她簡短地向工作人員講講話，她知道這不會是平常那種愉快的意見交換。西班牙正處於經濟衰退的邊緣，每個人都在擔心錢的問題。勢必會有人問她，超勝今年是否會發放獎金。而她還沒有答案。

前一天晚上，露易莎曾與財務副總裁瑪麗亞會面。2008年集團的初步業績顯示，每家分店每日的交易數以及每次交易的平均價值雙雙急遽下降。過去15年來，公司的銷售額與利潤一直穩步上升，但現在面臨經濟危機的嚴酷現實，公司將無法達到績效目標。

瑪麗亞直言不諱：”你明白這意味著什麼，露易莎，”她說：”今年我們無法發放獎金。我們的政策很明確：即使員工達到個人的績效目標，而且各分店達成各自的目標，也還不行；只有在公司也達到成長目標的情況下，我們才會發放獎金。”她嚴肅的看了露易莎一眼。”所以你必須做這個決定：今年每一個人都不能領獎金。你、我、分店經理都不能，收銀員也不能，所有人都領不到。”

露易莎一直在猜想，這樣的事可能會發生，但她還沒準備好要採取這樣激烈的步驟。”我了解我們的處境，但這會對我們員工造成巨大的衝擊。你也很清楚，員工都認為獎金是他們薪資的一部分。他們期望會領到獎金，特別在假期前後。”對超勝大多數員工來說，這筆獎金相當於一至兩個月的薪水，視個人服務年資而定，通常每年大約有90%的人符合資格，可領到獎金。

瑪麗亞聳聳肩。”政策就是政策。”

露易莎深深吸了一口氣。”我想，我們需要聽聽羅德里哥對這件事的看法。”她撥了超勝的人力資源副總裁的分機，他在第一聲鈴聲就接聽電話，不到一分鐘，他就過來和她們會面。

羅德里哥曾和露易莎的父親密切合作過，露易莎很看重他的意見。她簡單說明了獎金的問題，而他早已預料到會發生這種情況了。

“恩，危機已經影響到每個人，不只是我們，”他說:”但我們不能要員工為糟糕的績效負責。其實，幸虧有他們的努力，我們的營運數字才不會變得更糟。平均每一位員工的銷售額，比其他超市高出了將近20%。”

“可能是這樣，”瑪麗亞回答:”但這無法改變一個事實:公司才賺2.2億歐元，實在無法

支付2億歐元的獎金。如果經濟衰退變得更嚴重要怎麼辦?我們現在的支出，都必須在明年靠著提高售價彌補回來，這麼一來，會促使我們的顧客轉而投向廣場超市，或是其他的競爭對手；這可能表示業績還會更糟。”瑪麗亞指著他放在露易莎的辦公桌上的那一疊財務報告。”現在討論的問題是公司的穩定性。從長遠來看，員工會更關心他們有一份穩定的工作，而不是一年領到的獎金。”

她停頓了一下，語調柔和了些。”當然，我們必須認識到情況已經改變了，應該要降低明年的績效目標，甚至應修改我們的獎金政策，以及反映和我們同行相較之下的績效。但我認為，今年發放獎金是完全不可能的。”

羅德里哥沒有直接回答瑪麗亞的話，而是看著露易莎。”你父親總是說，”必須有捨才有得”，如果我們不善待員工，他們就不會為公司賣力工作。我們的競爭力強，是因為我們的員工為顧客付出額外的努力。”他傾身向前，明顯露出他的焦慮，”如果你剝奪了他們的獎金，他們還會繼續這樣努力嗎?你不能冒這種風險，尤其現在的時機這麼艱難。你該想想你父親會怎麼做。”

瑪麗亞顯然被激怒了。”不對，要想想在當前的經濟環境下，我們這家公司該怎麼辦。”

露易莎謝過他們。兩人先後走出她的辦公室時，露易莎思索著她有哪些選項。即使沒有獎金，超勝給員工的待遇也遠高於其他連鎖超市。員工有永久合約，而且其中大多數是全職(佔全體員工的85%)。輪班穩定，福利優厚，薪金遠高於市場水準。所有員工都可獲得管理能力的訓練。他們真的會只因今年沒有發放獎金，就放棄這一切，轉到另一家零售商去做兼職、低工資、無福利的工作嗎?

她並不這麼想，超勝是優良的雇主，只有3.8%的低員工流動率反映出這一點。盡管如此，三十年來，獎金已成為員工待遇的一部分。她怎麼能改變這一點?

露易莎還在停車場思索著她的問題時，有人敲著她的車窗，是分店經理豪爾赫。

“很高興你還記得要把車停在後頭，”她下車時，她調侃著說。

超勝各家分店的所有職員與主管，都把自己的汽車停在停車場後頭，前面的部位清空保留給”老闆們”，公司教導員工要稱呼顧客為老闆。公司採取不尋常的定價模式，也是為了符合”老闆們”的需求。西班牙大多數超市會因頻繁的促銷活動而使得價格在一整年中變來變去，但超勝卻一直保持穩定的低價位。露易莎的父親生前一直認為，顧客喜歡每件事都在意料之中，到目前為止的證據都顯示他的看法是對的。

豪爾赫陪著露易莎走進店內，展開她例行地巡視，他們從分店後側的倉庫開始，那裏有員工正在從送貨卡車上卸下裝在貨盤上的食品，然後把廢棄物裝上貨盤，送往廢物回收中心。

接下來，他們巡視店內，這家店簡單分為六區：肉類、魚類、烘培食品、蔬果、化妝品、熟食，每一區各有獨特的擺設布置。在農產品區，豪爾赫喚來一名胖胖的中年員工，她臉上帶著熱情的笑容。

“露易莎，你記得羅莎吧，”他說：”羅莎進公司將近十年了，差不多在這家店一開幕時她就來了。就是她想出了散裝出售農產品的構想。”

露易莎記得很清楚，超勝以前出售的蔬菜水果，為了外觀好看，都是上了蠟，而且經過包裝的。雖然農產品的賣相好看一些，但最近幾年，有些消費者轉而開始向超勝的競爭對手購買蔬菜水果。羅莎和顧客談話後，發現大部份顧客認為包裝多此一舉。而且他們討厭被迫購買，比方說，如果他們只需要兩個的話，一包六個蘋果就很多餘，而且也比較貴。羅莎建議店裡改成出售散裝的農產品，顧客想買幾個就買幾個，結果銷售額回升，其他分店也很快

採行這個做法。”羅莎，告訴露易莎我們昨天討論的事情，”豪爾赫提示她。

羅莎燦然一笑。”是這樣的，女士，”她開始說：”我們看到”老闆們”愈來愈擔心手頭的預算，我認為如果減少產品種類，就可以幫助他們。我知道這麼做聽起來很怪，但他們一看到我們出售的這麼多東西時，不知如何是好，他們必須好好想想那些是他們真正需要的東西，那些是他們想擁有的物品，這真的很難抉擇。如果我們幫他們避免那樣的壓力，提供較少種類的產品，但價格較划算，我認為最後我們的生意不會少，反而會更多。”

“這個想法很有意思，羅莎，謝謝你，”露易莎說：”豪爾赫必定很高興你在這裡工作。”

“是的，我當然很高興，”他說：”其實，我很高興店裡有大家在，我不曾見過有哪個團隊比我過去幾個月來一起共事的同仁更聰明、更努力工作的了。我們真的是齊心協力，團隊一致。”

露易莎和豪爾赫繼續往前走。”有件事我想向你提一下，”他說，突然間變得沒那麼開朗了。”廣場超市剛剛搬到這附近，開了一家小型分店，試圖挖走我們的顧客跟員工。羅莎說，他們有個經理上週在公車站找人談話。”

豪爾赫沮喪地看著露易莎。“其他幾家分店經理也跟我說過同樣的事情，他們甚至提供簽約獎金。”

“已經有人離開了嗎?”她問。

“我們這家店沒有，”他回答：”這裡的每個人都很高興。我只是想確定你知道這件事。”

露易莎正要回答時，在出口處有件事引起豪爾赫的注意，他很快告退。露易莎望過去，看到四個人在其中一部收銀機旁排隊。一向勤奮的豪爾赫，可能跑去打開另一個結帳櫃台了。

一天工作結束後，員工開始集合，準備要開員工會議。露易莎瀏覽了她的筆記。

豪爾赫會以簡報開場，報告過去一年來的績效，以及未來的目標。然後，他會要求露易莎接手主持。她打算先祝賀豪爾赫與他的團隊，讓這家店的績效在該區名列前茅，但接下來，她必須提出超勝集團績效的預估數字，那些數字會顯示，其他分店的表現並不一定像這家分店那麼出色，而且，公司將無法達到年度銷售額與利潤這兩個目標。

在問答時間，一定會有人提出獎金發放的問題。露易莎知道，員工不會接受不夠坦誠率直的答覆。而且一旦她對員工說了什麼，就必須堅持做到，才能維持誠信。這家分店的許多員工都認識其他分店的員工，消息很快就會傳播出去。

環顧四周，來開會的員工興奮的聊著天，對這些員工，露易莎內心突然湧起一陣感激之情。正是由於他們年復一年、日復一日的努力，她父親的公司才有今天，單單因為這樣，他們就該獲得獎金。

然而，公司的財務報表提醒她，經濟現實已經改變了，確保超勝的存活與蓬勃發展，是她的責任。

問題一：超勝連鎖超市今年應該發放獎金給員工嗎?（20 pts）

問題二：試分析超勝採用”全有或全無”的獎金制度的優缺點。（15 pts）

問題三：可否舉幾個因應經濟好壞而設計的你覺得好的分紅制度的例子，（譬如電子業如台積電分紅制度，或餐飲業如鼎王的分紅制度），也談談你的心得跟建議。（15 pts）

以上問題每題回答字數限一百字以內，中英文不限。

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考試科目：經營管理個案分析　　共　頁，第　頁

第二題(50%)

Please refer to the attached article: The Yuppie Car Wash Company. **請以中文或英文簡短回答以下問題。**

1. Based on the settings in the case, answer the following questions:
   a. The cycle time of the first stage (automatic car wash machines).
   b. The cycle time of the second stage (the interior cleaning centers – ICC).
   c. The production rate (number of cars washed per hour) of the system.
2. If Dow schedules three workers in each ICC, answer the following questions:
   a. The cycle time of the second stage (the interior cleaning centers – ICC).
   b. The production rate (number of cars washed per hour) of the system.

Case - The Yuppie Car Wash Company.

Jane Dow (known by her friends as "the Dow") recently opened a new carwash in an affluent suburb of a major metropolitan area. Dow decided to cater to the high-priced segment of the car-wash market and to try as much as possible to service expensive cars that are highly pampered by their owners. The Yuppie Car Wash, as Dow chose to name her enterprise, uses a two-stage wash and cleaning process. In the first stage, cars are washed using state-of-the-art automatic car-wash machines with brushes that are "baby-bumper smooth" The second-stage of the process involves the cleaning of the interior of the cars.

Yuppie has two automatic car-wash machines, each of which costs $150,000. To be cleaned, a car need only go through one of the machines. Both machines are identical and can process cars in parallel. These machines are fed from a single common waiting line. They are imported from Italy and use extremely fine brushes that are guaranteed not to scratch even the most delicate paint finishes. Each machine requires 130 seconds to wash a car. It also takes an additional 20 seconds for one car to exit the machine while another car simultaneously enters it. This standard is set sufficiently high so that there is comfortable spacing between the two cars.

The second stage of Yuppie's process, which concentrates on cleaning the car's interior, is labor intensive and is performed in one of two interior cleaning centers (lCC). Each ICC is staffed by at most three employees. In each ICC the cleaning process for a car requires a total of 6 labor-minutes; that is, this job can be performed by one person in 6 minutes, by two persons in 3 minutes, and so on. (This standard includes the time required to move the car into and out of the ICC) Dow has found that four or more persons tend to get in each other's way and do not save a proportional amount of time.

Yuppie's production process is illustrated in Figure using what is commonly referred to as a process-flow diagram. The diagram illustrates the general flow of product or service from input to final output. In addition to showing the different stages of the production process (shown as rectangles), the diagram includes the various kinds of inventory designed into the process (shown as inverted triangles). The inventory of cars that have driven up to Yuppie and are awaiting service is directly comparable to the inventory of raw materials typically encountered immediately prior to the initial stages of a manufacturing process. This analogy extends to the work-in-process (WIP) inventory of cars that have been washed and will soon enter one of the two ICCs. This is much like the WIP inventory found between work centers in a manufacturing process. Finally, there is the finished-goods inventory of cars that have been cleaned and parked, and await being picked up by their owners.

There are two stages to Yuppie's process, so we refer to it as a multistage production process. The first stage, which is performed by a relatively expensive machine and requires very little direct labor, is capital intensive, whereas the second stage is labor intensive. Whenever a process involves multiple stages, it must be designed and managed to take into account the relationship between product flows in each of the various stages. For example, the time required for each car—that is, the cycle time of a car in each automatic car-wash machine—is equal to 130 + 20 = 150 seconds, or 2.5 minutes. Thus, the capacity of each automatic

car-wash machine is 1/2.5 = 0.4 car per minute, or equivalently, 24 cars per hour. Since there are two automatic car-wash machines, the capacity of the first stage of Yuppie's process is 2(24) = 48 cars per hour. In this manner we see that capacity provides a measure of potential rate of production.

Similarly, we se e that the cycle time per car in each ICC is 6/n minutes, where n is the number of people assigned to work in the ICC. Thus, if Dow schedules two workers in each ICC, the capacity of each ICC is one car every 3 minutes, or 20 cars per hour; since there are two ICCs, the resulting capacity of the interior cleaning process is 2(20) = 40 cars per hour. In this case the capacity of the two ICCs is less than that of the first stage; thus, the ICCs are the limiting (or bottlenecks resource. Therefore, the capacity of the total process is 40 cars per hour, the capacity of the bottleneck process.

By increasing the number of workers assigned to each ICC, Dow can increase the capacity of the second stage of the process. This gives her the capability to manage the bottlenecks. For example, if three workers are assigned to each ICC, the capacity of the second stage increases to 60 cars per hour. Now the first stage is the bottleneck process, and the capacity of the system is 48 cars per hour.

Even if Dow schedules enough workers in each ICC to achieve a theoretically perfect balance between the two stages of the process, it is important to realize that at times either work-in-process inventory will occur between the two stages or the ICCs may be waiting (or starved) for work even though one or both automatic car-wash machines may be running. This is due to the variability in processing times. Because it is automatic, there will be relatively little variability in automatic car-wash service time. There will, however, be greater variability in ICC service time because of the inherent nature of the interior cleaning process, which is a function of the type and size of the car (sports car versus full size), type of interior, the state of the interior (has it been one week or one year since the last cleaning?) and the efficiency of the particular crew assigned to the ICC (how experienced are they? how rigidly are their jobs defined by management? will they be as fast on Saturday at 7:00 A .M. as they will be in the early afternoon?) Dow can reduce the average level of work-in-process inventory by scheduling the capacity of the ICCs to be greater than 48 cars per hour. However, if she plans the capacity to be too large, she then incurs the tangible and intangible costs of idle workers. These intangible costs include the carryover of inefficient work ethic, as well as the potential cost of irritating customers who are waiting seemingly long periods of time for their cars to enter the first stage of the process while seeing workers standing around doing nothing!

In the process -flow diagram for the Yuppie Car Wash Company, we see three different types of queues (that is, waiting lines) corresponding to the various types of inventory occurring in this system. The effective management of queues is an essential part of the study of production systems. This applies to planning for queues, which addresses issues such as the physical location of the queue and the capacity of the queue. It also applies to controlling the queue, for which we must determine in what order goods will be produced or customers will be served, and manage the flow of information about products (or customers) in the queue. Although the process flow for Yuppie Car Wash is straightforward, it enabled us to consider important aspects of the process and to understand better the way in which the various components of the process combine to produce the service. The systematic application of "combine, simplify, and eliminate" to process-flow analysis of large-scale operations has vast potential to increase overall process effectiveness and efficiency. It is the management of the production process that is the topic of this course. For now, let us continue to focus on the basic types of production processes.