CPET 565/CPET 499 Mobile Computing Systems
Final Project
Enterprise Mobility Pilot Project for ???? Application

Final Project Team Formation:

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After completing the assignments:

- Assignment 2: Mobile Device & Communication Technologies Evaluation & Assessment
- Assignment 4: Management's Strategic Planning
- Assignment 5: Enterprise Mobility Pilot Project
- Assignment 6: Design of Mobile Applications and Information Architectures and Related Tradeoff Study

Each team is expected to complete a **Final Project** and the suggested guideline is given below:

Cover Page: Final Project Title:
Outlines
Executive Summary
Sections (suggested section headings):
*Introduction
*The Innovation Need Challenges
*Initial Investigation and Findings
*Existing IT Infrastructure (Software & Hardware)
*The Mobility Pilot Project Plan
*** Using "Microsoft Project" to design project plan
*** Tasks/Subtasks/Resources/Cost
*** Milestones
*Project Risks Assessment and ROI
*The Design of System Architecture
*** Hardware
***Software
***Middleware
***Supporting Mobile Devices
***Considered Vendors
*Data and Information System Modeling
***Use cases
***UML modeling for mobile application data (Classes, Objects, Relationships)
***Data access, Query
*** etc
*Business Process Modeling for Mobile App
*Mobile Device Middleware
*Mobile Device Program Design

*Pilot Project Testing
*Summary/Lesson Learned
*References
*Appendix

Project Activities and Items Due Date:

Nov. 7 – due items

- Project plan: Microsoft Project
- UML modeling diagrams: Use case, class and objects, state charts, activity diagrams, business process
- Refined: System Architecture

Nov. 14 – due items

- Top-level Android program design
  - Context, Activity, Intent, Service
  - GUI, Networking, etc

Nov. 21 - TBD
Nov. 28 – First draft of final project report, due before 3:30 PM
Dec. 5 – Second draft of final project report, due before 3:30 PM
Dec. 12 – Final Project Presentation, PPT file, 20 minutes per team

======== **Completed Assignments** =========

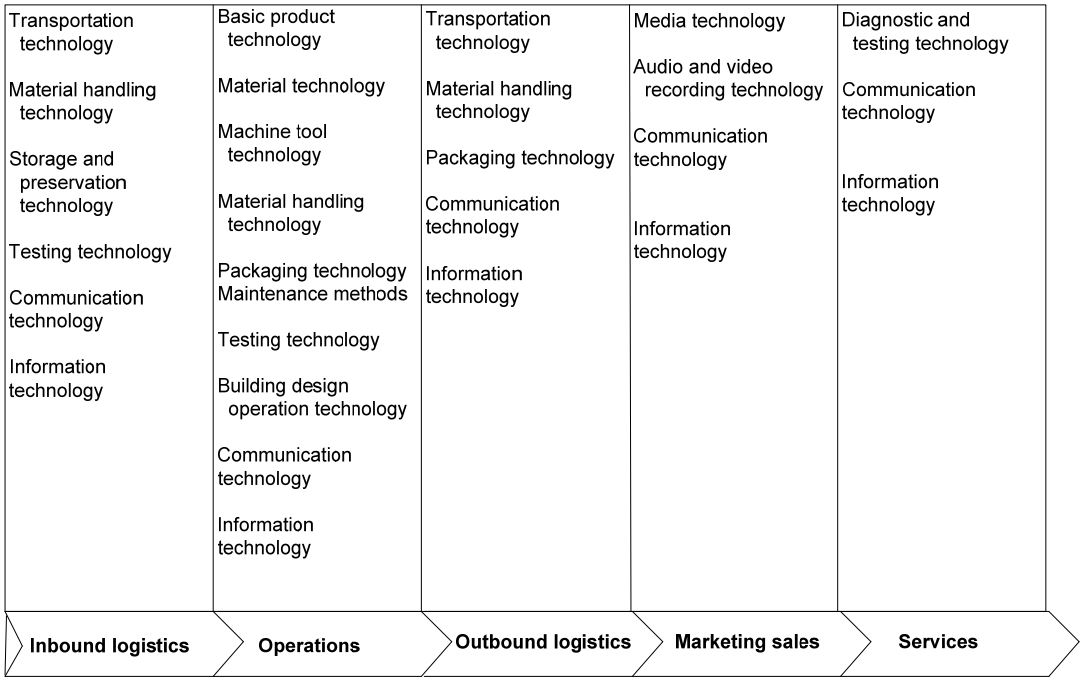
Assignment 2: Mobile Device & Communication Technologies Evaluation & Assessment

1. What effect will smart mobile devices (smartphones and others) have on mid-size enterprise (with less than 100 employees; and you will need to choose its business type – manufacturing or service) in the next 5 years? As a manager of mobile system technology system integrator, yourself, (a) prepare a SWOT (strength, weaknesses, opportunities, and threat) analysis, (b) then make a strategic plan that will anticipate the company's growth in these areas.
2. (a) Discuss some of the cost-benefit categories that an IT manager must understand in making the communications/networking decisions for a medical device manufacturer to support the mobile sales automation. (b) Research the technologies, services and businesses of the following wireless technology companies: AT&T, Verizon, Sprint, and T-Mobile?
3. What technology supports that a company, with their headquarters at Chicago, should provide to their employees to maximize their productivity and efficiency; If (a) employees who perform their office work at home most of the work week; (b) technical staffs who spent most of their work time at a client site at New York city (commute weekly from Chicago to New York city)

Assignment 4: Management's Strategic Planning

A company's top management team including CEO, CFO, VP-for Global Sales and Marketing, VP-Technology, CIO are in the need to plan for their Mobile Enterprise Strategies to explore the new mobile technologies with business intelligent so that the company can stay innovative, competitive and possibly increase their capabilities, revenue/sales, and expand their global markets. Communication Technologies and Information Technologies are found in company's value chain as shown below:

Communication & Information Technology in a Firm's Value Chain



The major tasks discussed in their Mobile Enterprise Strategies planning meetings include

1) Top challenges, new opportunities, and what other companies are implementing mobile enterprise
2) The current state of enterprise mobile technologies
3) The 5 top challenges in mobile deployment
4) What are the new opportunities for increasing efficiencies and productivities? (chose one area of company's value chain: inbound logistics, operations, outbound logistics, marketing & sales, and services)
5) Who are the leaders of mobile enterprise deployment? What are they doing? How are they managing mobile devices and technologies? How are they benefiting from mobilizing their enterprise?
6) What will mobile be in the next 2 years and what does it mean to future deployment?

Assignment 5: Enterprise Mobility Pilot Project

After the company's strategic planning meeting, top administration approve a funding of $50,000 for a Enterprise Mobility Pilot Project (each team should choose one for your own team) to explore a new mobile technology with business intelligent so that the company can stay innovative, competitive and possibly increase their capabilities, revenue/sales, and expand their global markets.

The major tasks during the kick-off phase of this Enterprise Mobility project are listed below. Each team

1) should decide it's Mobile App as being reported in Hw4 for it's project
2) should conduct just-in-time study and report the findings of the following terms related to the project: **mobile application data, data requirements, data modeling, data structures, data**

stores, data access, query processing, data presentation, business process modeling, web services, Service-oriented architecture, and cloud computing.

3) Should conduct a web search for at least 5 companies (major companies) that offer the related mobile technologies, products, tools, and/or services for your Mobile app, if no service is found, the team might need to consider in-house design
4) should also make an initial risk assessment of the Mobile Enterprise pilot project. See the following references:
    a. Risk Matrix, http://en.wikipedia.org/wiki/Risk_Matrix
    b. Risk Management Toolkit, http://www.mitre.org/work/sepo/toolkits/risk/ToolsTechniques/RiskMatrix.html
5) should use Microsoft Project to plan for your project:
    a. Tasks/subtasks, time duration
    b. Milestones

Assignment 6: Design of Mobile Applications and Information Architectures and Related Tradeoff Study. Use the guidelines as shown below to prepare a Design Report of Mobile Applications and Information Architecture for the Mobile App Pilot Project (continuation of Hw5).

- Executive Summary
- Mobile Computing/Information Service Environment
- Mobile Information Services
    - Information Service Types
        - Pull (on-demand)
        - Push (broadcast)
        - Synchronization
        - Disconnected operation
        - Other
    - Connection types
        - Weakly connected
        - Always connected
        - Disconnected
    - Responsibilities and Requirements: Client, Middleware, Server **(provide use case scenarios)**
        - Data collection/transformation
        - Business Logic
        - Data sharing
        - Database access
        - Services
            - Peer-to-Peer
            - Mobile Web Portal
            - Email
            - Reporting
            - Location
            - Context aware
            - Push-based Services
                - SMS Notification Message
                - Event Notification
                - Video/voice streaming

        - Localization
    - Considerations/Constraints
        - Resource usage
        - Scalability
        - Openness
        - Heterogeneity
        - Fault tolerance
        - Resource sharing
        - Privacy/Security
        - User Interface
        - Application Restrictions: data aggregation
- System Design and Architecture **(diagrams are needed)**
    - Communication Interface
    - Security/Authentication Interface
    - Hardware Architecture
        - Hardware structure of the system server
        - Hardware structure for the mobile client (host)
        - Peer-to-Peer?
    - Software Architecture
        - Software structure and functions of the server
        - Software structure for the mobile client (host)
        - Peer-to-Peer?
        - Middleware
- Trade-off Analysis

References

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[11] G. M. Weiss and J. W. Lockhart, "A Comparison of Alternative Client/Server Architectures for Ubiquitous Mobile Sensor-Based Applications, 2012, http://www.denzilferreira.com/UbiMI/2012/UbiMI2012-weiss-paper.pdf

Complete links for references

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