

Mobile Commerce: User Experience & Technical Considerations





Objectives

- Mobile Commerce is certainly one of THE hot current trends, but that doesn't mean you should rush a hasty solution to market
- We'll give you some User Experience and Technical considerations to think about as you plan strategically how you'll add the Mobile Channel to your cross-channel solution



Overall Agenda

- User Experience Considerations
- Technical Considerations



User Experience Considerations – Agenda

1. Listen to Your Customers
2. Determine Goals
3. Develop a Marketing Plan
 - A Shopper's Wandering Eyes
 - Hints & Tips
 - Customer Examples



User Experience Considerations – #1 Listen to Your Customers

- Question: What do your customers want to do through your Mobile Channel?

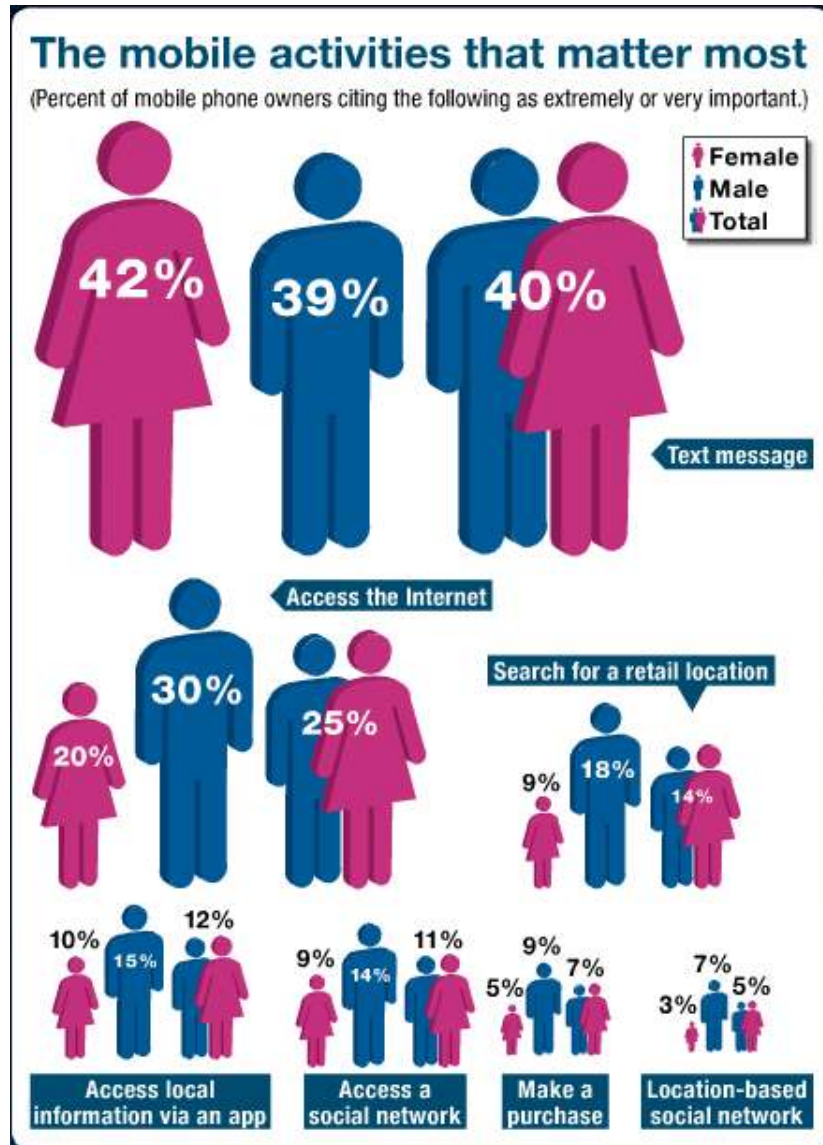
- Examples
 - Basics: Search the Catalog, Log-in, Locate Stores, Locate Inventory, Check Order Status, Check Prices
 - Access purchasing history to see what was previously bought
 - Access a wish list or shopping list that was created at home on the web storefront
 - Access detailed descriptions, ratings, and reviews to help select the most appropriate item
 - Check Gift Card balance
 - Check Loyalty Points balance
 - Review a Gift Guide to help select the right gift
 - Buy (Reserve) on Mobile Device, Pick-up in Store **

 - Receive messages (tweets, SMS) when new items arrive, or when particular items come back into stock, or other marketing messages
 - Receive and present Mobile coupons (traditional 1D bar codes (UPC), QR (2D) bar codes)





User Experience Considerations – Internet Retailer



Highlights

- 18% of males (9% of females) say that searching for a retail location is very important
- 9% of males (5% of females) say that making a purchase is very important
- 42% of females (39% of males) say that texting is very important



User Experience Considerations – #1 Listen to Your Customers

■ Consumer Concerns *

- Difficulty with the small screen size (34%)
- Difficulty visualizing the products (31%)
- Security Issues (28%)
- Slow performance (22%)
- Difficulties entering information because of small screen size (21%)

- * Study of 3,611 US adults by SmartRevenue, conducted by Demandware Inc. and Sterling Commerce
- <http://www.internetretailer.com/2010/08/17/15-consumers-have-made-purchases-their-phones>

■ Bottom Line

- What interactions with your customer will you **focus** on for the Mobile Channel?



User Experience Considerations – #2 Determine Goals

- Question: What are the goals / objectives of your m-Commerce store?

- For Your Consideration
 - Product Discovery – Brand / Category / Product Awareness
 - Influence Stage – Sales Assistant (Research, Advice)
 - Purchasing – Drive Traffic to Physical Stores or Capture Sales “on-the-go”
 - Post-Sales Support – Customer Service

 - What are the goals / objectives of each part of your Mobile Channel? Twitter, SMS, e-mail, mobile storefront/application, etc.

- Bottom Line
 - Once you’ve selected your goals, how will you measure the success of your Mobile Channel?



User Experience Considerations – #3 Develop a Marketing Plan

- Question: How will you achieve your goals / objectives?

- For Your Consideration
 - Will you deploy all **features**, or a subset, of your current Web Storefront in your m-Commerce store? Will you deploy any new features aimed specifically at Mobile shoppers?
 - Will you provide your full **assortment**, or a subset, through the m-Commerce store?
 - Will you provide the full breadth of supporting **information**, or a subset, through the m-Commerce store?

 - Review the “Technical Considerations”

- Bottom Line
 - Will your m-Commerce store be “Mobile-friendly” or “Mobile-optimized”?

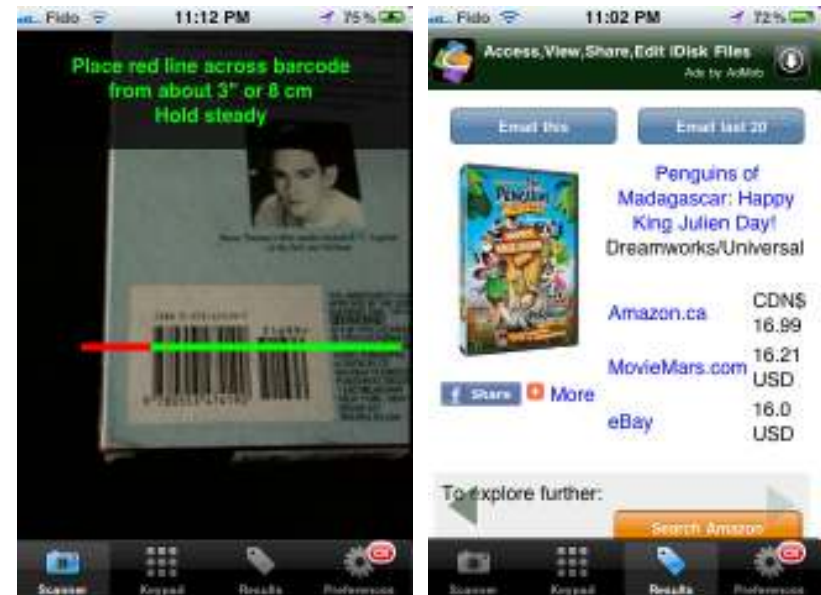


User Experience Considerations – A Shopper’s Wandering Eyes

- Question: How will you handle increased Comparison Shopping?
- For Your Consideration
 - Fact – Shoppers will be standing in your physical stores checking out prices on your competitor’s web sites and through comparison shopping sites. E.g. Amazon Marketplace, eBay, bizrate, Shopzilla, PriceGrabber, Shopping.com, MySimon, Beso, etc.

- Bottom Line

- This is also an **opportunity**. Shoppers (currently “loyal” to you, and prospective new ones) will be standing in your competitor’s physical stores checking out prices. Will information from your store appear in their price comparisons and ratings and review searches? Will you be able to get that sale?





User Experience Considerations – Hints & Tips

■ For Your Consideration

- Too much typing and scrolling in a cramped space will lead to shoppers abandoning the task / site even faster than on a web storefront
- Mobile users are “on-the-go” and are easily distracted with “life”
 - Simplify (declutter) mobile pages
 - Drop fields that aren’t absolutely necessary to the transaction
 - Pre-populate data fields and use drop-downs as much as possible to reduce “typing”
 - Use smart “default” values

- Bottom Line

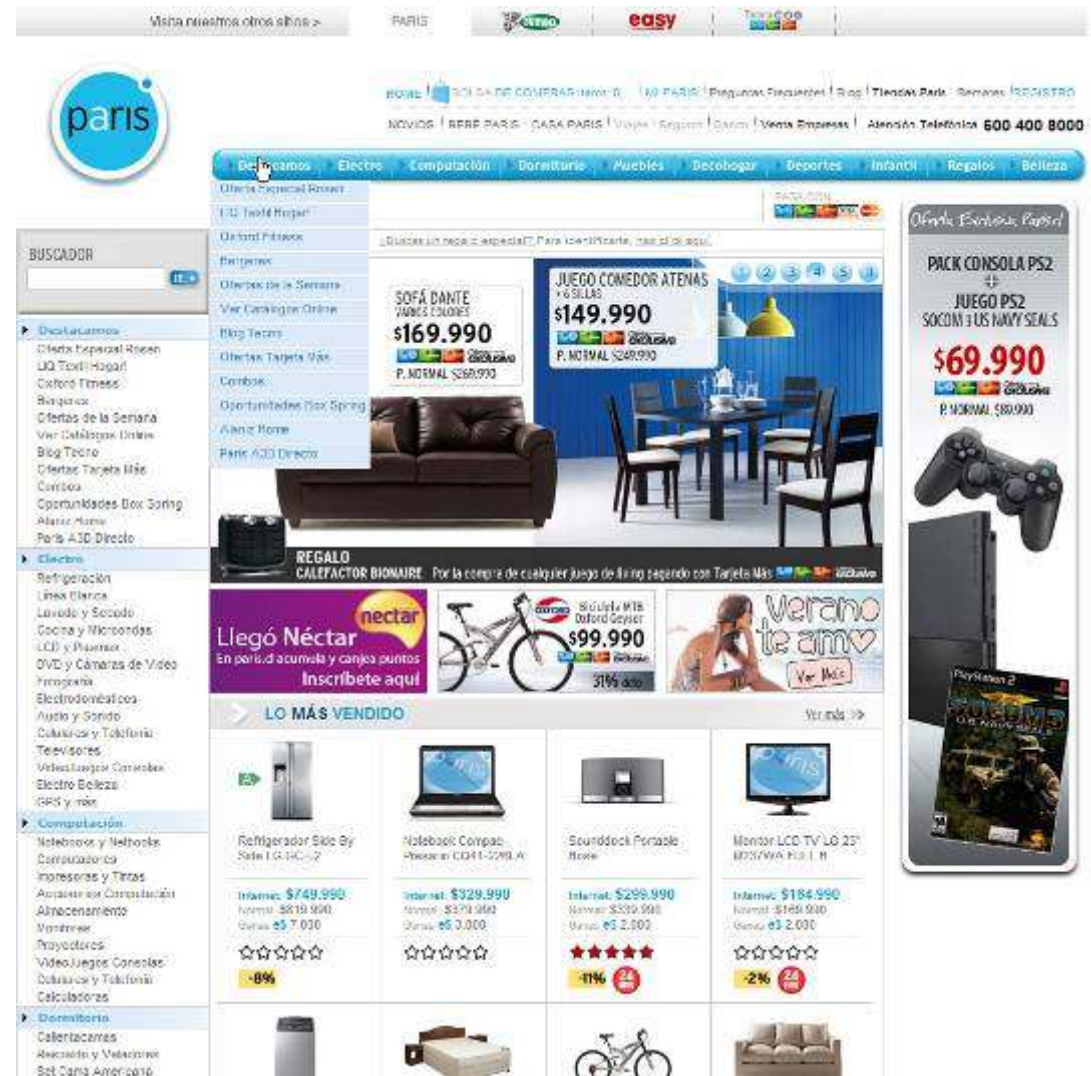
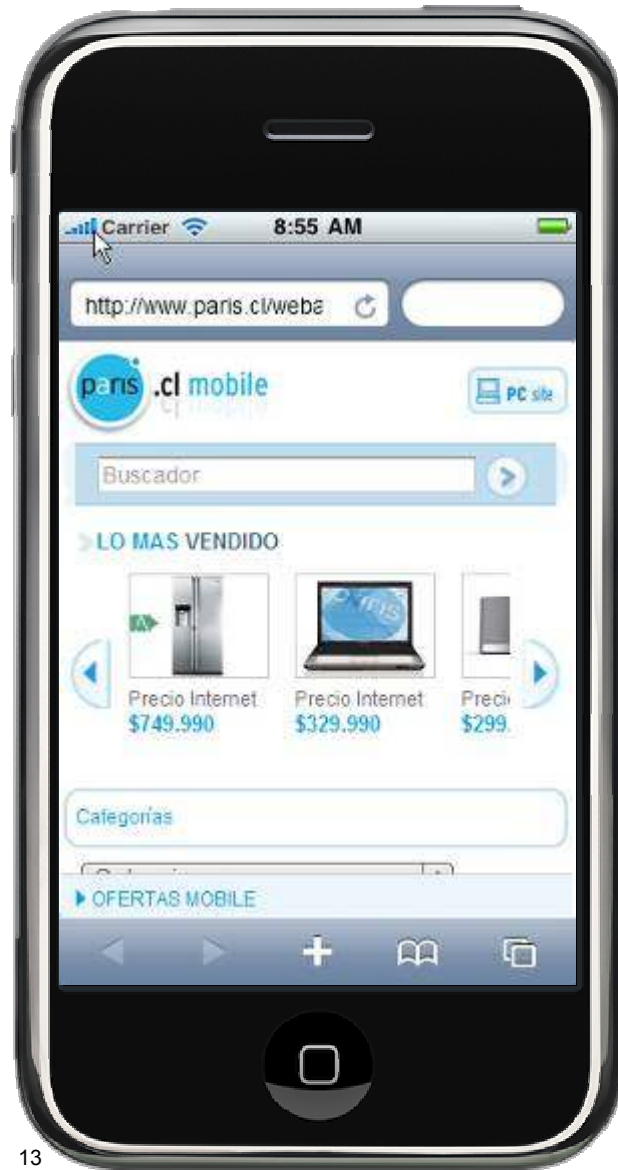
- Help your Mobile shoppers get the information they need, or the task completed, as quickly as possible



Customer Examples



Customer Example #1 – <http://www.paris.cl>





Customer Example #2 – <http://www.zara.com>

Web
Storefront





Customer Example #2 – <http://www.zara.com>

iPhone
Application



Mobile
Storefront





Summary of User Experience Considerations

1. Listen to Your Customers
 2. Determine Goals
 3. Develop a Marketing Plan
- A Shopper's Wandering Eyes
 - Hints & Tips
 - Customer Examples



Technical Considerations – Agenda

- What to Build and How to Deliver It
- Web, Native and Hybrid Applications
- Device Support
- Device-specific Content
- Analytics
- Performance Considerations
- Device-specific Functionality
- Madisons Mobile Overview



What to Build and How to Deliver It?

- A tailored mobile Web application accessed via a mobile browser
- A native application (fully or hybrid)
- A mobile Web application via a transcoding gateway?





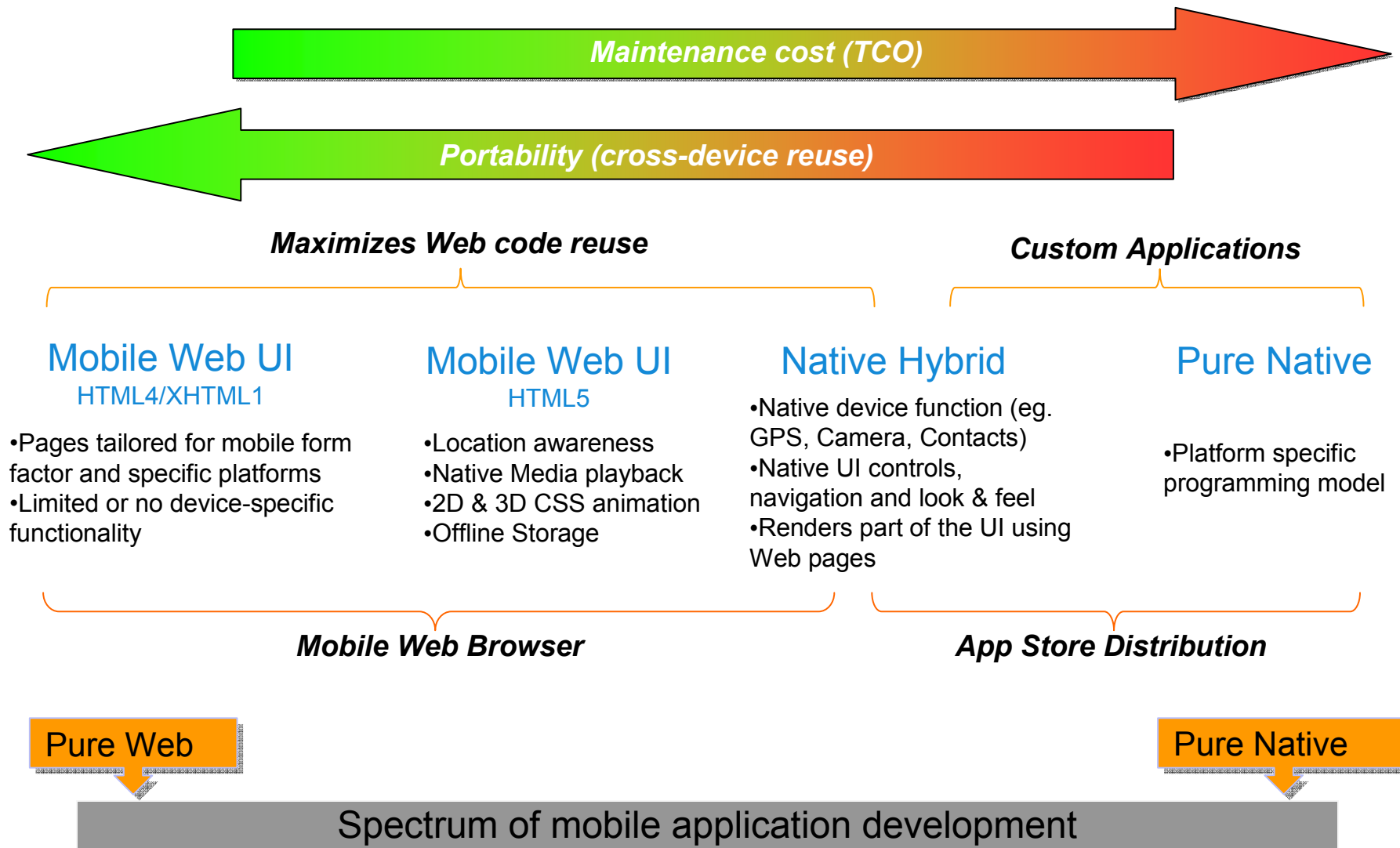
Pure Native and Hybrid Applications

■ Web? Native? Hybrid?





Spectrum of Mobile Applications Design





Building Mobile Applications for WebSphere Commerce Using the Hybrid Application Programming Model

http://www.ibm.com/developerworks/websphere/library/techarticles/1009_shum/1009_shum.html

developerWorks > WebSphere > Technical library >
developerWorks®

Building mobile applications for WebSphere Commerce using the hybrid application programming model

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[Alan Cole \(colea@us.ibm.com\)](#), Research Staff Member, IBM

Summary: Learn how to build mobile applications for WebSphere® Commerce using the hybrid application programming model. This article describes the hybrid model, how it compares to the other mobile application programming models, and how to use it to build iPhone® and Android® applications for WebSphere Commerce in two case studies.

Tags for this article: [b2b_\(business-to-business\)](#), [mobile_devices](#), [pda_\(personal_digital_assistant\)](#), [social_tools](#), [websphere_commerce_enterprise](#)

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Overview

With the proliferation of Internet-capable mobile devices, mobile applications have become integral parts of many cross-channel retail solutions. In particular, the increasing popularity of iPhone OS and Android devices has driven demand for native applications with capabilities beyond what web applications running in mobile browsers can offer. However, building a fully native application from scratch is a significant commitment of skills and resources, and a majority of the code written for one platform will not be reusable on another. This is where the hybrid application programming model comes in - with the hybrid model. You will reuse many of your existing web application assets to build mobile applications.

Note that this article is targeted at architects and developers interested in building mobile applications for WebSphere Commerce. It assumes a basic understanding of WebSphere Commerce and mobile application development. A companion white paper, [Leveraging mobile commerce in your multi-channel strategy](#), discusses the market opportunity in mobile commerce, and sketches some approaches to take advantage of those opportunities within WebSphere Commerce.



Table of contents
• Overview
• Mobile application programming models
• Fundamentals of a hybrid application
• Case study 1. Building an iPhone application for WebSphere Commerce using the hybrid model
• High-level design
• Senior site changes

You say you want a Mobile Commerce site. Well you know.



Device Support

- Which devices will you support?
 - Will you need to support feature phones or can you focus on smartphones?
 - What about tablet devices (e.g. iPads)?
 - Will you deliver different versions of the site to different device classes?
 - Can the differences be limited to layout controlled by cascading style sheets (CSS)?

- For Your Consideration
 - Each supported device needs to be tested **with the actual device**
 - Development and test effort increases with the number of devices supported
 - Development and test effort increases with the number of different versions
 - Even with a simple mobile Web application, what works fine on one device may be completely broken on another
 - Madisons Mobile targets smartphones with a minimum browsable area of 240x320
 - WebSphere Commerce V7 supports device differentiation, but you still need to develop and test all combinations

- Bottom Line
 - There is a trade-off between TCO and supported device range



Device-specific Content – Management

- How will you create and manage the mobile-specific content?

- For your consideration
 - Mobile assortment
 - Scaled down images
 - Specialized text
 - Replacement content for non-mobile friendly content (e.g. HTML5 instead of Flash)
 - Text (SMS) messaging
 - Mobile e-marketing spots

- Bottom Line
 - Content must be created and maintained
 - Back-end merchandising feeds may not have the required fields for mobile content



Analytics

- How will you track use of the mobile channel?

- For your consideration
 - Most analytic solutions will work on a mobile Web application (but beware of complex Javascript)
 - Don't forget to track analytics for native/hybrid applications
 - Are you tracking mobile devices accessing your desktop site?
 - Are you tracking cross-channel movement and interactions?

- Bottom Line
 - If you don't track usage, you will not know what works and what doesn't for the mobile channel



Performance Considerations

- How will the mobile channel perform and how will it impact your current site?

- For your consideration
 - How is the mobile shopper's workload mix different and it's affect on the performance of the cross-channel WC solution?
 - Define specific other non-functional requirements specific to the mobile channel
 - Bandwidth is lower, requiring lower page weight
 - Network latency is higher, requiring fewer requests per page (graphics, CSS, Javascript, etc.)
 - How do we optimize caching (e.g. in the phone either via META directives or within a native application)

- Bottom Line
 - Some of the characteristics of the mobile platform are contradictory
 - Most performance considerations are the same as for a regular Web application



Device-specific Functions

- Should you provide location awareness?
 - For store locator?
 - For initial country/language selection (when applicable)?

- For Your Consideration
 - Your customers *will* expect this from a mobile site
 - In many cases, the customers will not even know their current address
 - Use manual address entry as a fall-back
 - A Web application can interface with the device's geolocation functions via the HTML5 or Google Geolocation APIs (Gears)

- What about other functions?
 - Map integration, hotlinked phone numbers, ...

- Bottom Line
 - Geolocation is expected – find the best use of it in your site

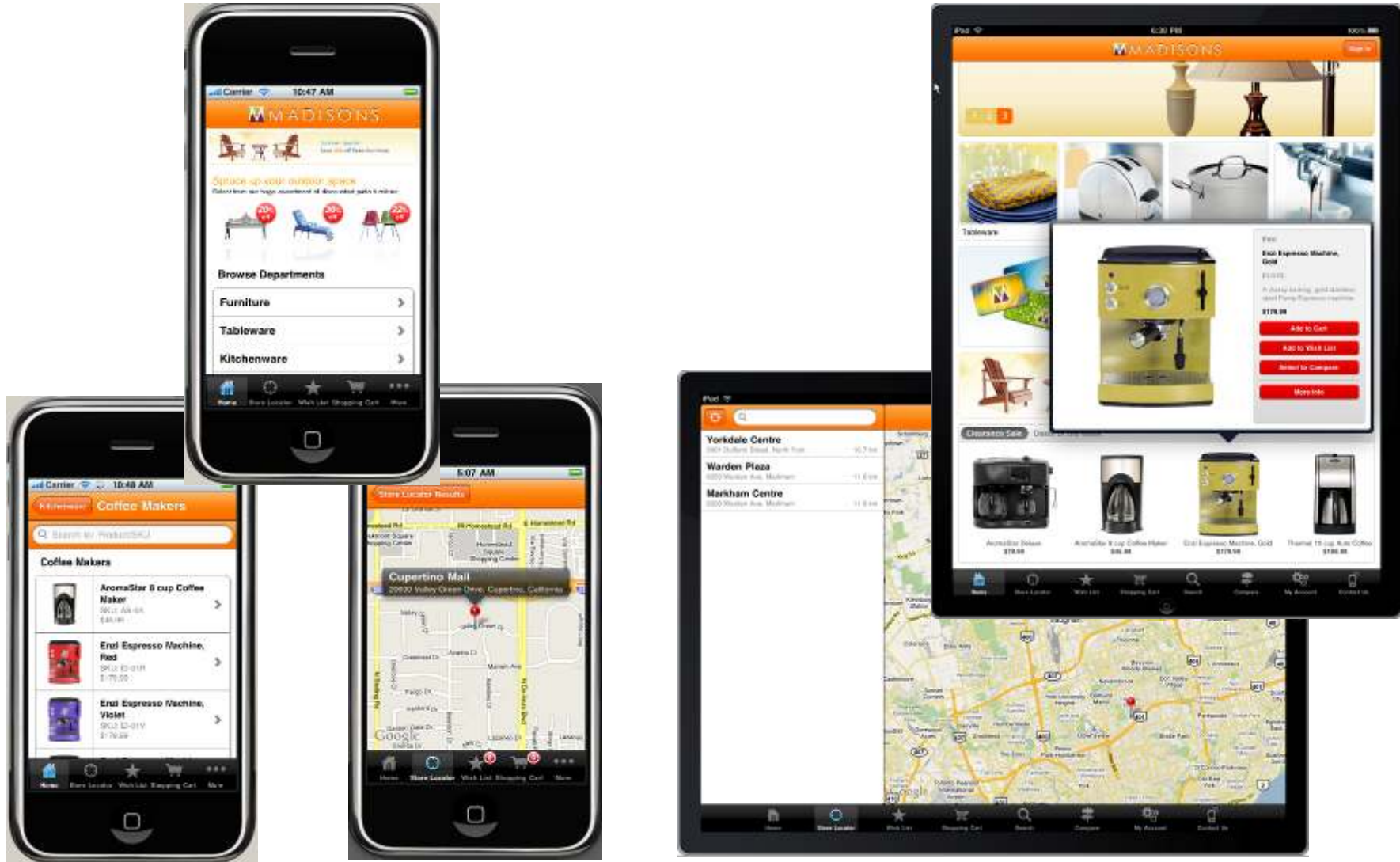


Madisons Mobile Sample Pages





Madisons Mobile iPhone and iPad applications





Summary of Technical Considerations

- What to Build and How to Deliver It
- Web, Native and Hybrid Applications
- Device Support
- Device-specific Content
- Analytics
- Performance Considerations
- Device-specific Functionality
- Madisons Mobile Overview



Next Steps

- Discuss the questions raised in this presentation internally with key stakeholders and decision makers
- Incorporate feedback from your best customers in setting goals and building a plan
- Make the key User Experience and Technical decisions
- Build your Mobile Commerce site with your choice of implementation partner
- Test your solution with customers before a widespread launch

- How IBM Software Services for WebSphere (ISSW) can help?
 - An ISSW WebSphere Commerce Solution Architect can lead a Mobile Commerce workshop (about 2-3 days on-site) to review the previous questions, talk about pros/cons of the different choices, and document the decisions (about 10 person days of labour total)
 - You can then take these decisions to your choice of implementation partner to document a more detailed design and project plan



Thank You For Your Attendance

Contact Information

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Bonus Material

The backup slides contain

- Additional Technical Considerations
- Technical Hints & Tips
- A feature comparison between Madison's web storefront and Madison's mobile storefront
- Screen captures of every page / feature in the Madison's mobile storefront.



Backup



Device-specific Content – Richness of UI

- How rich a user experience do you require?

- For your consideration
 - Most smartphones support Javascript but most also fall short in some areas
 - If you desire advanced UI, e.g. page transitions, you may be better off with a native application
 - Mobile best practices call for simple navigation with no scripting

- Bottom Line
 - The more client-side scripting you add, the higher is the risk of breaking the functionality for some groups of devices



Device Detection

- How will you detect mobile devices?

- For your consideration
 - WebSphere Commerce V7 supports device detection and routing on-the-fly
 - The current implementation is based pattern matching of User Agent strings
 - Devices are introduced to the market at a high rate
 - How will you keep this list up-to-date?
 - Consider using service providers that keep and update lists of devices (e.g. DeviceAtlas and WURFL)

- Bottom Line
 - We provide the framework for supporting device detection and routing, but you will need to maintain a list of devices



Device Routing

- What are your requirements on automatic device routing?

- For your consideration
 - WebSphere Commerce V7 supports device detection and routing on-the-fly
 - You may not have comparative pages covering the whole site
 - Some pages may not apply to mobile, some may only apply to mobile
 - Some users may prefer using the desktop site, even from a mobile device
 - Provide cross-linking (e.g. “You appear to be using a mobile device, why not try our mobile site”)
 - One solution is to only redirect requests for the home page
 - How about deep links, e.g. from your own marketing e-mails?

- Bottom Line
 - Think about how automatic the device routing needs to be handled by the site



Device-specific Functions – Other Device Functions

- How about other device functions?
 - Map application? (e.g. for plotting store locations)
 - Phone number hot-links (e.g. call customer service by clicking a button)
 - Address book? (e.g. for e-mail address selection)
 - Camera?

- For Your Consideration
 - Map application integration is supported by many devices via special links
 - There is currently no standard way to integrate to advanced functions like address book and camera
 - Use native application if needed for these functions

- Bottom Line
 - Business desire to use advanced functions drive the implementation platform



Mobile Web Application Best Practices

- Follow (most of) the W3C Mobile Best Practices*, e.g.:
 - Exploit device capabilities to provide an enhanced user experience
 - Carry out testing on actual devices as well as emulators
 - Keep the URIs of site entry points short
 - Do not cause pop-ups or other windows to appear and do not change the current window without informing the user
 - Do not rely on embedded objects or script
 - Create documents that validate to published formal grammars
 - Use terse, efficient markup
 - Avoid free text entry where possible

- But be pragmatic, as some of the recommendations are a bit dated...
 - “Do not rely on cookies being available”

- <http://www.w3.org/TR/mobile-bp>
- <http://dev.opera.com/articles/view/making-small-devices-look-great/>
- http://www2.research.att.com/~rjana/WF12_Paper1.pdf



Technical Considerations – Hints & Tips

- Know and use the “Mobile Compatibility Tables” and Mobile Best Practices
 - <http://www.quirksmode.org/m/table.html>
 - <http://www.w3.org/TR/mobile-bp>

- Development Environment
 - Use Firefox with the Switch User Agent plugin to simulate devices during development
 - Use device simulators as well as physical devices during unit testing
 - Validate using the W3C mobileOK – <http://validator.w3.org/mobile/>

- Testing
 - Ensure availability of target devices for both unit and FVT
 - Establish an externally visible test server for over-the-air (3G/GPRS) testing

- Compliance
 - Ensure that architects, designers and developers know and understand all of these points
 - Verify by reviewing design and code periodically



Technical Considerations – Hints & Tips

- **Involve domain experts early**
 - Mobile user experience is very different from the desktop environment
 - Ensure any UI design agency has domain expertise
 - Some platforms require application approval which demand changes early in the process

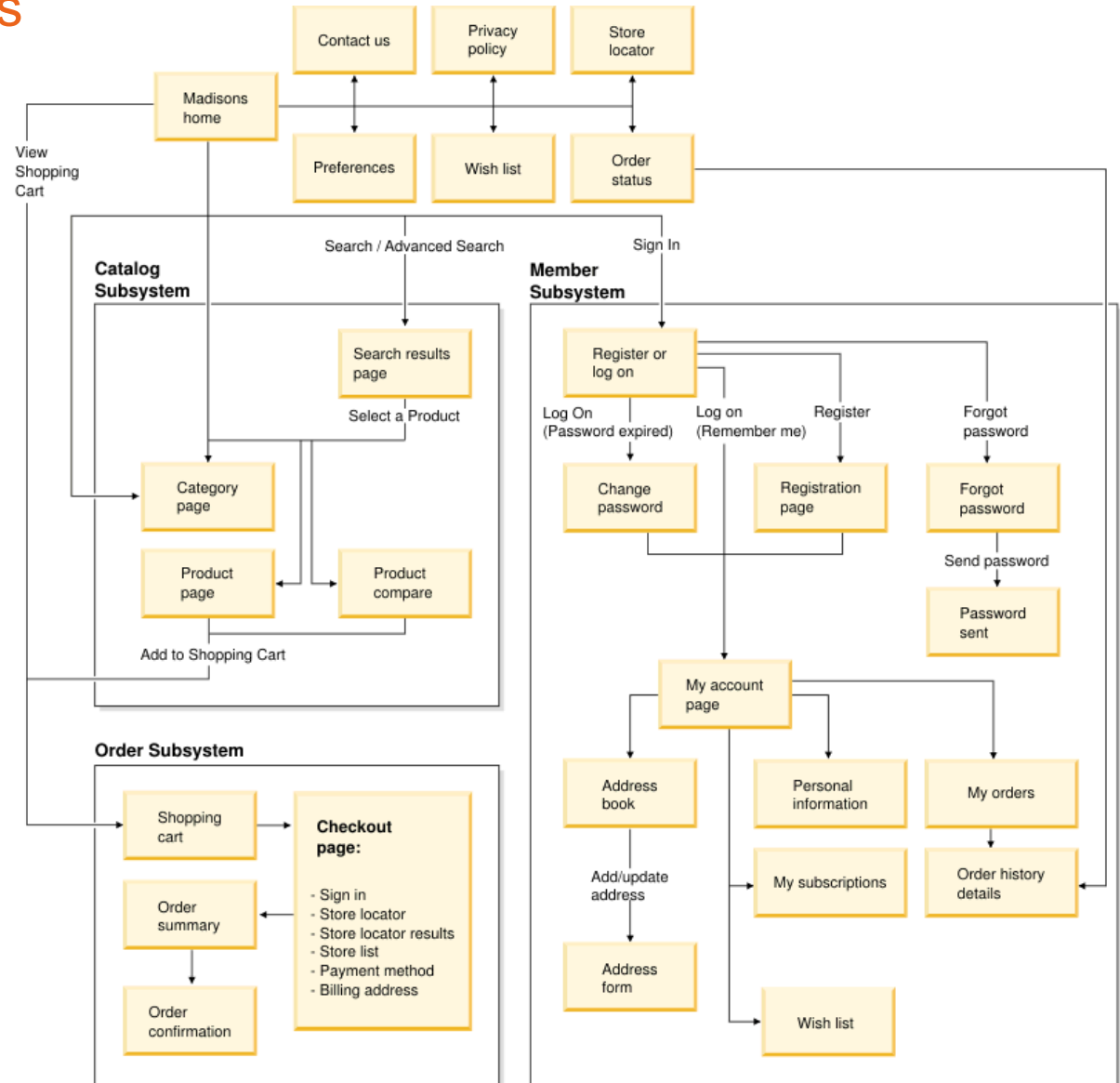
- **A native application must still source information (e.g. catalog, user, order data) from WebSphere Commerce to ensure a consistent cross-channel experience**
 - Render specialized content to native apps, e.g. using JSON or XML

- **Session management for native applications**
 - Can be done using the existing cookie based session management

- **Caching considerations**
 - Consider both in-application caching as well as dynamic and edge caching



Madisons Mobile Pages





Madisons and Madisons Mobile Starter Store Comparison – Catalog Features

Feature	Madisons Mobile	Madisons
Management Center Catalogs tool	√	√
Master and sales catalogs	√	√
Categories, products, SKUs, bundles, and prebuilt kits	√	√
Support for multiple images per product	√	√
Pop-up windows containing additional product details for store items	X	√
Merchandising associations, defining and descriptive attributes, list and offer prices	√	√
Simple and advanced search	√	√
Product fast finder, where customers can filter products quickly based on attributes such as brand or price range	X	√
Tiered pricing policy (offer price)	√	√
Attachment assets (not for category attachments)	√	√
Product ranking	X	√
Browsing history	X	√



Madisons and Madisons Mobile Starter Store Comparison – Marketing, Promotions and Registration Features

Feature	Madisons Mobile	Madisons
Management Center Marketing tool	√	√
e-Marketing Spots containing scrollable items, products, categories and merchandising associations.	√	√
Management Center Promotions tool	√	√
Promotion code entry	√	√
Product-level promotions	√	√
Order-level promotions	√	√
Shipping-level promotions		√
Support for personal coupon management using a coupon wallet	√ ¹	√
Support for guest and registered customers	√	√
Support for persistent sessions (Remember Me)	√	√
My Account flows	√	√

Notes:

¹ Introduced in Feature Enhancement Pack 1.



Madisons and Madisons Mobile Starter Store Comparison – Order Features

Feature	Madisons Mobile	Madisons
Quick order	X	√
Scheduled orders	X	√
Inventory availability	√	√
Shopping cart	√	√
Shopping cart pagination, providing paging controls for large shopping carts	√	√
Wish lists	√	√
Shipping charges and taxes	√	√



Madisons and Madisons Mobile Starter Store Comparison – Checkout Features

Feature	Madisons Mobile	Madisons
Checkout flow implementation	Step-by-step, multiple pages	Step-by-step, multiple pages
Buy online, pickup in-store	√	√
Buy online, ship to address	X	√
Payments	√ (not all methods)	√
Support for guest and registered checkout	√	√
Support for multiple shipping addresses	X	√
Quick checkout	√	√
Ship as complete or partial shipments	X	√
Shipping instructions	X	√
Multiple payments per order	X	√
Multiple entry points, with customizable integration points on the store locator page	√	√
Order status and tracking	√	√



Madisons and Madisons Mobile Starter Store Comparison – Technology Features (1/2)

Feature	Madisons Mobile	Madisons
Default Dojo toolkit version	N/A	1.3.1
Support for Web 2.0 technology, using AJAX and Dojo widgets	X	√
Support for Web 1.0 technologies	√	√
Drag-and-drop support for the mini shopping cart and compare zone	X	√
Support for changing product attributes directly on the shopping cart, such as color or fabric changes	X	√
Change flow options to customize the storefront and shopping experience	X	√
Progress indicators on store pages, displayed while operations are in progress. For example, displayed when an AJAX request is triggered and removed when the request completes	X	√
Default double-click handling implemented using JavaScript on store pages that benefit from blocking multiple requests, such as adding items to the shopping cart or completing an order at the end of the checkout process	X	√
Support for Coremetrics enhanced Web analytics for WebSphere Commerce	X	√



Madisons and Madisons Mobile Starter Store Comparison – Technology Features (2/2)

Feature	Madisons Mobile	Madisons
Support for SMS order status notifications and marketing messages	√	√
Search engine optimization	√	√
Globalization support for stores displaying bi-directional languages. The store uses a locale-specific common1_1iw_iL.css Cascading Style Sheet (CSS) file where the directionality attribute can be specified	√	√
Fully translated into multiple languages to support globalization	13 languages	13 languages ¹
Support for accessibility standards, enabling those with disabilities to interact with Web content through the use of assistive technologies	X ²	√

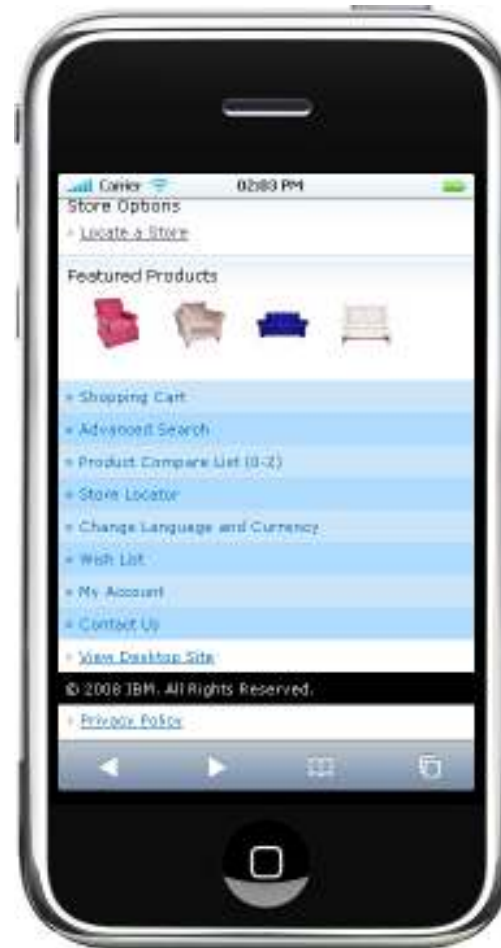
Notes:

¹ Full Arabic support (ar_EG) is also available for the Madisons starter store. See Technote 4025874 for more information.

² Accessibility guidelines for mobile devices are not well defined or well established. Therefore, accessibility standards are unsupported for the Madisons mobile starter store.

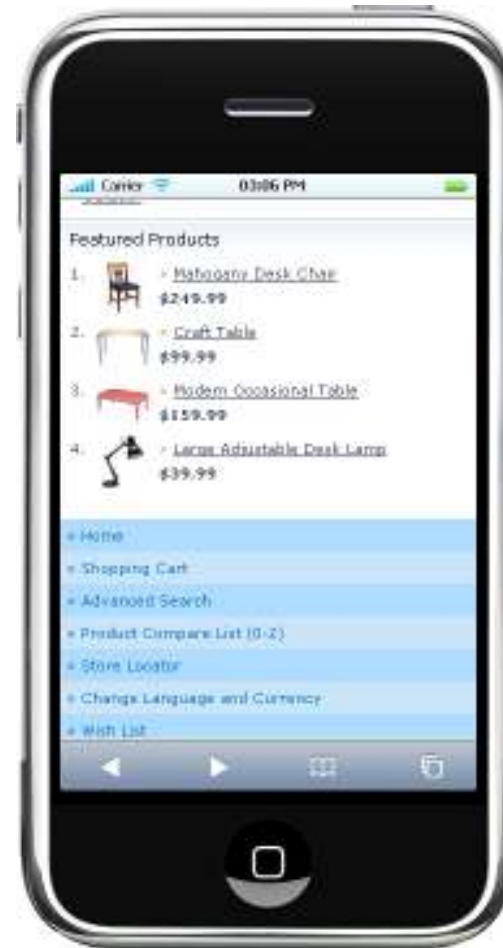
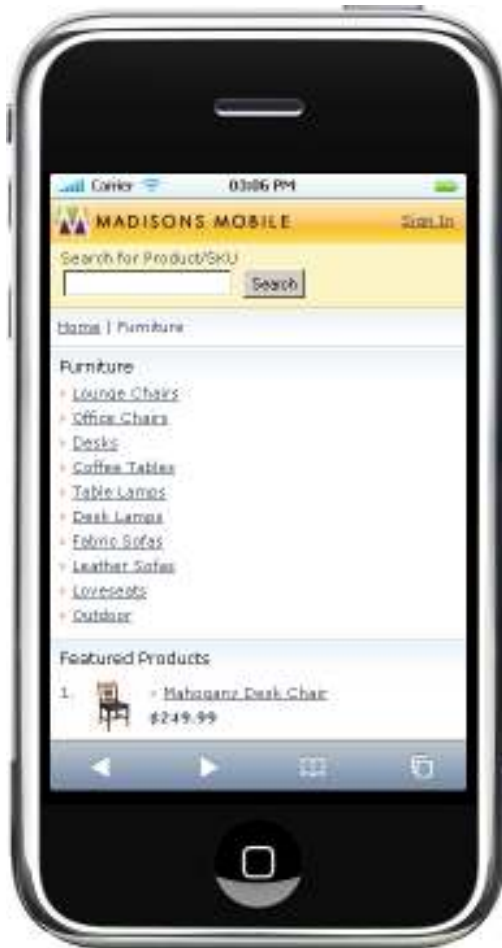


Madisons Mobile Pages – Home Page



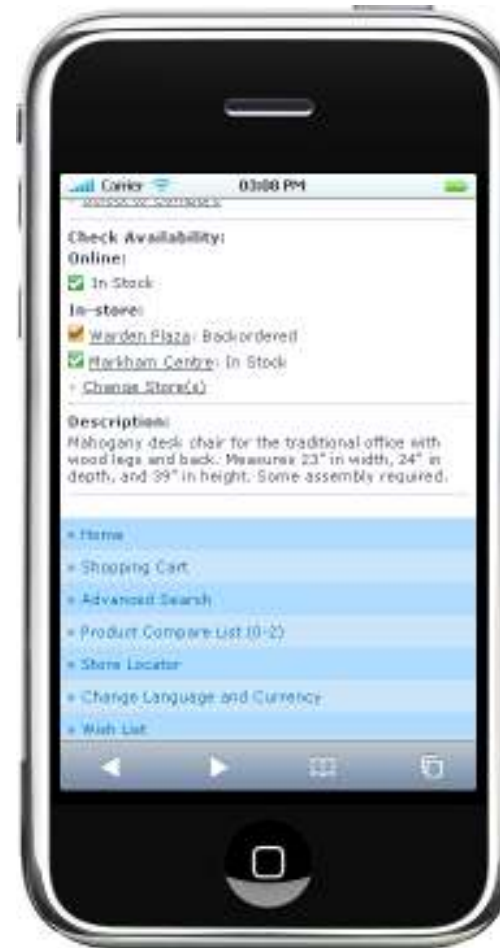
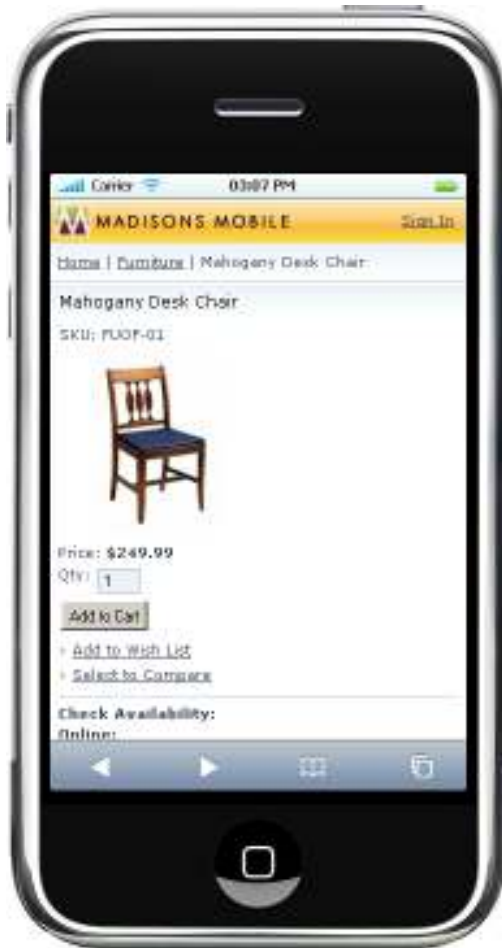


Madisons Mobile Pages – Category Page





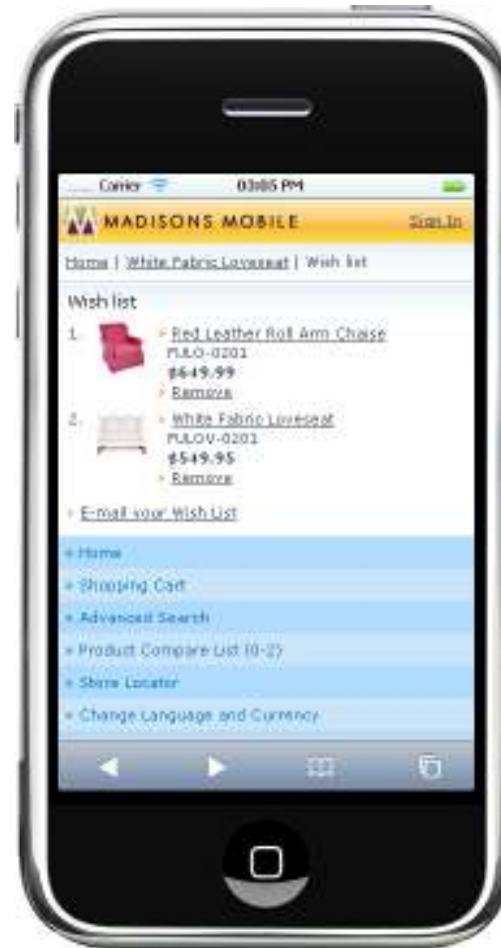
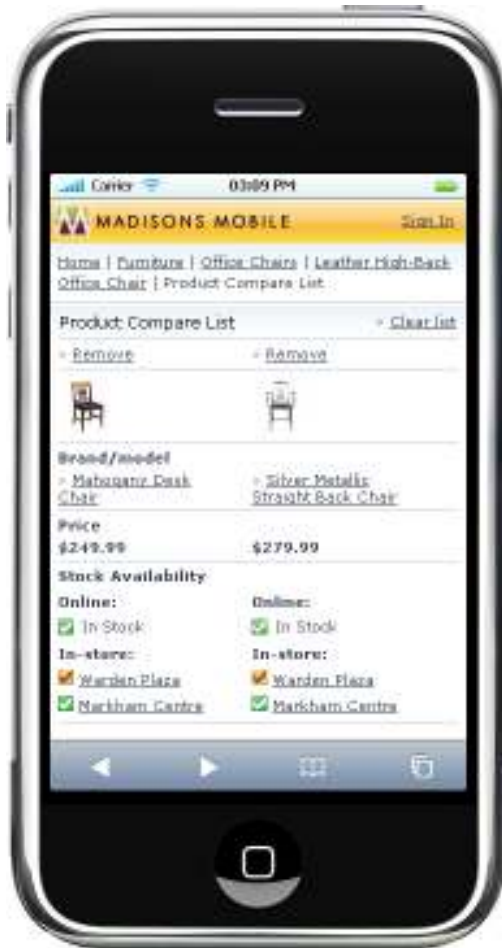
Madisons Mobile Pages – Product Page





Madisons Mobile Pages

– Product Compare & Wish List



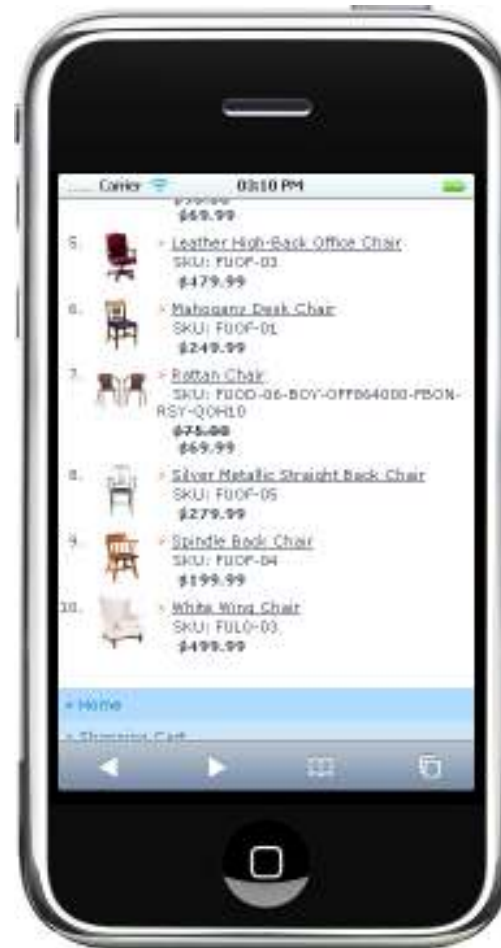
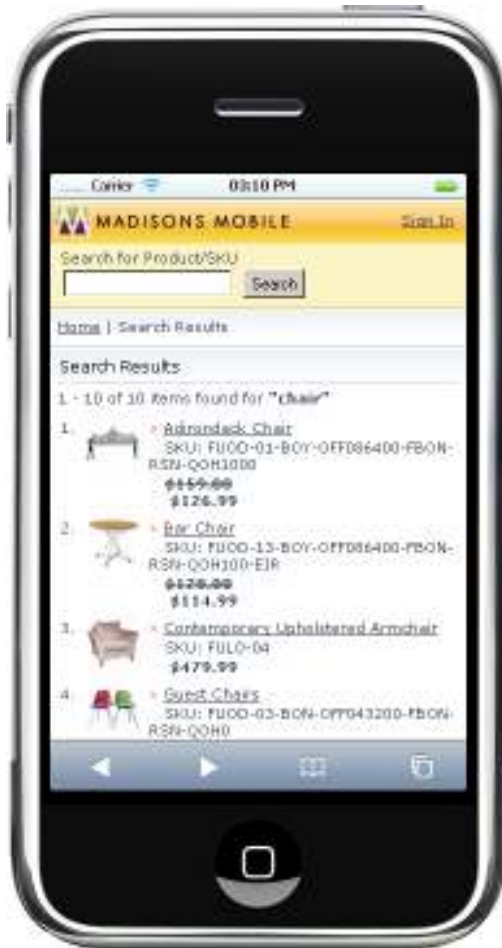


Madisons Mobile Pages – Advanced Search Page



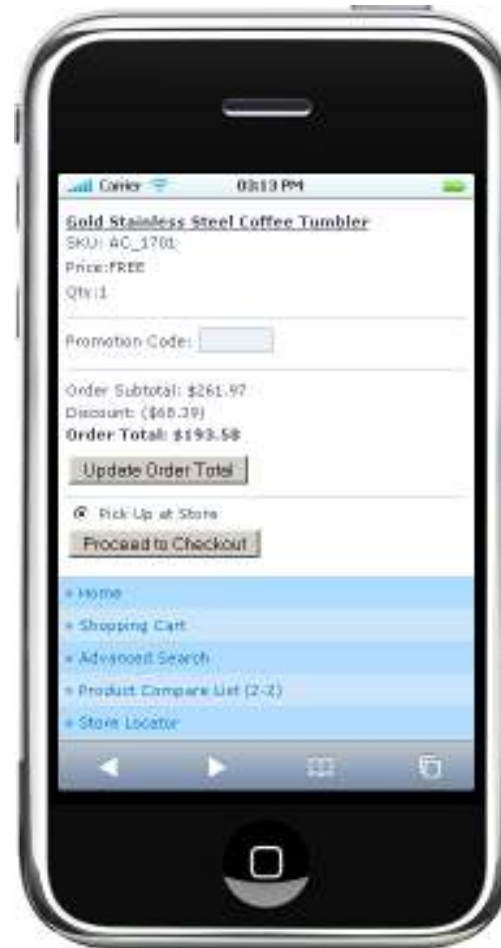


Madisons Mobile Pages – Search Results Page





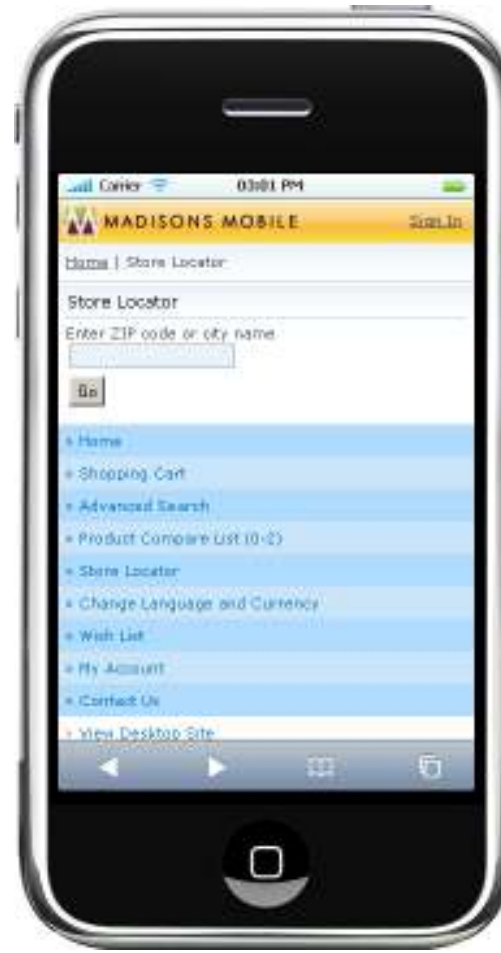
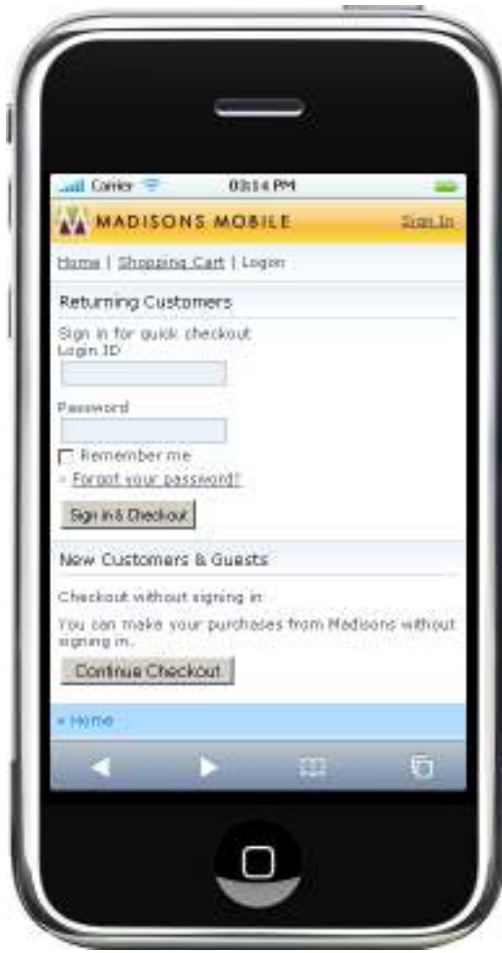
Madisons Mobile Pages – Shopping Cart





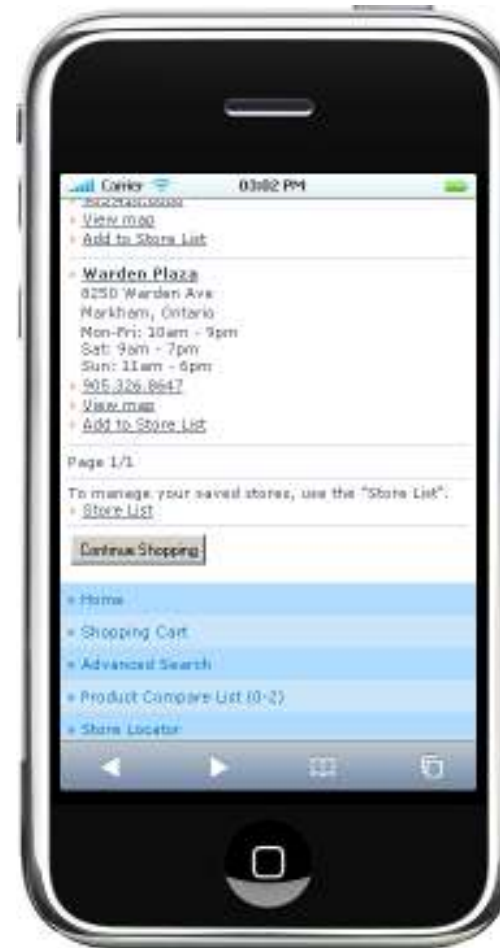
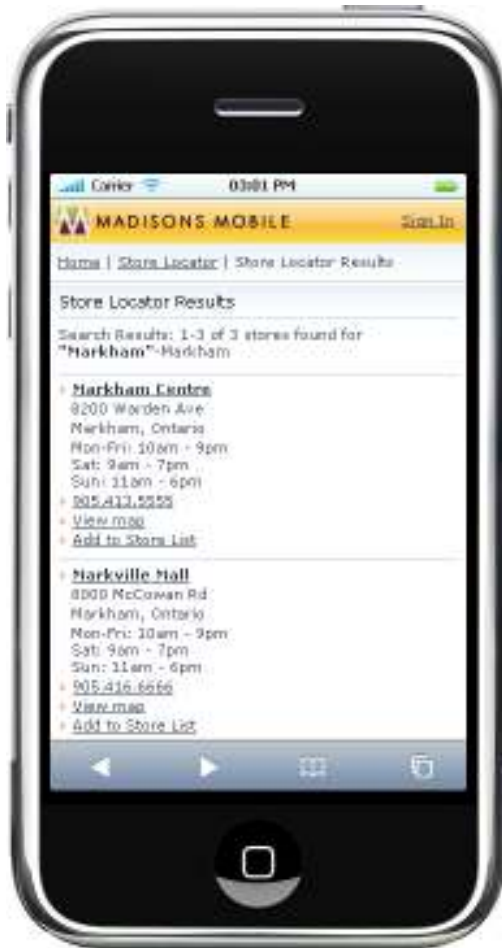
Madisons Mobile Pages

– Sign in or Check out & Store Locator Pages



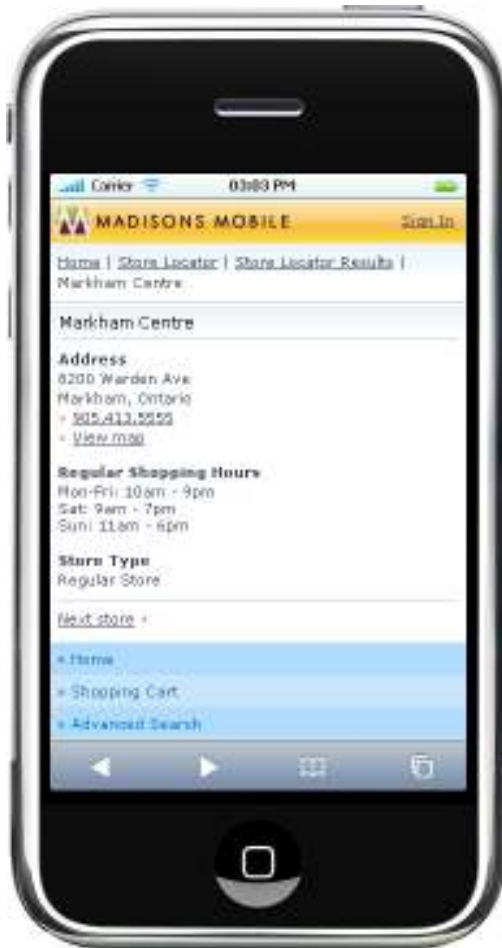


Madisons Mobile Pages – Store Locator Results





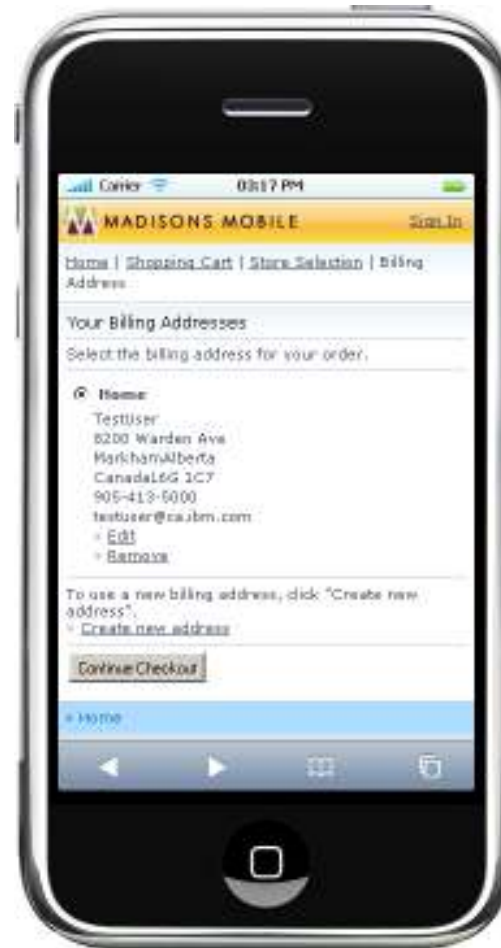
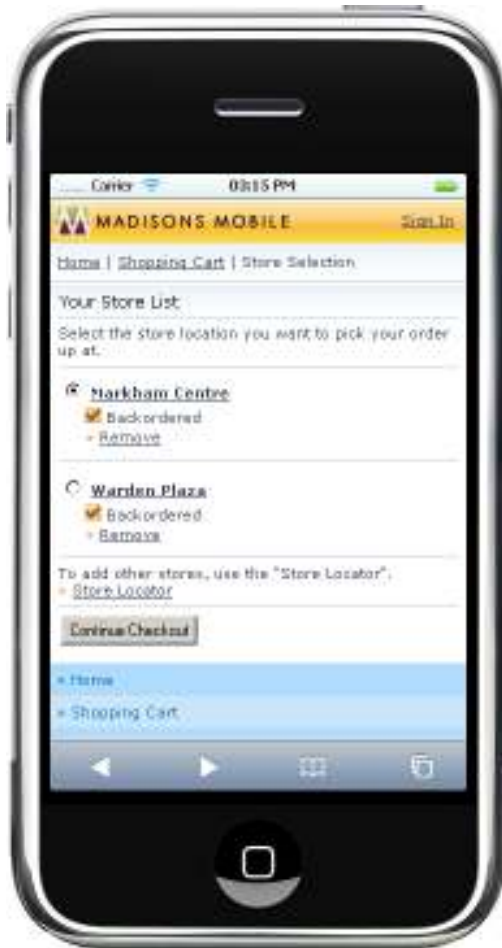
Madisons Mobile Pages – Store Locator Details & Map Pages





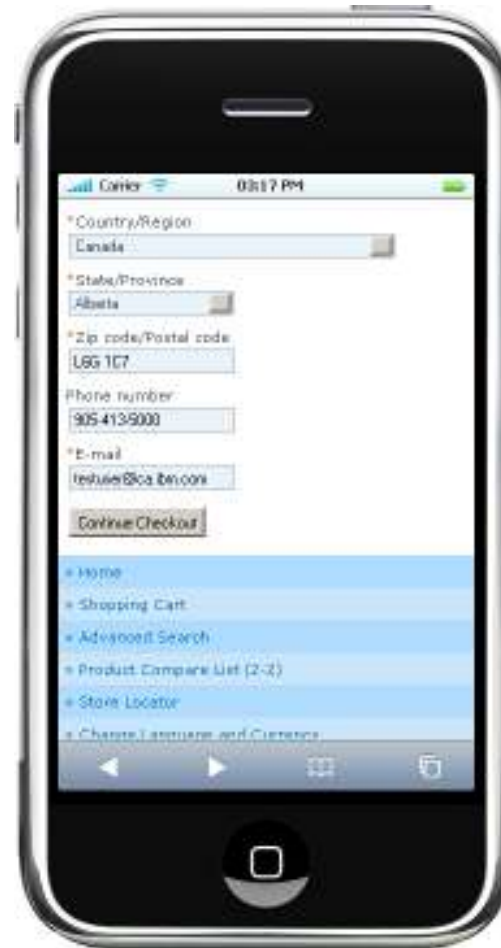
Madisons Mobile Pages

– Store List & Billing Address Selection Page



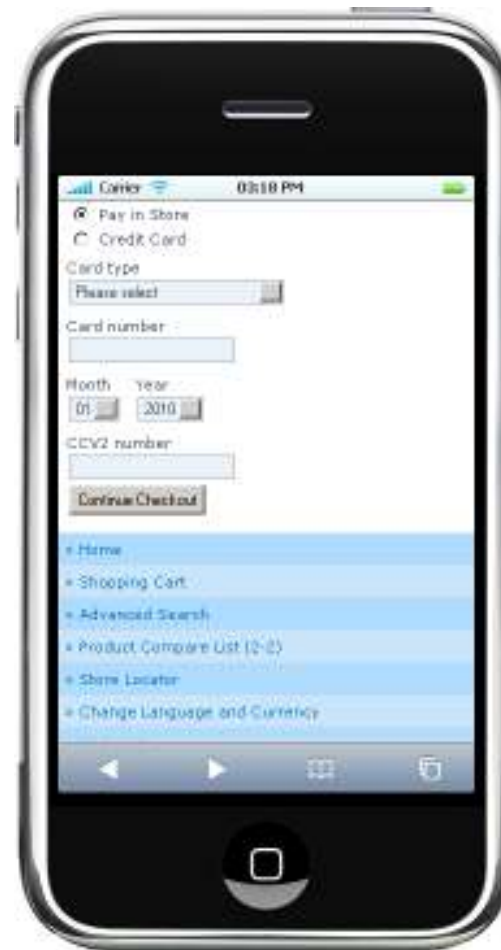


Madisons Mobile Pages – Billing Address Details Page



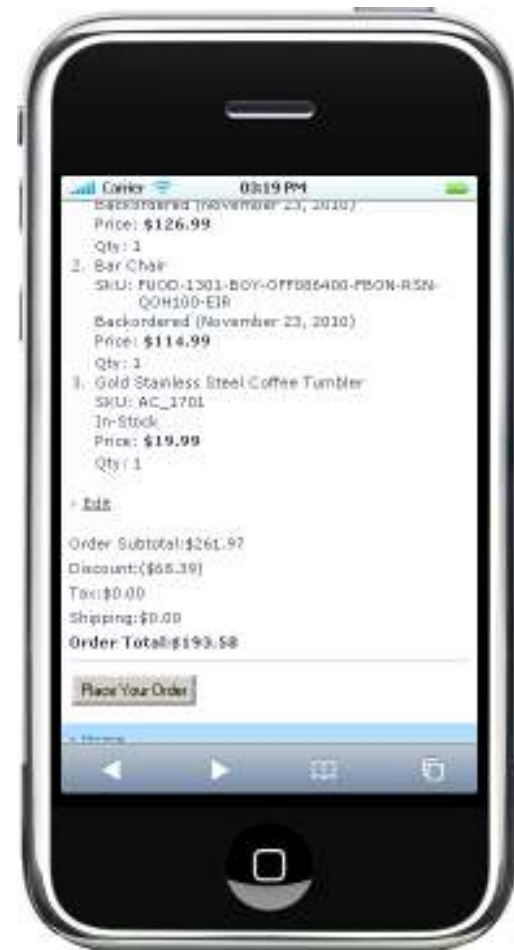
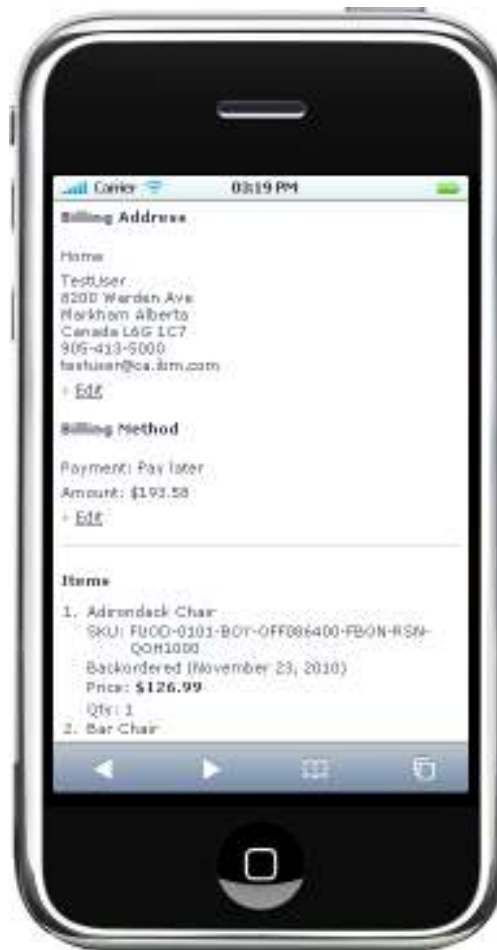
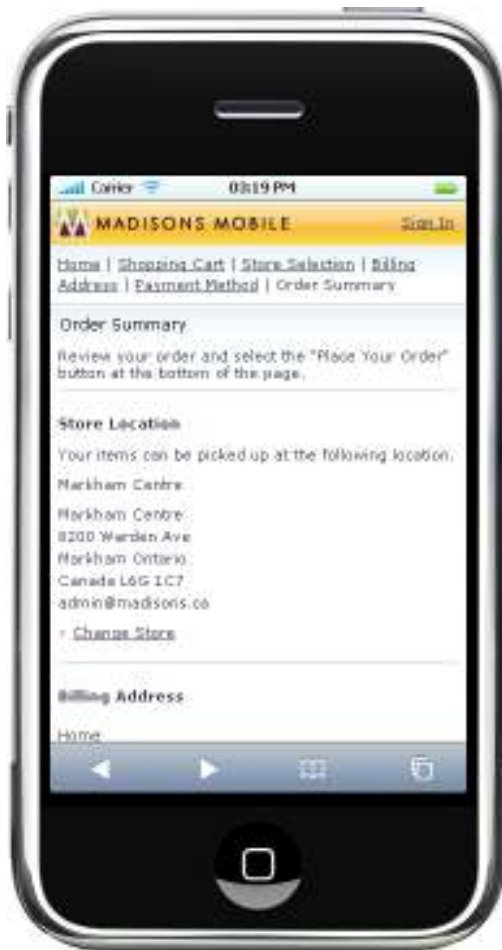


Madisons Mobile Pages – Payment Method Page



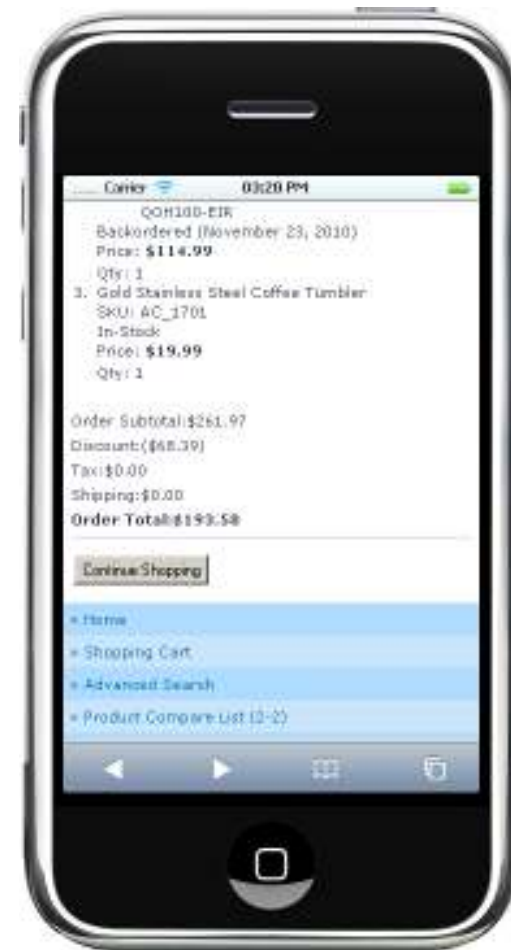
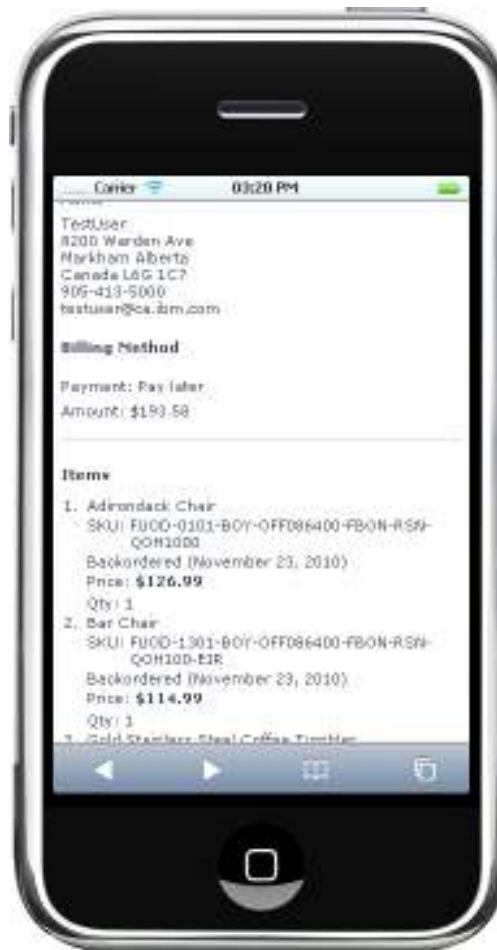
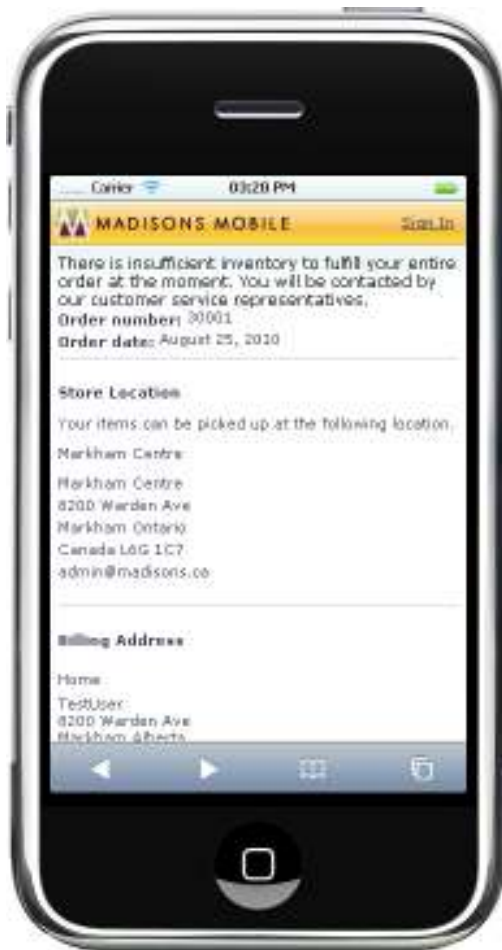


Madisons Mobile Pages – Order Summary Page



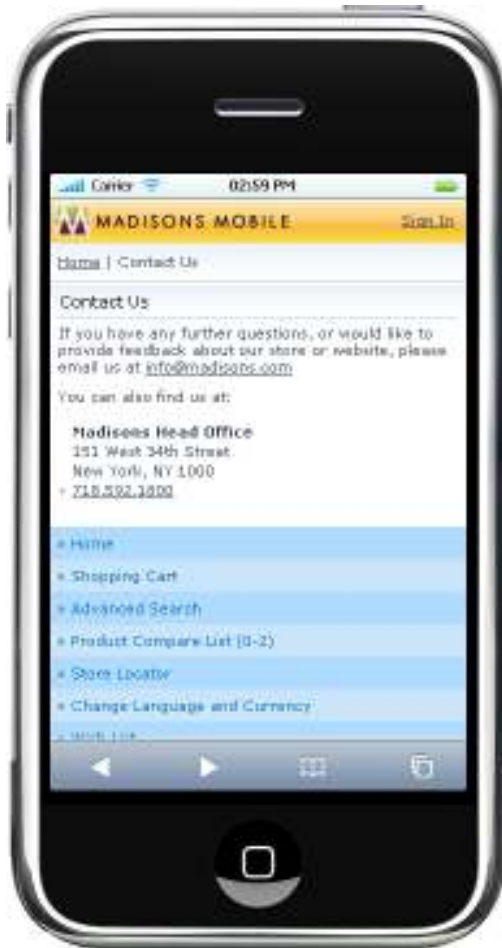


Madisons Mobile Pages – Order Confirmation Page



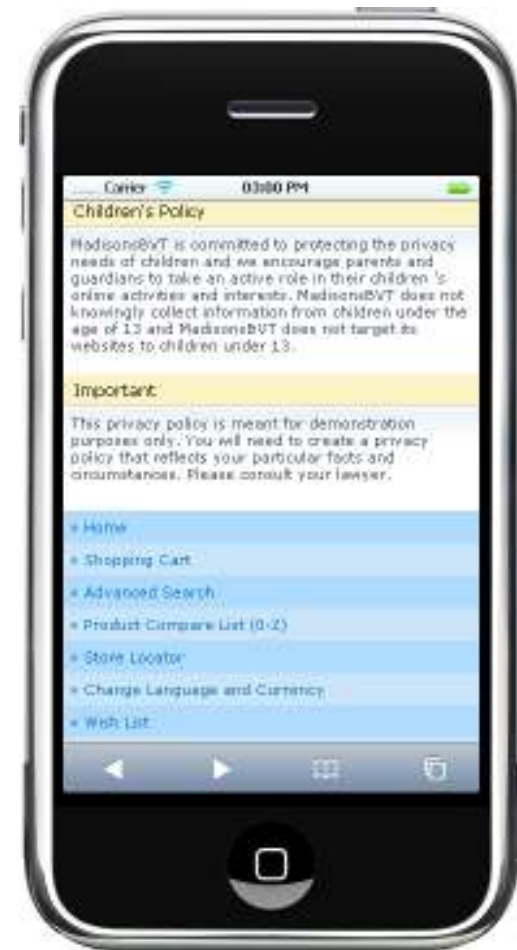
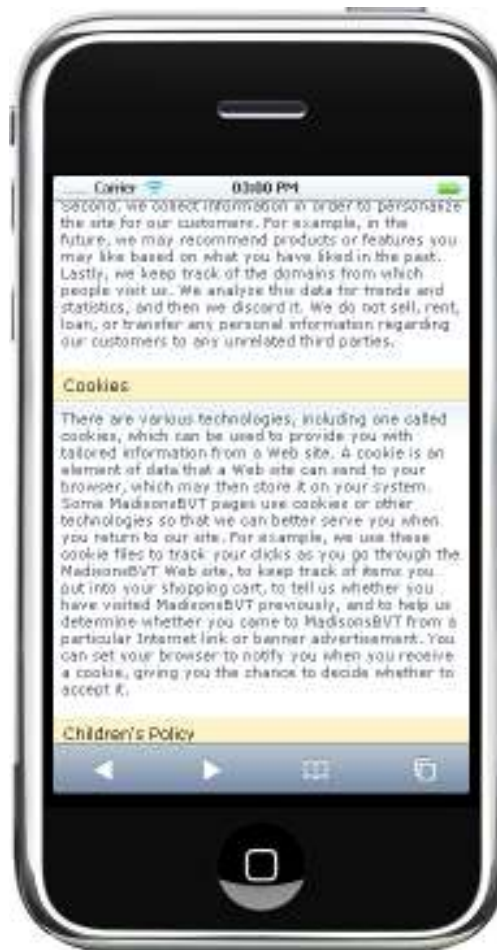


Madisons Mobile Pages – Contact Us & Preferences Pages





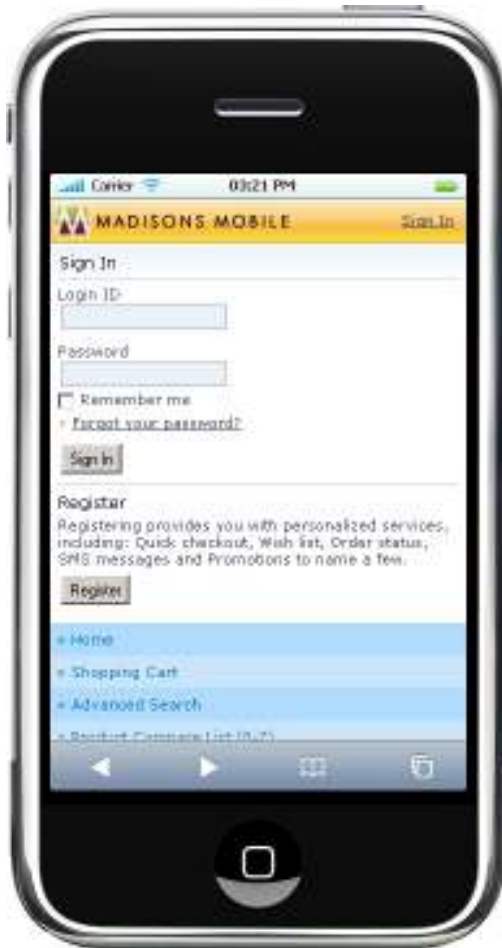
Madisons Mobile Pages – Privacy Policy Page





Madisons Mobile Pages

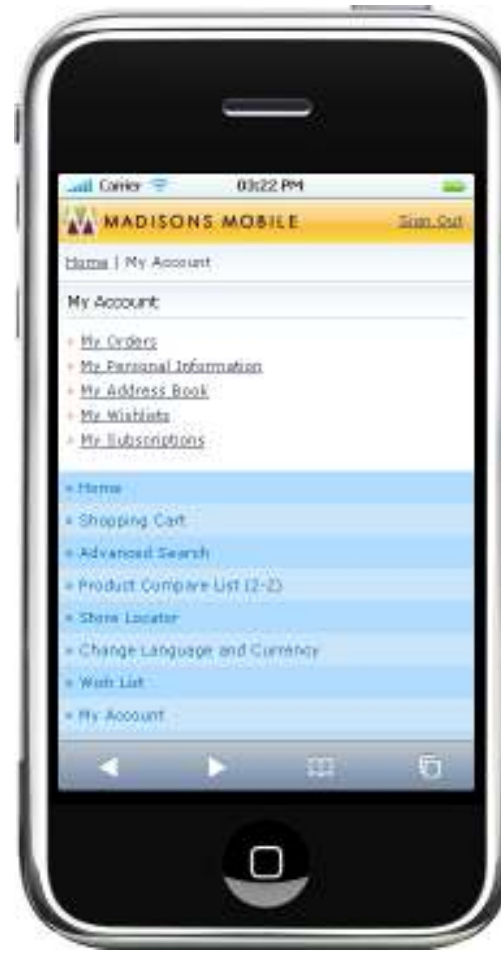
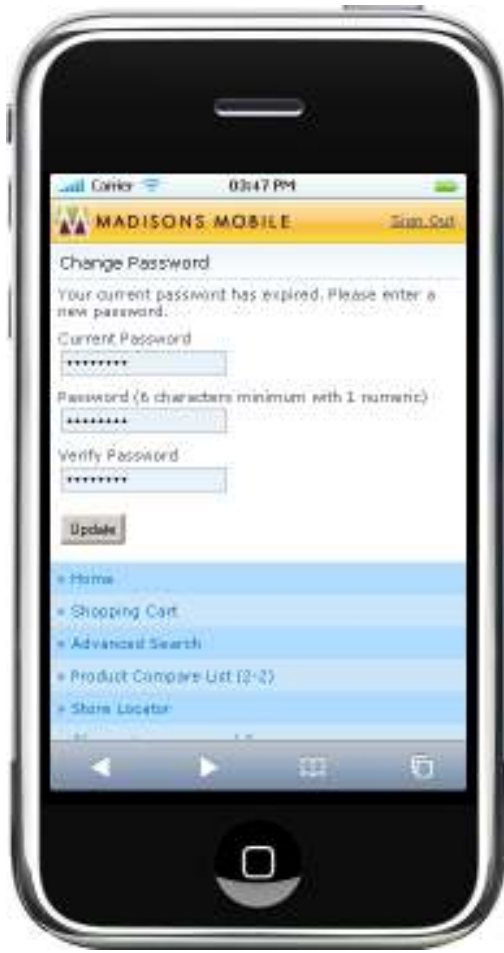
– Register or Log on & Registration Pages





Madisons Mobile Pages

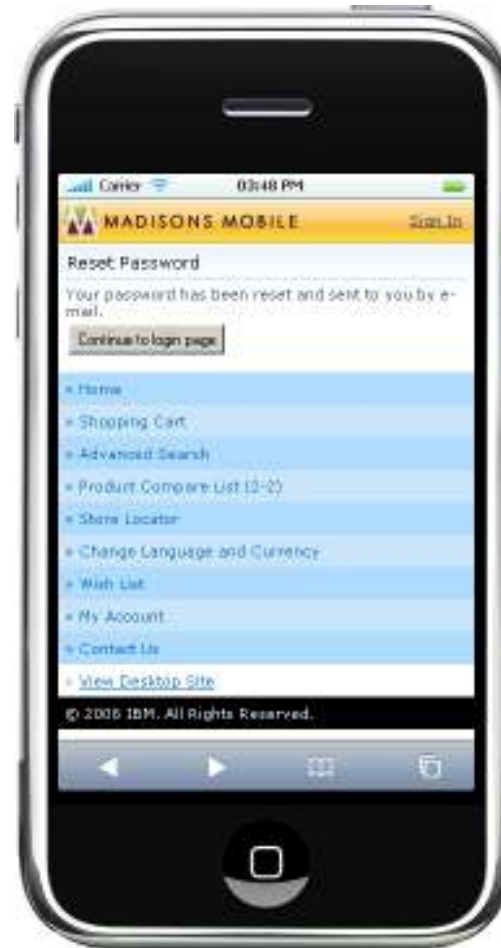
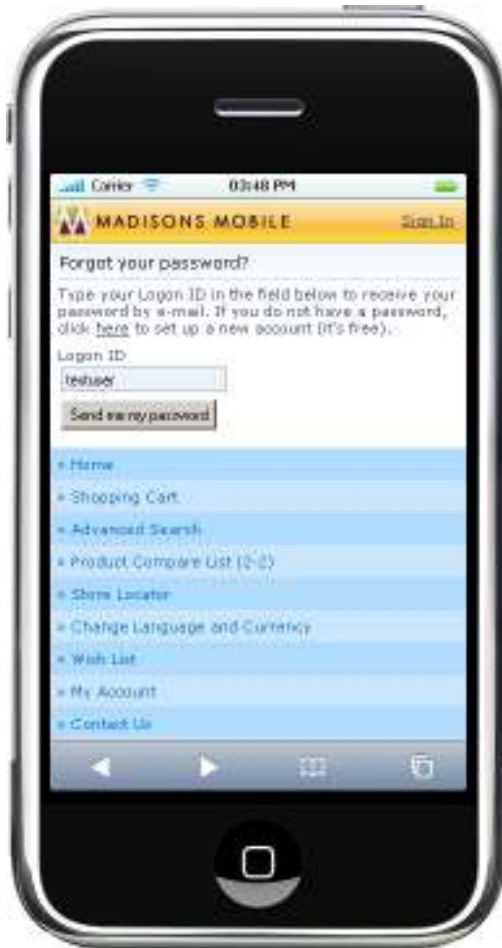
– Change Password & My Account Pages





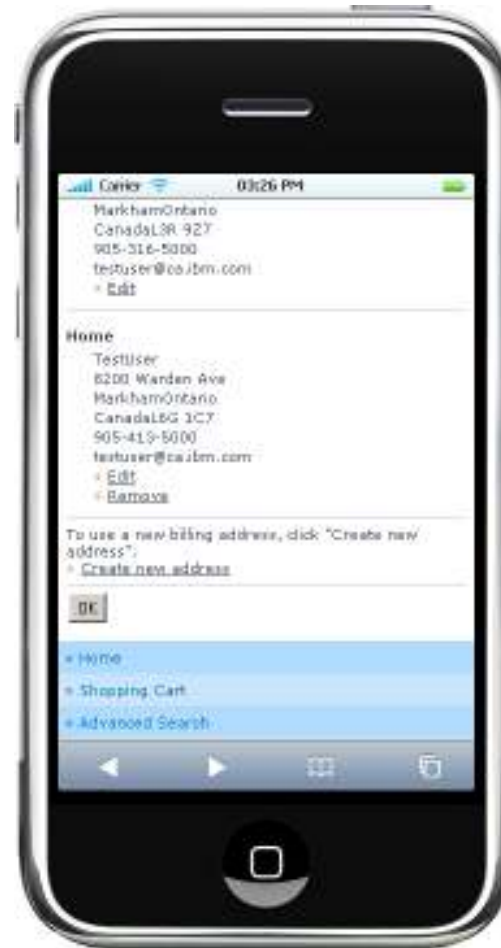
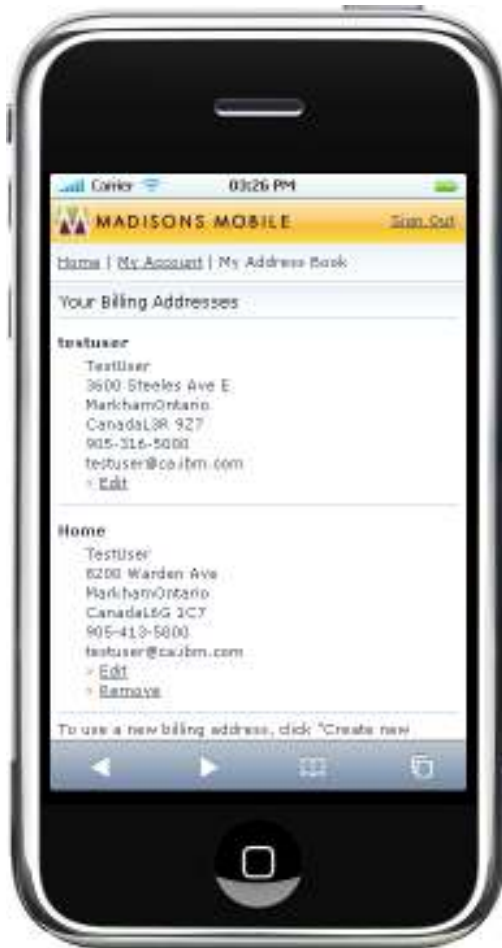
Madisons Mobile Pages

– Forgot Password & Password Sent Pages



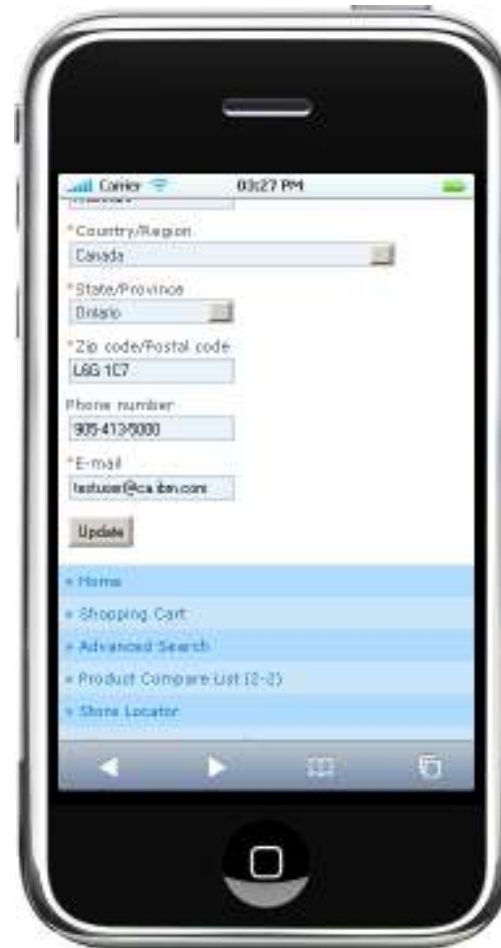


Madisons Mobile Pages – Address Book Page



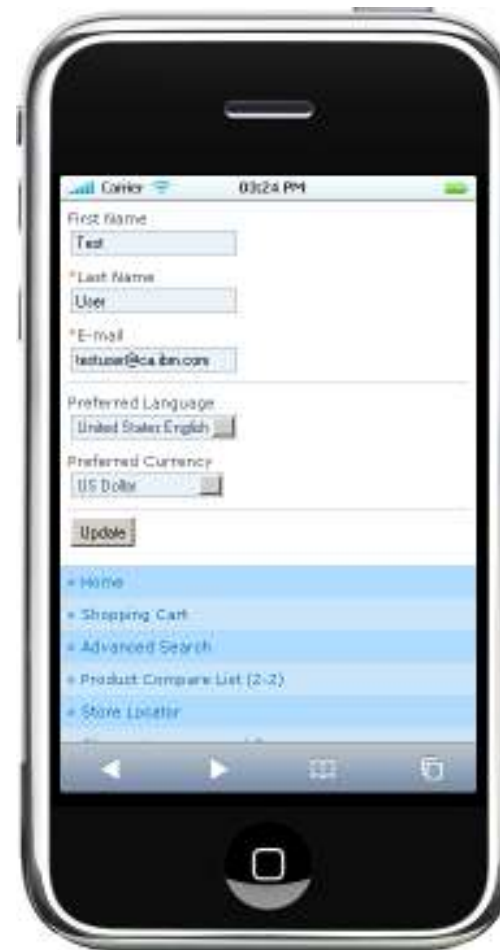


Madisons Mobile Pages – Address Form Page





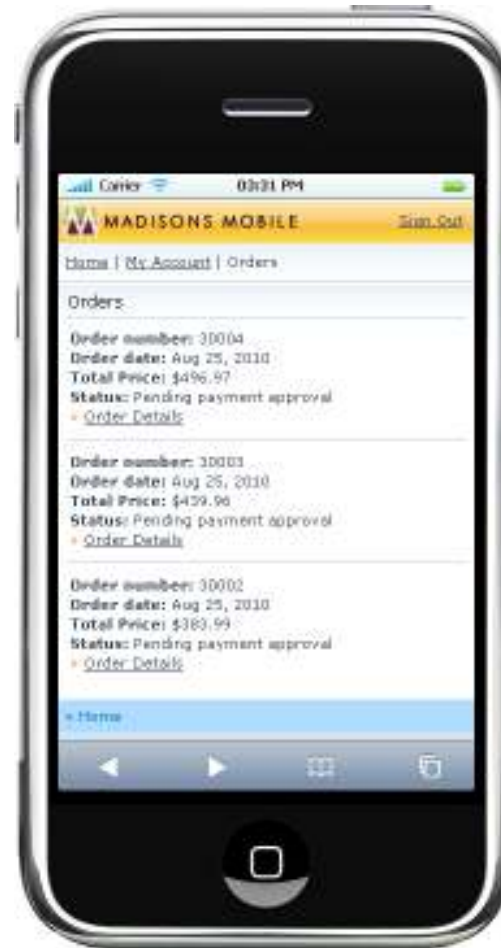
Madisons Mobile Pages – Personal Information Page





Madisons Mobile Pages

– My Subscriptions & My Orders Pages





Madisons Mobile Pages – Order History Details Page

