Case 1: Will the Apple iPhone be Googled? 60%

Apple’s vaunted iPhone goes on sale, but a rival giant is about to make its own move into the mobile market

By James Ashton and Dominic Rushe, The Sunday Times, Nov. 4, 2007

For Matthew Key the choice has come down to Milton Keynes or Uxbridge. Battle plans have been drawn, extra troops deployed and this Friday at 6:02pm, the invasion will begin. Key, the man instrumental in bringing Apple’s iPhone to Britain on Friday, wants to be in the thick of it when his O2 stores fling open their doors to sell the most hyped product this side of Christmas. After months of planning, his main concern is that everything goes smoothly. By closing all 450 O2 outlets for four hours on Friday afternoon while a new Apple merchandising area is fitted out in each, Key is hoping that a throng of fanatics will start queuing in anticipation. “That is part of any Apple product launch. People do get pretty excited about it,” he said. “The iPhone is a step change compared with anything else that has been in the marketplace,” said Key. “Once people see it and use it, the level of customer satisfaction is off the scale.” In America, customers queued for days to get their hands on the phone.

The two drawbacks are the touch-screen keyboard (the fat-fingered will struggle) and the price. At £269 each, plus the commitment of a minimum £35-a-month contract lasting 18 months, the iPhone costs head and shoulders more than everything else on sale at the moment. In Britain, falling call charges mean that anyone willing to pay £35 a month can expect a top-of-the-range phone thrown in for free. Some analysts are skeptical of iPhone’s appeal beyond a hardcore of fans. “We see this pricing as limiting the iPhone’s appeal to Apple aficionados and wealthy fashion victims who are looking to upgrade their iPod,” said James Barford at Enders Analysis.

Google is preparing to announce plans for its long-awaited G-Phone. In some ways the name is confusing – it’s not one Google uses – because the internet giant has been working not on a handheld device but on software that will give phone users fast and easy access to its services, from search and maps to e-mail. At first glance it might not seem a radical departure from what is already on offer. Many phones – including the iPhone – offer access to Google’s services. But as always, Google’s ambitions are large. While Apple has revolutionized the phone, Google wants to revolutionize the phone industry. The iPhone is an undeniably tasty piece of kit. On a screen just larger than a credit card, owners can use the telephone, camera, a standard iPod and navigate the internet, pinching their fingers together to shrink pages of information and drawing them apart to zoom in.

Google’s plans are still under wraps, but it is likely to make its attack from the other end. To date, the mobile-phone industry has been about monthly charges and call costs. Extra services cost extra money. In America, for example, Verizon customers who want satellite navigation pay $10 a month or $3 a day. It’s a lucrative business model but it’s not Google’s business model. Google has made its fortune by giving its services to its customers for free and then selling ads to pay for them.

In its efforts to gain traction in the mobile market, Google has approached several handset manufacturers about the idea of building phones tailored to Google software. Taiwan’s HTC and South Korea’s LG Electronics are rumored to be the top contenders. The phones themselves are unlikely to be the most radical element of Google’s plans. Google Chief Executive Eric Schmidt has said that mobile phones should be free for consumers who agree to watch ads. He believes mobile ads are worth twice as much as regular internet ads because they are more highly targeted.

The company is seeking partnerships with the wireless operator Verizon Wireless in America, as well as Orange and 3 in Europe. In return for letting Google use their networks, the mobile operators would get a slice of the billions in ad dollars, pounds and euros that Google aims to generate.
Google also wants to open up the software that runs mobile phones, allowing independent software developers to customise applications and build new features. Third-party applications could include services tailored to a users' location and linked to Google Maps and other Google applications. Google, meanwhile, could gather user data to show targeted ads to cellphone users and share the revenue with the mobile-network operator. Mobile advertising is a rapidly growing market. Analysts Frost & Sullivan predict the mobile-advertising market in America alone will generate $2.1 billion (£1 billion) in revenue by 2011 compared with $301m in 2006. The Shostek Group estimates the market will be worth $10 billion globally by 2010. With all that money to play for, who needs a £35-a-month contract?

Michael Gartenberg, vice-president at Jupiter Research, said: "A year ago you wouldn't have put Apple or Google in the same sentence as mobile telephony. But they are there now and, as they have shown before, they are likely to be highly disruptive." As principal analyst of mobile devices at Washington-based Current Analysis, Avi Greengart tests hundreds of new phones every year. "The iPhone is the first phone I would describe as fun," he said. Other phones have offered internet access, cameras, touch screens and so on, but none of them has done it as well as Apple, he said.

But will it make as big a splash in Britain? Unlike the American mobile-phone market, the British market is saturated with handsets. Many people have more than one, for home and for work. Loyalty is low. So anything that marks one operator out from the rest can only help. In many ways this plays to Apple's advantage. O2's key hopes the iPhone will help him pinch high-value customers from Vodafone, Orange and T-Mobile. "Because of the structure of the UK market, three-quarters of customers using the iPhone will be new to O2," he said. "The same customer using an iPhone is more profitable to us than one using an existing phone. It has far more functions and they will be using them more." But his detractors say Key had to sell his soul to Apple to secure the partnership. For the first time, a handset maker will cream off service revenues from a network operator, giving it a continuing income stream. Rivals say that they baulked at Apple's demands for 30% of revenues. "Clearly, there are lots of sour grapes from the other operators," Key retorted. "I sometimes put myself in their shoes and think: what would I be doing to protect my business? I am very happy with the deal we have."

The industry is not taking Apple's incursion lying down. Vodafone has signed up Music Station, a music-download service backed by all the main record companies. It is offering unlimited downloads for £1.99 a week. Meanwhile, 3 has just launched its Skypephone, offering free international calls to other Skype users.

The company everyone is really watching is Google. The iPhone is the latest in a long line of beautifully designed and ground-breaking products from Apple. But unlike the iPod, which has changed the music industry, the iPhone is in some ways a throwback to an older model of mobile-phone ownership. For all its beautiful bells and whistles, the iPhone is expensive and comes with heavy monthly charges.

Google has had a tough job convincing the mobile-phone industry that it needs to change and that the future belongs to free services paid for by advertising. After a series of skirmishes it appears that some of them are listening. In Britain, Vodafone and Yahoo announced an advertising deal last year. In America, Verizon and Google, which were sluging it out in Washington over the internet firm's mobile plans, are talking. "The buzz around Google is that they could change the way mobile phones and services are sold. They have this huge machine in internet advertising behind them. They could change the economics of the industry," said Greengart. Google's Schmidt was among the first to get his hands on an iPhone. He even appeared on stage with Apple's Jobs at the launch, announcing Google Map and search would be on the phone. "There's a lot of relationship," Schmidt told the audience. "If we merge we can call it Applegloo." As Apple and Google both turn their formidable focus on the mobile market, can relations stay so sweet?
HOW APPLE AND GOOGLE COMPARE

Apple: Market value $163.5 billion Sales $24 billion Sales growth (one year) 24.3% Profits $3.5 billion Employees 14,800
Chief executive Steve Jobs Founded 1977 Products: Macintosh computers, iPod digital music players, iTunes music store, Mac OS X operating system, iPhone.

Google: Market value $212 billion Sales $10.6 billion Sales growth (one year) 72.7% Profits $3 billion Employees 10,674
Chief executive Eric Schmidt Headquarters Mountain View, California Founded 1998 Products: Google search, maps, images, Earth, books, g-mail, YouTube, news, video, the G-phone?

Basing on the report above, answer the following questions. (60%)

1. Explain “While Apple has revolutionized the phone, Google wants to revolutionize the phone industry.” in terms of innovation. 15%

2. Evaluate how “network externality” (網路外部性) will affect the relative competitive advantages of Apple and Google. 15%

3. Why would Google opened up the software that runs mobile phones, allowing independent software developers to customize applications and build new features? How will this practice enhance its competitiveness relative to Apple? 15%

4. What kind of synergies that Apple and Google may create as they expand their business domains into the mobile industry? 15%
Case 2: HD DVD vs. Blu-ray Disc (40%)

碟鳥多年的光碟藍光 DVD 和東芝「高解析 DVD」(HD DVD) 之戰，勝負可能已定：全美最大 DVD 經銷商華納兄弟一月宣布只發行藍光 DVD，首先敲響 HD DVD 的喪鐘，全球最大零售商沃爾瑪(Wal-mart)十五日又宣布六月以後只賣藍光，媒體形容這是 HD DVD 的棺材板上一釘。傳統 DVD 上市十二年，疲憊瀕臨，藍光 DVD 和 HD DVD 之爭在三年前轉擬激烈，各自和娛樂、電玩集團結盟，以壯聲勢。這個戰局重演一九八○年代錄影帶大戰(VHS)和小帶(Beta)之爭，不但研發者相持不下而無法量產擴大市場，賣場也絕對提供兩套架架擺兩種規格的 DVD 和兩種放映機，消費者大多按兵不動，不租也不買新規格 DVD，以免與家裡放映機不合。但情勢漸生變化，沃爾瑪表示聽顧客意見後，雖然偏愛藍光，沃爾瑪在美國的四千個賣場將逐步淘汰 HD，六月起只賣藍光產品和傳統 DVD。華納兄弟一月宣布五月起放棄 HD DVD，電影和電視只用藍光。這意味著，占四分之三數量的 DVD 將支持新力的藍光陣營，雖中還有部分也會採用兩種格式發行。和華納兄弟同進退的業者，包括迪士尼和福斯。迪士尼總裁查雲克形容，華納跳槽是壓垮駱駝最後一根稻草，HD「完了」。

HD DVD 的盟友只剩下環球影片、Viacom、派拉蒙影片和夢工廠，但一般認爲難挽漣漪。在家用電玩領域，新力的 Playstation3 也支持藍光光碟，微軟 XBOX 360 現在只採用 HD DVD，不過微軟曾在一月表示由於消費者要求，可能易鰓支持藍光。「好萊塢記者報」甚至報導，業界預料東芝可能數周後將 HD DVD「拔管」。科技產品戰果消殘酷，敗者將成消費電子產品史的註腳，就像當年的 Beta。

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補充資料

HD DVD 與 Blu-ray Disc 技術要點

AOD（也就是目前的 HD DVD 規格）與 Blu-ray Disc 彼此並不相容，但是皆各自相容於現有的 DVD，支持的廠商也在高科技產業領域中具有相當實力，所以在主流規格的競爭上，逐漸演變成互不相讓甚至競爭的地步。事實上，新力與東芝在 1995 年就曾因使用紅光雷射的 DVD 規格發生過嚴重對立，直到最後才相互妥協制定了統一標準。

HD DVD 技術

HD DVD 規格與現行的 DVD 規格非常相似，光碟厚 1.2mm，雷射照射在正中間的 0.6mm 覆蓋層讀取訊息內容。HD DVD 規格完全繼承這些特點，只是使用的雷射從紅光雷射改成藍光雷射。HD DVD 碟片初步定為雙層及可複寫型兩種，雙層型單面單層為 15GB、單面雙層為 30GB。單面雙層可複寫則為 20GB，單面雙層則為 40GB。其透鏡數值孔徑值（NA）為 0.65 的物鏡來記錄和播放由兩
張厚度為 0.6mm 的盤片底板貼而成的光碟規格，物理上，藉由縮小軌距及 pit 長度與縮短射頻波長購到提開記憶密度的目的，因為 NA 值與現行 DVD 碟片接近且碟片結構與 DVD 相同，更容易與現行 DVD 光碟保持兼容性，且可繼續使用現有 DVD 光碟的生產設備，便於擴大光碟和物鏡的距離，不需要光碟卡匣等，大幅降低從現有 DVD 過渡至 HD-DVD 所需的成本，也獲得許多國內光碟與光碟機製造商的支持。

■ Blu-ray Disc 技術

與現行的 DVD 相比，由新力主導的 Blu-ray Disc 在射頻照射方式與光碟構造上都大不相同。與紅光射頻不同，Blu-ray Disc 更改了光碟表面的記錄層位置，如此一來，即使正在旋轉的光碟發生傾斜，因爲記錄點距表面更遠，所以射頻偏離的情況可以很輕易的避免，能夠準確地對準讀取點，還可以提高記憶容量。Blu-ray Disc 除了上述單位單層 3 種不同容量的格式之外，另外單層雙層有 46GB、50GB 及 54GB 三種碟片，為可複寫型；之後也發展播放用的單 créer型碟片 Blu-ray Disc ROM（BD-ROM）。為了提高記憶容量，Blu-ray Disc 規格採用物鏡 NA 為 0.85 來縮小光點的尺寸，讓光點能在高密度光碟中準確讀取資料，但缺點是容易造成光差增加。

■ 市場發展現況與標凖制定進度

在 Blu-ray Disc 與 HD DVD 激烈爭奪新一代光碟規格主導權的關頭，能否得到好萊塢的青睞自然具有指標性的意義。HD-DVD 規格相較於 Blu-ray Disc 規格最大的優勢就在於能夠相容現行的 DVD，使得碟片生產廠商由 DVD 轉換至 HD-DVD 時所需的成本能夠降到最低，就生產技術上而言 HD-DVD 也較 Blu-ray Disc 的困難度低。Blu-ray Disc 碟片的覆蓋層只有 0.1mm，防刮防污能力差，需要卡匣且生產製程較困難；而 HD-DVD 碟片雖然記錄容量較小，但防刮、防污能力好，不需卡匣，因此生產製程較容易且成本較低。儘管在技術規格上有許多不同之處，整體來說並無絕對的優劣之分，只是支持的廠商因各自的利害考量而出現的選擇。對於消費者來說，重點在其價位與品質而已，因此兩大陣營的競爭，都需面對市場考驗的階段，最後決定主流規格的仍是市場機制，所以未來的發展就以市場的角力為重點。

根據以上報導及補充資料，回答下列問題（40%）

1. 本文未段落及「最後決定主流規格的是市場機制」，試問此市場機制的參與者包括哪些？  10%

2. 以本個案為例，說明影響科技廠商贏得「主導設計」(dominant design) 的關鍵成功因素 (Key Success Factor; KSF) 為何？  20%

3. 說明藍光在贏得主流規格後，影響其後續市場擴散速度(innovation diffusion rate)的因素。  10%