

國立臺北科技大學九十六學年度碩士班招生考試

系所組別：4220 商業自動化與管理研究所乙組

第二節 管理資訊系統 試題

第一頁 共一頁

注意事項：

1. 本試題共 6 題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. Explain and Distinguish between the transaction cost theory of the impact of information technology on the organization and the agency cost theory of the impact of information technology on the organization. Are these theories contradictory or complementary? (15%, 15分)
2. What is the difference between Bluetooth and WiMax wireless technology? (15%, 15分)
3. List and explain the design, data, and operation factors that contribute to information systems failure. (15%, 15分)
4. List and describe three different Internet business models. Which of these models do you think is the most risky for a dot-com business? Support your answer by example. (15%, 15分)

Please read the following case and answer two questions: (共 40%, 40 分)

Designing a car is a complex and length task. Take, for example, General Motors (GM). Each model created needs to go through a frontal crash test. So the company builds prototypes that cost about one million dollars for each car and tests how they react to a frontal crash. GM crashes these cars, makes improvements, then makes new prototypes and crashes them again. There are other tests and more crashes. Even as late as the 1990s, GM crashed as many as 70 cars for each new model.

The information regarding a new design and its various tests, collected in these crashes

and other test, has to be shared among close to 20,000 designers and engineers in hundreds of divisions and departments at 14 GM design labs, some of which are located in different countries. In addition, communication and collaboration is needed with design engineers of the more than 1,000 key suppliers. All of these necessary communications slowed the design process and increased its cost. It took over four years to get a new model to the market.

GM, like its competitors, has been transforming itself into an e-business. This gradual transformation has been going on since the mid-1990s, when Internet bandwidth increased sufficiently to allow Web collaboration. The first task was to examine over 7,000 existing legacy IT system, reducing them to about 3,000, and making them Web-enabled. The EC system is centered on a computer-aided design (CAD) program from EDS (a large IT company, subsidiary of GM). This system, known as Unigraphics, allows 3-D design documents to be shared online by both the internal and external designers and engineers, all of whom are hooked up with the EDS software. In addition, collaborative and Web-conferencing software tools, including Microsoft's NetMeeting and EDS's eVis, were added to enhance teamwork. These tools have radically changed the vehicle-review process.

To see how GM now collaborates with a supplier, take as an example a needed cost reduction of a new seat frame made by Johnson Control. GM electronically sends its specifications for the seat the vendor's product data system. Johnson Control's collaboration system (eMatrix) is integrated with EDS's Unigraphics. This integration allows joint searching, designing, tooling, and testing of the seat frame in real time, expediting the process and cutting costs by more than 10 percent.

Another area of collaboration is that of crashing cars. Here designers need close collaboration with test engineers. Using simulation, mathematical modeling, and a Web-based review process, GM is able now to electronically "crash" cars rather than to do physically.

Now it takes less than 18 months to bring a new car to market, compared to 4 or more years before, and at a much lower design cost. The shorter cycle time enables more new car models.

5. Why did it take GM over four years to design a new car? (10%, 10 分) How has Information Technology (IT) helped GM to cut the time-to-market? (10%,10 分)

6. Could these IT applications provide GM with competitive advantages? Why? (10%,10 分) How could GM sustain these advantages? (10%,10 分)