

# Enterprise Mobility Pilot Project

## Mobile Business Intelligence for Pharmaceuticals

CPET 565- Mobile Computing Systems  
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## Problem Statement

Leaders of a global healthcare company specializing in pharmaceuticals want to investigate a mobile business intelligence strategy to stay innovative, competitive, and possibly increase their capabilities, revenue/sales, and expand their global markets. After the company's strategic planning meeting, top administration approved \$50,000 to fund an Enterprise Mobility Pilot Project to explore new mobile technologies with business intelligence.

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## Pharmaceutical BI

- The supply chain is a central focus for the pharmaceutical industry and is an important area for business intelligence
- Supply chain professionals use the data to make the flow of goods more directed at the needs of the end user while minimizing cost and providing information the consumer in real time. Tomorrow's competitive business arena in the life sciences industries will be more about who has the most innovative and dynamic supply chain. Optimizing inventories and order fulfillment on shorter life cycle products will rely more on information flow.

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## Pharmacy BI goals

- You should be getting the answers before the questions even arrive.
- You should be hearing about a supply chain situation long before the demand-side metric starts flashing.

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## Plan for Mobile BI Application

- A mobile BI solution will need to integrate into the companies' existing Enterprise Resource Planning (ERP) System.
- Our focus for the mobile enterprise pilot project will be on a mobile BI application for employees to facilitate efficient distribution of pharmaceutical shipments and efficient maintenance of pharmacy inventory.

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## Pharmacy Supply Chain Process

1. Orders are made by pharmacies to the warehouse.
2. The warehouse staff respond to pharmacy orders and create shipments.
3. Shipments are packaged for individual pharmacies and sent on trucks.
4. Trucks arrive at pharmacies. Pharmacy staff unpack shipments and add items to their inventory.
5. Pharmacy staff sell items and track their declining inventory.

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## Just-in-time Study

The requirements for the just-in-time study are as follows:

1. Pharmacy and warehouse inventory systems should be automated so that popular items will be automatically ordered when supplies drop below a threshold.
1. Pharmacy and warehouse managers should get real time reports on items in the inventories of the warehouse and all of the pharmacies in their region and should have decision tools for strategic inventory management.
2. Pharmacy and warehouse managers should get real time reports on the location of shipments.

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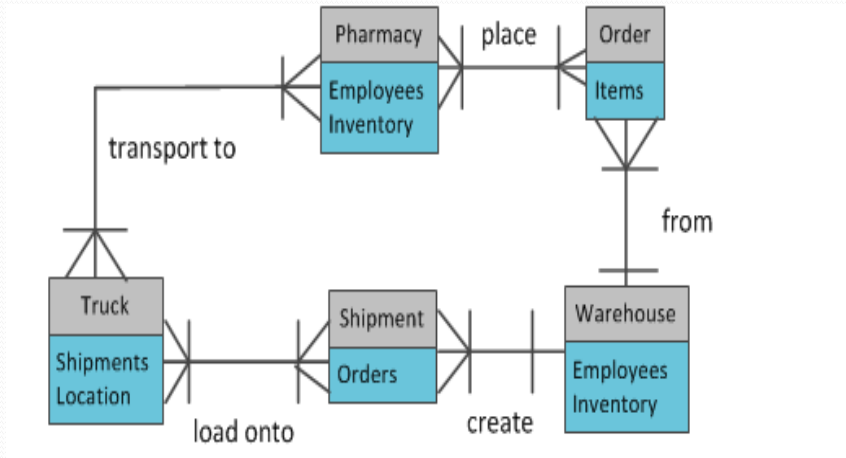
## Mobile Application Data

The following data are needed to fulfill the requirements for our mobile application.

- Order
- Item
- Timestamp
- Shipment
- Pharmacy
- Warehouse
- Location
- Employee
- Truck
- Inventory

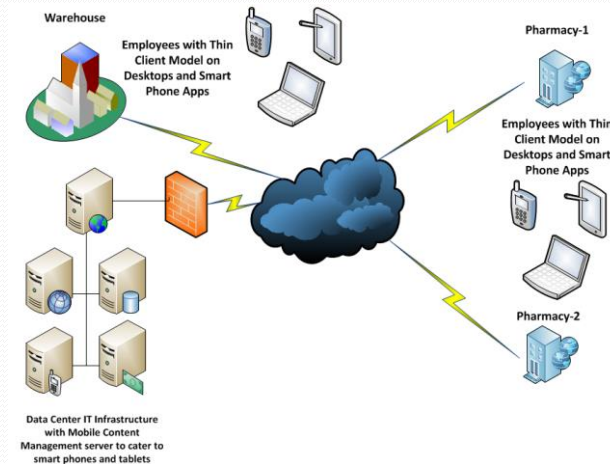
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## Entity-Relationship Diagram



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## Network Diagram



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## Companies - SAP

- [SAP](#) AG has readied a new mobile-first program designed to help on-board businesses to the world of mobile productivity applications. Introducing, [the SAP Mobility Design Center](#), purpose-built to help customers tackle mobility in the workplace by designing [applications](#) that are custom-tailored to the need of mobile workers.
- Customers come to SAP with a mobility need and start collaborating with SAP user experience designers and developers. Mobile [application](#) is sketched, developed and deployed, all while keeping the customer in loop of the development process, ensuring the features and focus of the app are specifically validated for the final use case.

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## SAP options

The way they operate their RDS SAP is through mobile technology applications for different operating systems market as [iOS](#) , [Windows Phone](#) , [Android](#) and [BlackBerry](#) , which ensures that in the coming years in business mobility allow companies to have a single system of [ERP](#) and other business arrangements within the complex IT system of the organization, no matter what device you use employees.

These applications are:

- Now SAP
- Streamworks
- Jive Mobile
- SAP Box
- [CRM @ SAP Sales](#)
- Mobile BI

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## Companies - Logikos

Headquartered in Fort Wayne, IN, Logikos is a custom software development and systems integration company with nearly three decades of experience. Working with mid-range to Fortune 500 companies throughout the world, Logikos design and develop custom software that integrates the latest technologies into clients' embedded, desktop, and mobile products. Logikos offers custom mobile development solutions that include full-cycle services, from feasibility and requirements analyses to platform selection, product development, testing and implementation.

### **Tools and Technologies:**

Hardware Configurations  
 Graphical Operating Systems  
 Integrated Development Environments  
 High-Level Development Languages  
 Software Architecture  
 System Architecture  
 Database

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## Companies - AirWatch

AirWatch is the leader in enterprise-grade Mobile Device Management, Mobile Application Management and Mobile Content Management solutions designed to simplify mobility. With More than 3,000 customers across the world, AirWatch manages mobile devices, including the apps and content on those devices

Air Watch provides support for heterogeneous platforms in the following domains of mobile enterprise management:

- Mobile Security
- Mobile Device Management
- Mobile Application Management
- Mobile Content Management
- Mobile Email Management
- Bring Your Own Device (BYOD) Management

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## Companies - ZCO

ZCO Corporation has created hundreds of custom mobile applications for its clients. The Mobile App Development service extends to all major mobile platforms including:

- iOS
- Android
- BlackBerry
- Windows Phone
- Symbian
- webOS for HP and Palm Devices

Some of the main reasons clients choose ZCO Corporation for mobile app development includes multi-platform & backend system integration capabilities, [app marketing](#) packages, experience in immersive [mobile games](#) and enterprise quality results. Because of large team of mobile app developers, ZCO offers endless feature capabilities; and extensive quality testing. ZCO also offers be a cost-effective resource to extend in-house efforts.

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## Companies - Metova

Metova specializes in custom mobile application development targeting the Android, iOS, Blackberry, and Windows Phone 7 platforms. Metova Claims that average android, iPhone, BlackBerry, and Windows Phone 7 projects take just 5 weeks to complete.

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## Risk Management Plan

- Risks that threaten the successful incorporation of mobile enterprise technology have been identified in general. In addition to that, particular risks for a health care company have been identified due to its unique business nature. After identifying the risks, a matrix has been developed that illustrates the probability and impact of each risk involved.
- Highest priority has been given to those risks that have maximum probability and can have serious cost and services impact on business.
- Mitigation techniques and contingency planning has been discussed in detail to avoid and nullify the impacts in case some unforeseen circumstances thwart the accomplishment of project. A sustainable framework has also been proposed to gauge and monitor the risks.

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## Risk Identification

After careful analysis and industry research, risks have been identified in four major categories. These include:

1. Knowledge and experience
2. Budget
3. Technology
4. Team Factor

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# Risk Identification Table

Item	Knowledge and experience risk	Item	Technology
K1	An issue outside of the scope	T1	Technology being obsolete
K2	Human error	T2	No compatibility of current software and very high up-gradation fees
K3	Highly intricate issues	T3	Hardware out of date
K4	Consequences due to issues resolution by trial and error	T4	High cost of certifications to train employees
		T5	Intrusion of hackers into system infrastructure, compromised security due to device or data theft
		T6	Technical failure, rapidly changing technology, Heterogeneous Platforms of OS
Item	Budget	Item	Team factor
B1	Inadequate allowance for inflation	F1	Conflicts
B2	Underassessment of service demands from customers	F2	High turnover ratio
B3	Increased/unexpected competition		
B4	Downturn in the economy		

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# Quantitative & Qualitative Risk Analysis

Severity of consequences	Impossible	Improbable	Remote	Occasional	Probable	Frequent
1. Catastrophic			T6		T5	
1. Critical		B5, F2	K3, K4, T1	K2, B4	B3, T2, T4	
1. Marginal		B1, F1	K1, B2, T3			
1. Negligible						

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# Qualifying Risks

Level	Descriptor	Example detail description
1	Impossible / Improbable	May occur only in exceptional circumstances
2	Remote	Could occur at some time
3	Occasional	Might occur at some time
4	Probable	Will probably occur in most circumstances
5	Frequent	Is expected to occur in most circumstances

Level	Descriptor	Example detail description
1	Negligible	low financial loss
2	Marginal	medium financial loss, temporary impact on some services/availability
3	Critical	Tangible Financial Loss, Loss of services/availability. Load on Redundant System
4	Catastrophic	Huge Financial loss. Services unavailable.

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# Risk Response Planning

Item	Knowledge and experience risk	Mitigations
K1	an issue outside of the scope	Pre-Testing to identify issues
K2	Human error	System backup
K3	highly intricate issues	Increase expertise by hands on trainings
K4	consequences due to issues resolution by trial and error	System backup
Item	Budget	Mitigations
B1	Inadequate allowance for inflation	Careful budgeting
B2	Underassessment of service demands from customers	outsource
B3	Increased/unexpected competition	Vigilant pricing policy
B4	Downturn in the economy	Adjust prices
Item	Technology	Mitigations
T1	Technology being obsolete	Keep updated with latest trends
T2	No compatibility of current software and very high up-gradation fees	
T3	Hardware out of date	Schedule timely up-gradations
T4	High cost of certifications to train employees	
T5	Intrusion of hackers into system infrastructure, compromised security due to device or data theft	Firewalls, secure shell, close insecure ports, MDM Software to wipe out all data from devices if reported stolen
T6	Technical failure, rapidly changing technology, Heterogeneous Platforms of OS	Redundancy, BYOD strategy and IT Dept. responsible for maintaining Infrastructure and employees responsible for devices
Item	Team factor	Mitigations
F1	Conflicts	Synergy
F2	High turnover ratio	Career oriented jobs, create redundancy in

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## Project Plan

Task Name	Duration	Start	Finish
Mobile Application Requirements	5 days	Thu 9/27/12	Wed 10/3/12
Supply Chain Analysis	3 days	Thu 9/27/12	Sun 9/30/12
Mobile BI Requirements	3 days	Mon 10/1/12	Wed 10/3/12
Team Meeting for Mobile Application	1 day	Wed 10/3/12	Wed 10/3/12
Mobile Application Decision	0 days	Thu 10/4/12	Thu 10/4/12
Just-in-time Study	3 days	Thu 10/4/12	Mon 10/8/12
Mobile Application Data & Requirements	2 days	Thu 10/4/12	Fri 10/5/12
Create study report	1 day	Mon 10/8/12	Mon 10/8/12
Mobile Company Research	3 days	Thu 10/4/12	Mon 10/8/12
Review companies	2 days	Thu 10/4/12	Fri 10/5/12
Create company report	1 day	Mon 10/8/12	Mon 10/8/12
Risk Management Plan	2 days	Fri 10/5/12	Mon 10/8/12
Risk Identification	1 day	Fri 10/5/12	Fri 10/5/12
Risk Analysis	1 day	Mon 10/8/12	Mon 10/8/12

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## Project Plan (cont.)

<b>Review of just-in-time study, company research, &amp; risk management plan</b>	0 days	Wed 10/10/12	Wed 10/10/12
IT Management Meeting	0 days	Thu 10/11/12	Thu 10/11/12
Determine Scope			
Select Software & Hardware			
Implementation Plan	39 days	Fri 10/12/12	Wed 12/5/12
Order software & hardware	2 days	Fri 10/12/12	Mon 10/15/12
Install & configure server software	3 days	Tue 11/6/12	Thu 11/8/12
Install & configure client software	6 days	Wed 11/7/12	Wed 11/14/12
Test automated inventory reports	2 days	Thu 11/15/12	Fri 11/16/12
Test shipment location reporting	5 days	Mon 11/19/12	Fri 11/23/12
Test real time reports & decision tools	10 days	Mon 11/19/12	Fri 11/30/12
Create Report of Test Results	3 days	Mon 12/3/12	Wed 12/5/12
Complete Report of Test Results	0 days	Thu 12/6/12	Thu 12/6/12
IT Management Review of Test Results	0 days	Mon 12/10/12	Mon 12/10/12
IT Management Presentation to Company Administration	0 days	Thu 12/13/12	Thu 12/13/12

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## Project Milestones

- Mobile Application Decision October 4, 2012
- Review of just-in-time study, company research, & risk management plan October 10, 2012
- IT Management Meeting October 11, 2012
  - Determine Scope
  - Select Software & Hardware
- Complete Report of Test Results December 6, 2012
- IT Management Review of Test Results December 10, 2012
- IT Management Presentation to Company Administration December 13, 2012

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## References

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