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3. 試題隨卷撤回。(除請詳閱試場規則)

一、名詞解釋: 請解釋下列名詞 (25%)

1. 資訊科技基礎建設 (IT infrastructure) (5%)
2. 網路外部性 (network externalty) (5%)
3. 企業資源規劃 (enterprise resource planning) (5%)
4. 資料倉儲 (data warehouse) (5%)
5. 摩爾定律 (Moore's Law) (5%)

二、系統發展為那六大階段? 那一階段最困難? 那一階段所需時間最容易被低估? 為什麼? (10%)

三、請閱讀下面的個案, 並回答下列問題 (25%) :

1. 請根據系統開發相關理論, 分析 ABC 公司資訊人員在整個系統開發週期中所犯的錯誤, 針對這些錯誤提出改善建議。 (10%)
2. 針對該公司客服單位的人員與任務特性, 您會建議採取哪種系統開發方法論? 請說明原因。 (10%)
3. 請分析在企業的資訊系統維護工作中, 採取大幅改版與小幅線上修正方式的優劣, 並針對本個案提出您覺得最適當的系統維護方式。 (5%)

系統開發個案—ABC 公司的 CSS 系統開發

ABC 公司是個小型的金融機構, 提供各式金融諮詢服務。該公司的資訊部門為客服部門開發了一套顧客服務支援系統 CSS, 提供顧客資料的管理與分析, 並支援諮詢服務所需的相關資訊。CSS 系統上線一年之後, 已經成為客服人員每日工作不可或缺的工具, 但客服人員對這套系統的滿意度普遍偏低, 且客服人員與資訊部門人員的關係也大幅惡化。

參與系統分析的客服人員 A 回憶道: 「當時我講得很詳細, 他們也聽得很認真, 還有問題和討論, 所以我想應該沒有問題。可是後來碰到一個情況, 就是電腦出來不是我們想的那個樣子。我很希望如果今天我們一個東西不能做了, 他直接跟我講。可是他們好像覺得如果我們 user 提出什麼, 他們就一定要做到, 所以他們不會拒絕你。但是這樣的表示, 就讓我們這邊覺得很放心, 如果事後不是這樣的話, 我們的期待就會有差距。」

另一方面, 資訊部門對於系統分析的過程也十分不滿。負責領導開發作業的專案經理 X 抱怨道: 「他們常常這個人說要怎麼做怎麼做, 做好之後, 另一個人看到又說這樣做不對。一直改來改去, 每個人說的都不一樣。這種情形經常發生: 系統分析時清清楚楚寫下的需求, 要推翻就推翻, 自己部門都沒有一個能夠作主的人來負責。」

由於客服人員幾乎都不具備電腦相關專業知識, 因此 CSS 系統功能、作業流程與操作界面的設計, 幾乎都是在需求討論後由資訊人員決定, 資訊人員在瞭解需求後會表示: 「嗯! 這個我們可以幫你們解決。」但是通常並不會跟客服人員解釋要用什麼方式解決。在整個設計與程式撰寫過程中, 與使用者的互

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動相當少, 因此客服人員往往要等到系統出來之後, 在使用上發現有問題, 再提出修改意見。在問題或功能修正前, 客服人員常因為用不順手而產生埋怨與排斥, 可是又不能不用。

對於這些系統功能的修改要求, 資訊人員的態度傾向於對所有相關功能一併完成整體規劃後, 採取較大幅度的一次修正, 而不要零零碎碎的進行線上更新。例如資訊人員 Y 曾明白表示:「客服人員也有提出一些不錯的功能, 不過我是希望在下次改版時再一併加入。當然我們也可以東改一點, 西改一點, 可是到時候, 我怕 performance 或什麼又出問題。…你看像 Microsoft 就是隔一陣子推出一次改版, 我覺得我們應該學習這種觀念。」

ABC 公司的資訊人員認為, 系統設計的整體性與前瞻性, 要比小幅修改以立即滿足使用者目前的作業需求更為重要。當客服人員不斷要求修改系統, 並且表示因為這些問題而無法作業時, 資訊人員有時會覺得這些工作原本就是使用者的業務範圍, 以前沒有系統的時候也能完成, 所以未必需要立即滿足。他們強調當迫於現實與主管的壓力, 必須對上線系統進行立即的修改時, 往往會導致系統規劃欠周與測試不足, 引發系統錯誤與額外的工作量, 反而更加深資訊部門與客服單位的摩擦, 所以主張「軟體開發應該像 Microsoft 一樣, 等所有功能完成之後再 upgrade」。但也因為如此, 使用者有時要等待相當長的時間才能取得他們所需的一些功能, 此外, 在新功能的整體規劃與開發完成之前, 客服人員必須花許多時間人工彌補系統功能不足之處。

由於資訊部門沒有即時提供新功能或修改系統問題, 客服人員普遍將此解讀為資訊部門不願回應系統修改要求, 或是資訊人員很「大牌」。客服人員 A 也指出:「有些功能雖然資訊部門說過以後會做, 但是我們單位因為每天處理業務都會遇到這個問題, 所以還是會不斷重複提同樣的修改需求, 提久了, 他們也會不想理我們, 我們這邊最後也會覺得人家不願意去做。」久而久之, 客服人員越來越不想與資訊部門溝通, 因為他們認為:「提也沒有用, 資訊部門根本不理我們!」

四、請閱讀下面的個案, 並回答下列問題 (40%):

1. 為什麼 Peter Hunt 會要經營 CornerHardware.com?
2. Peter Hunt 如何為 CornerHardware 找到市場?
3. Cornerhardware.com 為何不在聖誕節前上線而往後延一個月?
4. Cornerhardware 的 call center 外包給 eSupportNow, 為何要簽訂專用條款?
5. Cornerhardware 在客服方面使用 24x7 live call center 及線上對談功能, 為何不使用 email?
6. Cornerhardware 如何減少退貨率?
7. Peter Hunt 說 "People interact differently with the internet than they do with books" 和 "What we found was that people don't like to read on the Internet.", 請解釋為什麼?
8. Peter Hunt 認為 CornerHardware.com 上線最大的挑戰是什麼?
9. Peter Hunt 說 "Our angle is high customer service. There are people that don't want service.", 他的說法是否有衝突? 為什麼?
10. Peter Hunt 為何不認為 Home Depot 會對 CornerHardware 造成威脅?

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CornerHardware.com

In December 1998 Peter Hunt was searching the Internet for ideas on building a tree house. What he discovered was a number of online communities that had linked their websites, but nobody had figured out a way to hookup these communities with e-commerce. That germinated the first seed of an idea to build an online community for home improvement enthusiasts, where they could share ideas and buy products and materials at the same time.

Peter wrote a business plan and incorporated CornerHardware.com with the help of a friend. The first thing they did after incorporating was to go out and interview people in focus groups. With the help of a market research firm, they were able to identify what frustrations people had with using the Internet for home improvement. The result of this research was a blueprint for a new business model. This became CornerHardware.com as we see it today. "That document is the foundation on which the company was built, and it continues to be the driving force in our relationship with the customer," says Hunt.

CornerHardware.com went live on January 25th 2000, deliberately avoiding a launch during the peak holiday season, when teething problems would have been a disaster for the site.

One of the first things you notice about cornerhardware.com is that it opened on day one with a 24x7 live call center and live chat functions. "What the focus groups told us was effectively 'email's great but it doesn't work that well because you don't get an answer for two weeks, you can pray for an answer in two days, but you're lucky if you get an answer at all.' With home improvement, people want an answer immediately." Cornerhardware.com have outsourced their call center to eSupportNow through an exclusive contract that prevents eSupportNow from offering call center services to their competitors. eSupportNow have hired plumbers, electricians, hardware store managers and other professionals to provide quality advice to customers of cornerhardware.com.

"E-commerce sites are usually just about selling stuff" suggests Hunt "A lot of the time [people] don't just want to buy, they want to learn, they want to browse, they want to have fun, and so we figured out there was a demand for value added information in home improvement that could be used to drive commerce, because people can't get their questions answered in a brick and mortar store."

One way to answer those questions is to give them live chat, the other is to provide high quality information. Cornerhardware.com address the latter through proprietary feature articles and buyers guides that educate and empower buyers to make the right purchase decision. This has the added benefit of reducing returns.

"People interact differently with the internet than they do with books," says Hunt. "What we found was that people don't like to read on the Internet. They want little snippets of information that are highly value added, that can help them do something quickly." The result: animated how-to guides that are "designed to take the hard out of hardware".

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One unique aspect of the site is the community message system. This uses technology from ShopTok to provide an environment where visitors can create their own virtual communities, sharing ideas and exchanging messages with people who share similar interests. This goes beyond a traditional message board by allowing cornerhardware.com to inject into the community appropriate product information. Community members can browse and select products from within the community. The community has developed a fun, positive approach to home improvement and lacks much of the negative writing found on many bulletin boards. The site is developed using InterShop's Merchant development tools.

The biggest challenge on the road to launch, according to Hunt, was to execute on the little things such as, "making sure that the email confirmation to a customer says what you want it to say, making sure your shipping policy is what it is. Making sure that when someone clicks on a button the results are as expected."

"If you can't be number one or two in a market, find a market where you can be number one or number two. You have to have some type of feature that addresses a problem or appeals to a customer, and you have to go after that customer with a vengeance," adds Hunt.

"Our angle is high customer service. There are people that don't want service," people who do their own research, figure out what they want, and buy it. "My wife loves the site. She lives on the call center. The first thing she does when she gets on the site is clicks on the call center just so she can have a shopping buddy. She chats with them while she's shopping. She asks them to give her their opinion, and that's what were all about, catering to the customer who has questions, who wants answers and is looking for service."

According to Hunt, "if you're going to play in the space with the big boys, you have got to have sustainable competitive advantage. You have got to build proprietary advantage."

Peter doesn't feel threatened by Home Depot. "Their strategy is to drive people to the stores." He doubts they will sell online without cannibalizing their brick and mortar store sales.