



Pervasive Computing & Mobile e business

- an overview



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Agenda

Market & technology trends

- Technology Trends
- Business issues

Key challenges

- Connectivity
- end-end solutions
- Integration

Some examples





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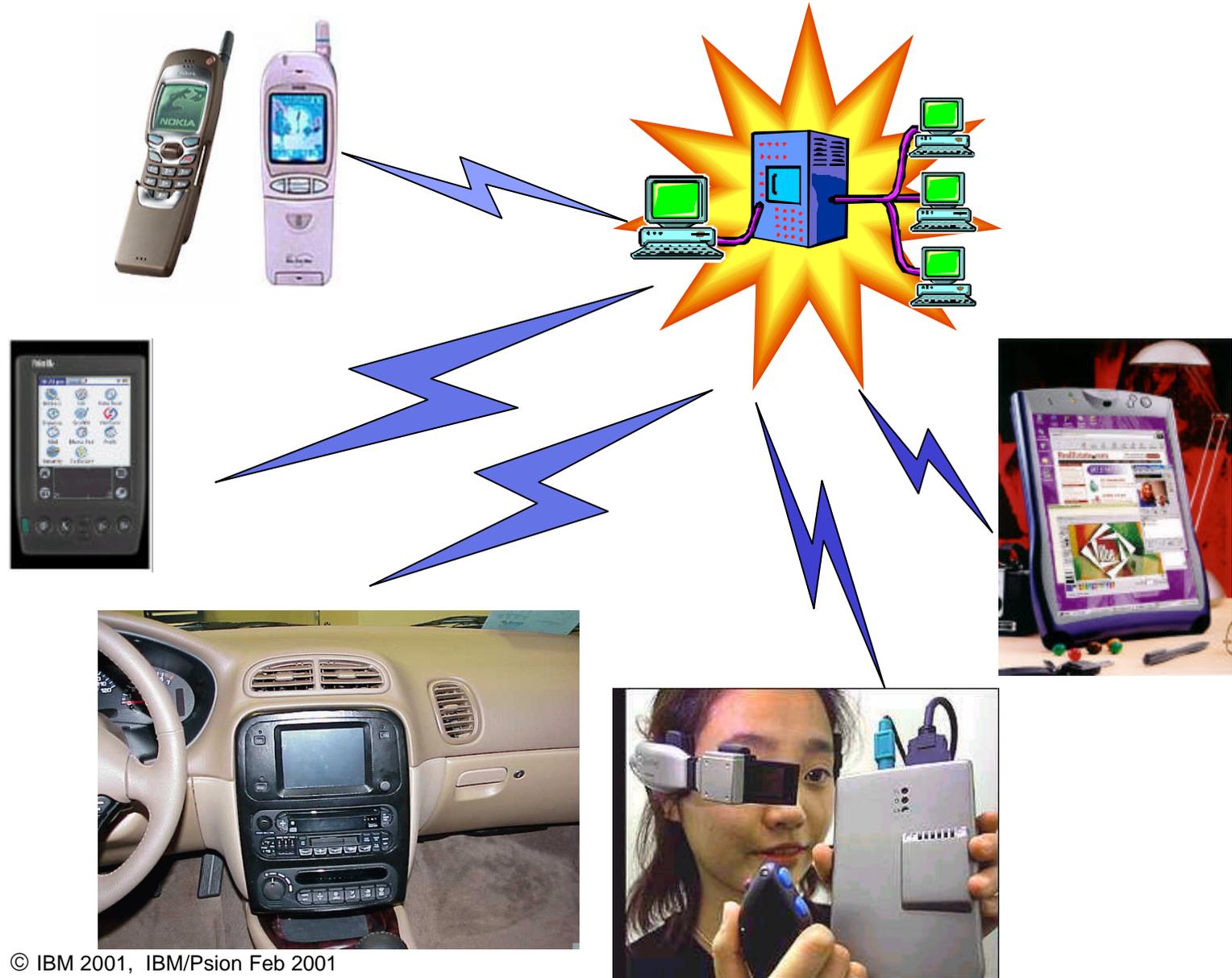


Market & Technology Trends



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What is Pervasive Computing



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Pervasive Computing is....

Convenient access,
through a new class of appliances,
to relevant information
with the ability to easily take action on it
when and where you need it.

Reliable Secure Scalable

The IBM logo, consisting of the letters 'IBM' in a bold, sans-serif font with horizontal stripes through the letters, is positioned at the bottom of the vertical banner on the left side of the slide.

IBM



Technology Trends & Convergence

- Shrinking Components
- Voice & Speech Technologies
- Wireless Data Communications
- Bringing it all together . . .

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Shrinking Components - Disk Drives

1980 - IBM Launches 1st GB Disk

2000 - IBM Launches 1st GB Micro Drive

- Size of Coin
- Weighs 25 g
- Costs < \$500



1 GB is :

- 1000 hi resolution Photos, or
- 1000 200 page books, or
- 18 hours high quality music.



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Device that Answers Back . . . !

- Standard Palm Pilot
- Speech Co-Processor
 - Speech to Text
 - Text to Speech
- Technology Demonstrator
- Progressing with Device Manufacturers

Ask Question



Replies by Showing & Speaking Information



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IBM

The Mobile Dilemma . . .



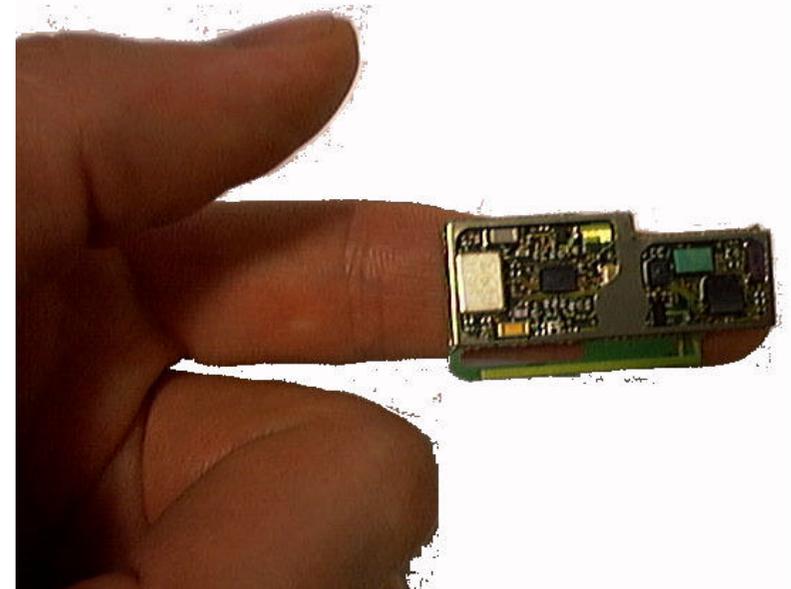
- Which devices?
- Which connectors?
- Which cables?



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Blue Tooth Solution

- Major cross-industry initiative
- Open specification - Global Standard
- Wireless cable replacement (plus)
- Forget "Plug and Play" . . . just "Play"!
- Voice and Data
- Multimedia support
- Low Power



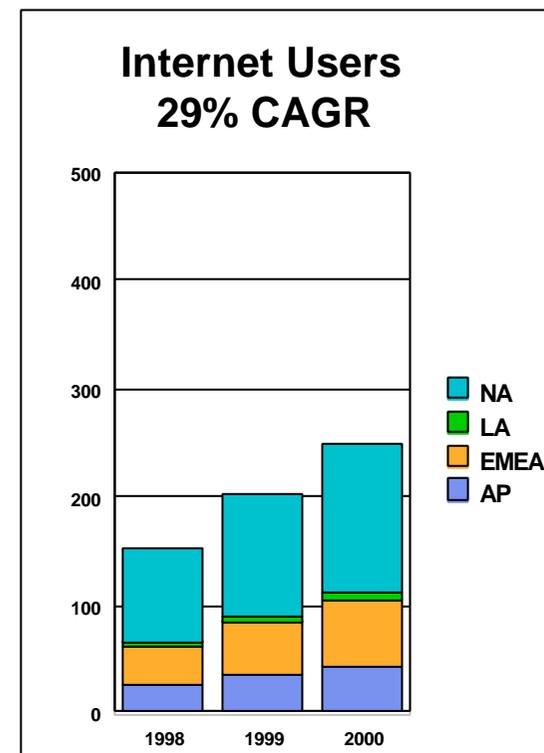
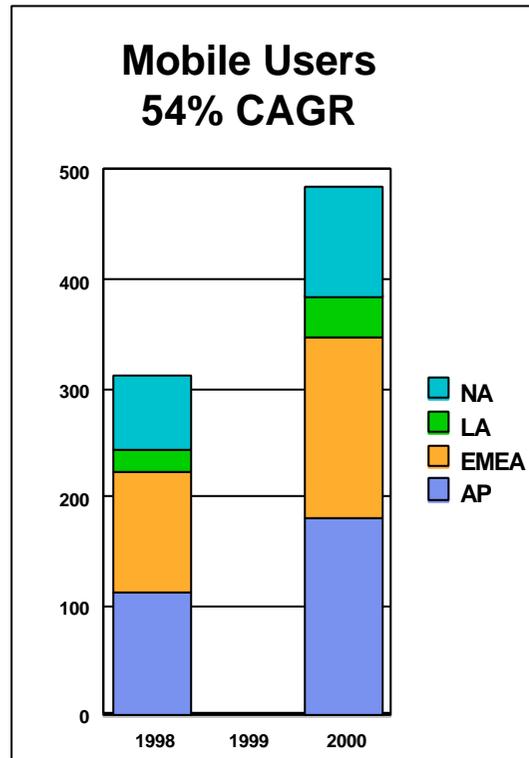
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Two technologies are converging

- More people currently use mobile phones than PC's
- More mobile phones are getting connected to the Internet
- More wireless devices are getting used for business applications
- More mobile business applications are being built for wireless connection

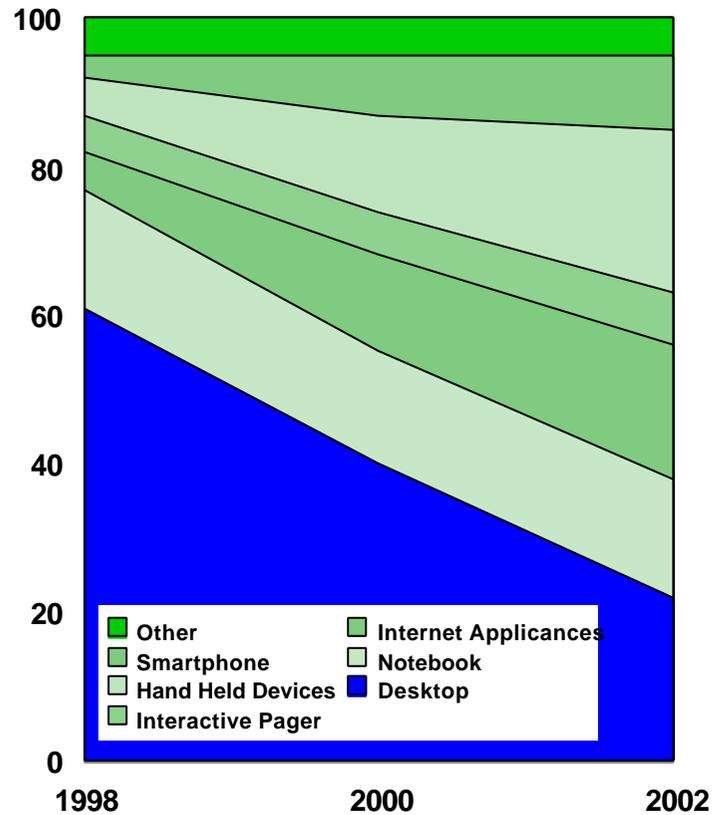




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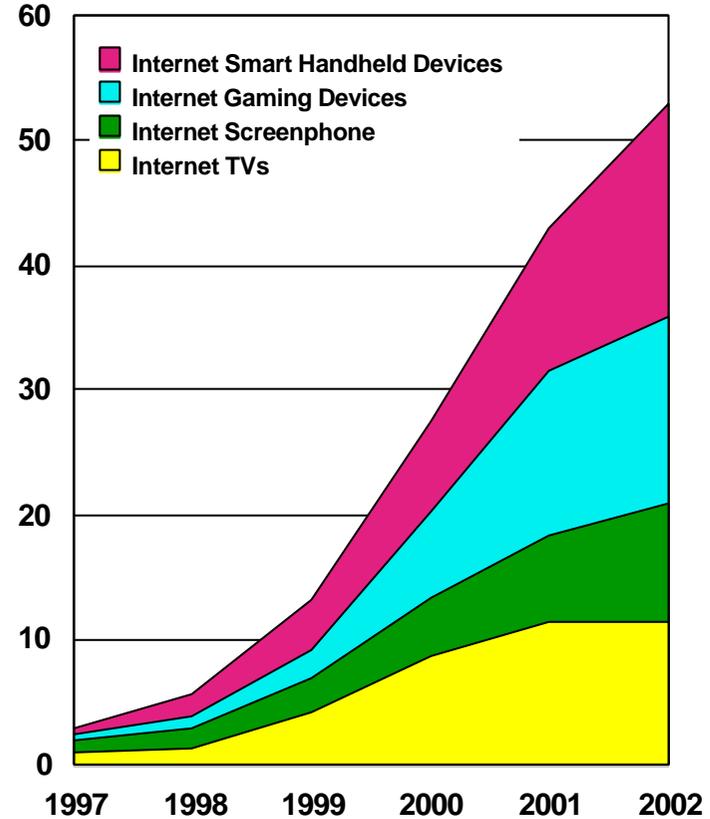
The Internet is no longer just for PCs

Percentage of internet transactions



Sherwood Research - March 99

Millions of Units

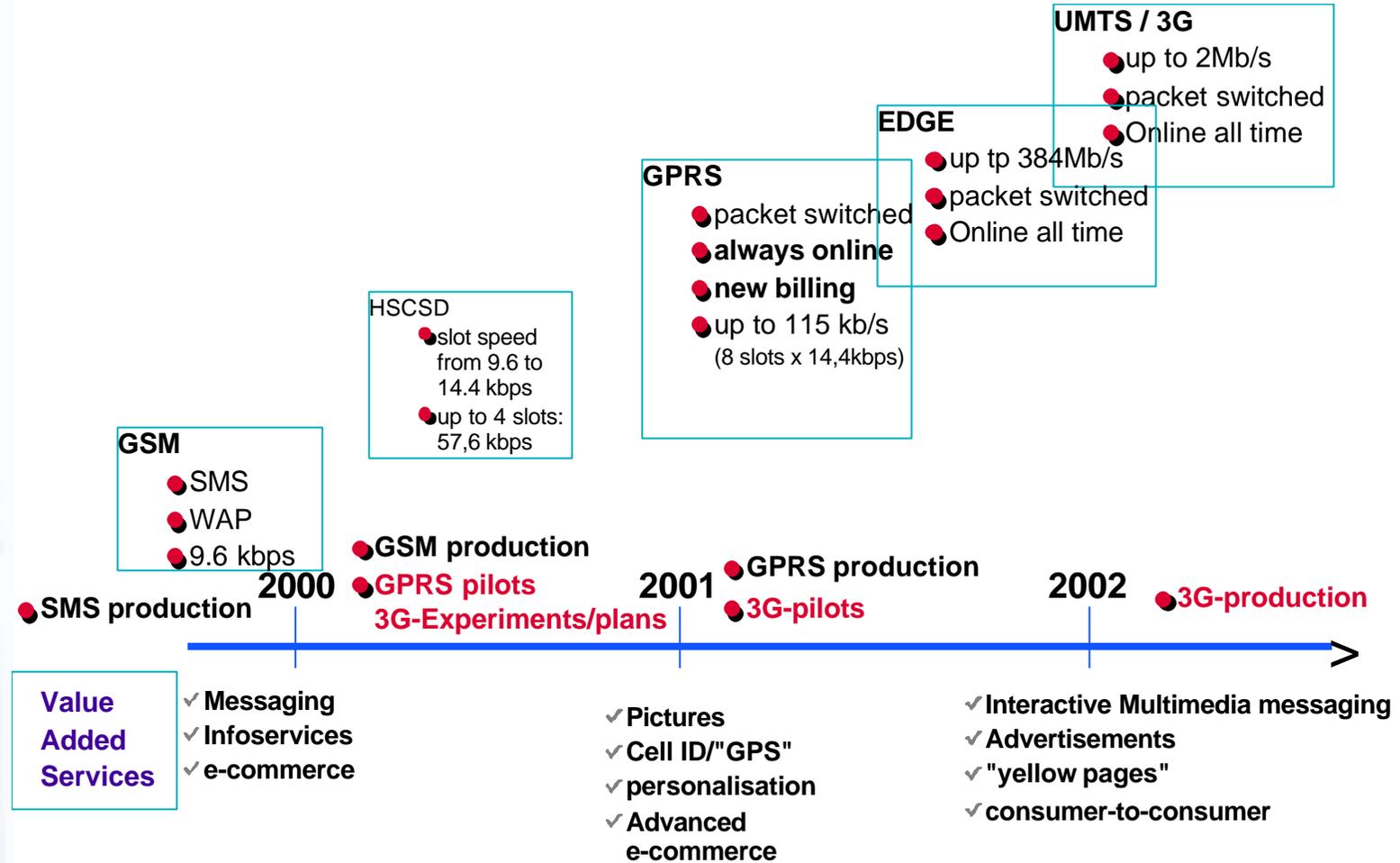


Source: IDC, October 1998



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The evolution to 3G networks





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....and some cool toys to play with



This could be a future tool for the ambitious person on the move.



Computing becomes wireless



- Always on, always available
- Reduced complexity
- End-to-end management
- Security, reliability





Multi-channel access

.....By 2004 in the UK alone



18.5m PC Internet Users



35m WAP phones



iTV in 13m households



PDA's ??????

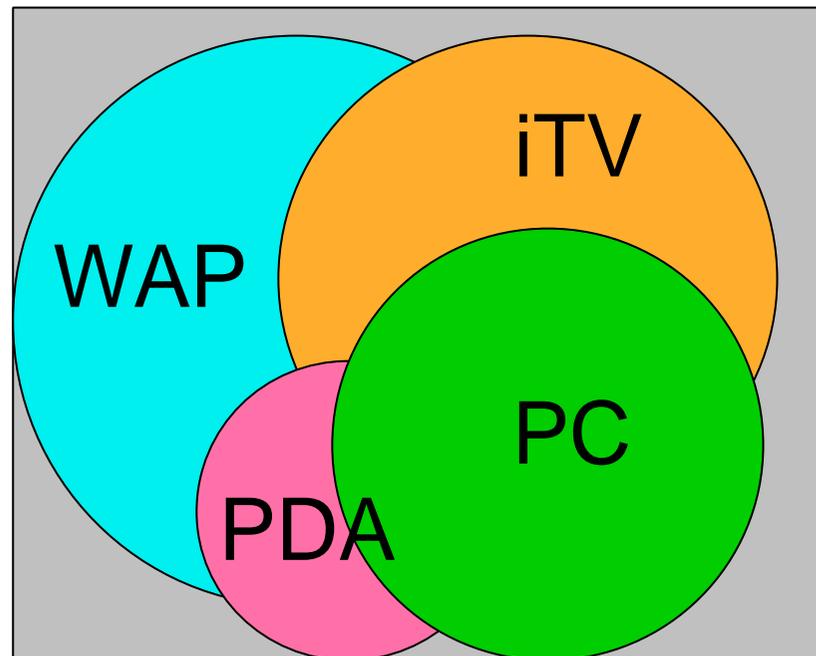
Source - Report by Forrester - Multichannel CRM - June (?) 2000





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To reach all potential customers, businesses must plan for all available channels



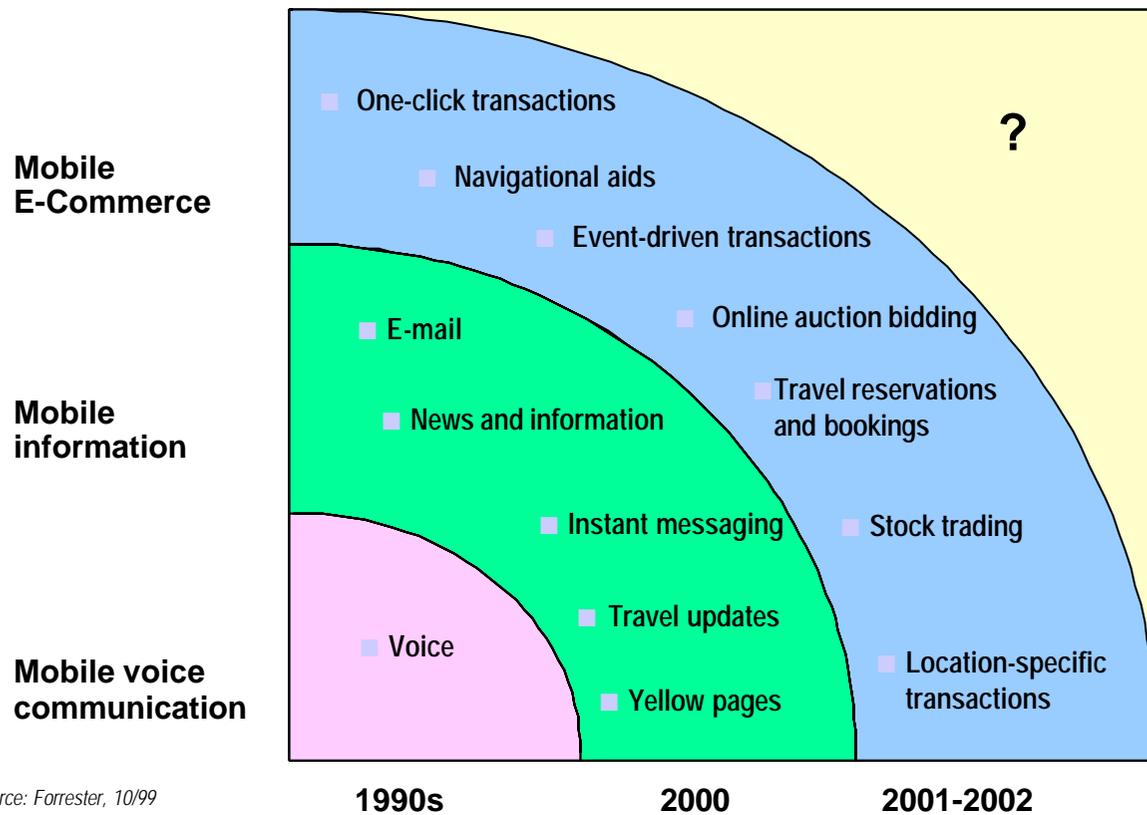
A MultiChannel Strategy is Critical to success



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Mobile/Wireless solutions

We are now at the leading edge of an explosion of consumer mobile offerings. Wireless technology is rapidly migrating to value added mobile e-business services.



Source: Forrester, 10/99





What applications, when?

The search for Mobile Internet Killer Applications?

Source: Forrester Research 6/00

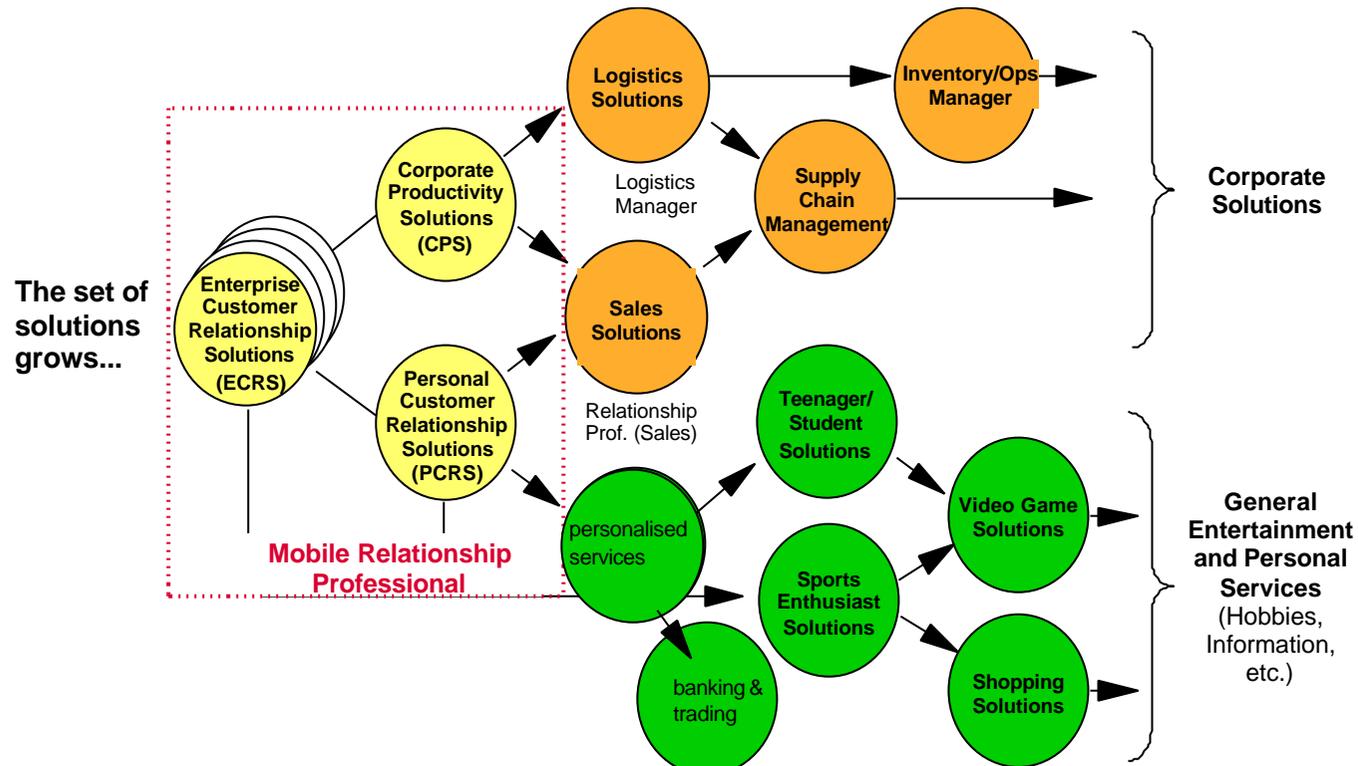
Application	Timely	Simple Transactions	Location-based
Yellow pages	+	+	+
Navigational aids	+	+/-	+
Travel updates	+	+/-	+
Auction updates	+	+	-
Stock trading	+	+	-
Ticket purchase	+/-	+	-
e-mail/instant msg	+	-	-
Advertising/coupons	+/-	-	-
Weather	-	-	+/-
Current acc banking	+/-	-	-
Corporate app access	+/-	-	-
General shopping	-	-	-
News	-	-	-
Video	-	-	-



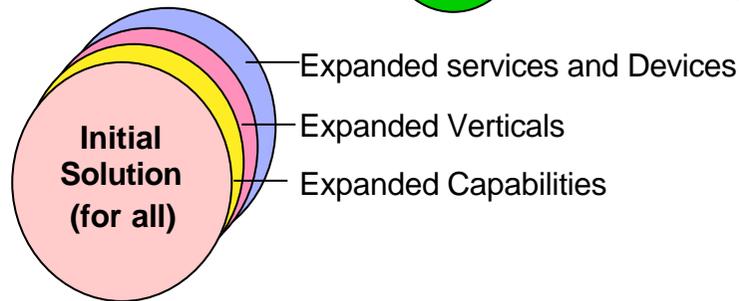


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The revenue creators



... as each solution evolves





Three ways to look at mobile solutions

B2E

Sales

- Productivity
Appointment setting
- Knowledge
Management

Mobile workforce

- e-mail
- Calendaring
- Latest news

R&D

- Off Site Research
- Mobile Collaboration

Retention / Support

- Mobile Repair teams
- Diagnostics

B2B

Purchasing

- Real time
transaction
- Stock Checks

Projects

- Mobile
Collaboration

Production

- Just In Time
- Machine to
Machine

Fulfillment

- Tracking
- Alerts Sales
Documentation

B2C

Marketing

- Advertising
Campaigns
- Loyalty Programmes

Sales & Services

- Retail Transactions
- Lifestyle -NWSL *
- Entertainment
- Content
Management

Call Centers

- Customer Services
- Service Transactions

Fulfillment

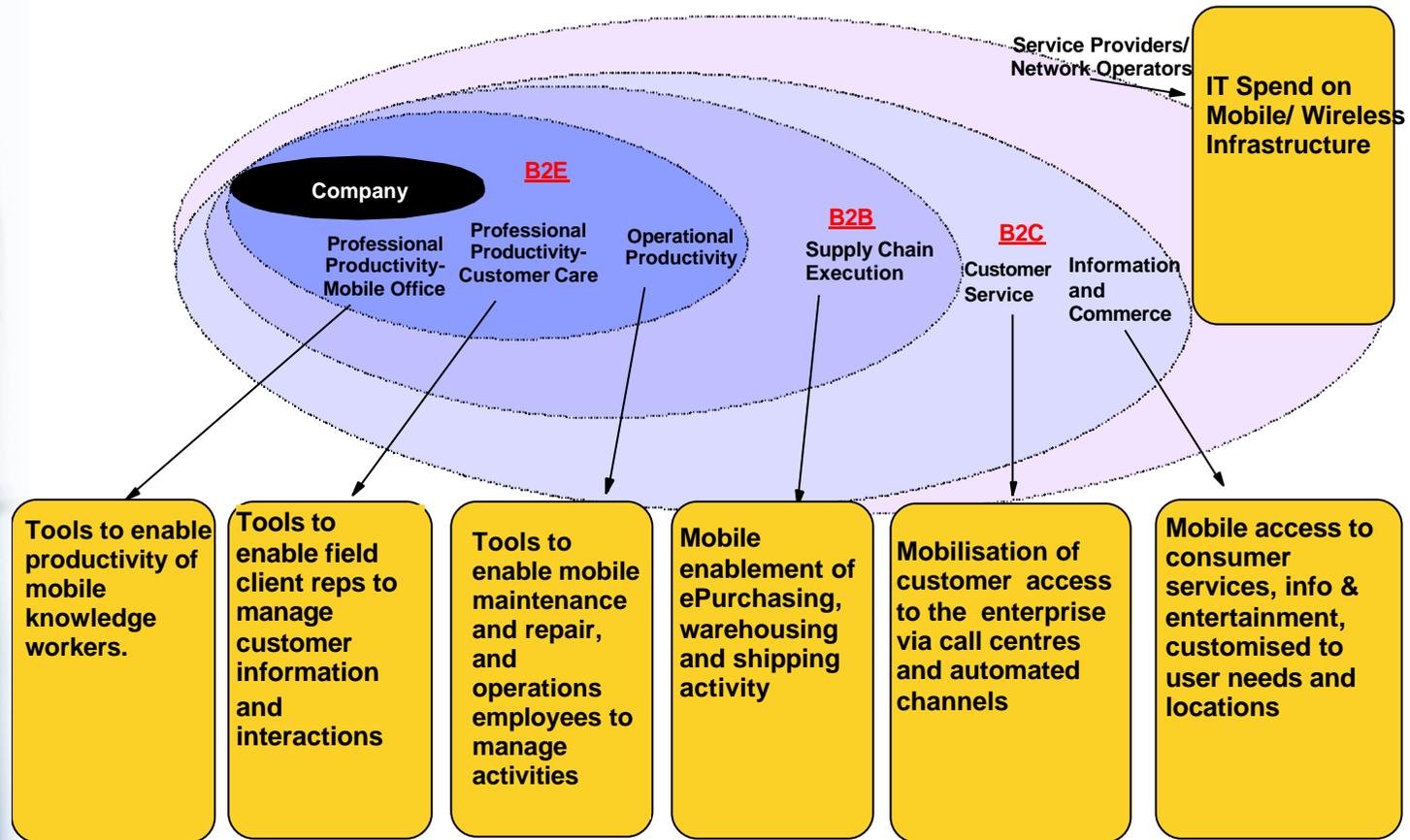
- Tracking
- Authentication





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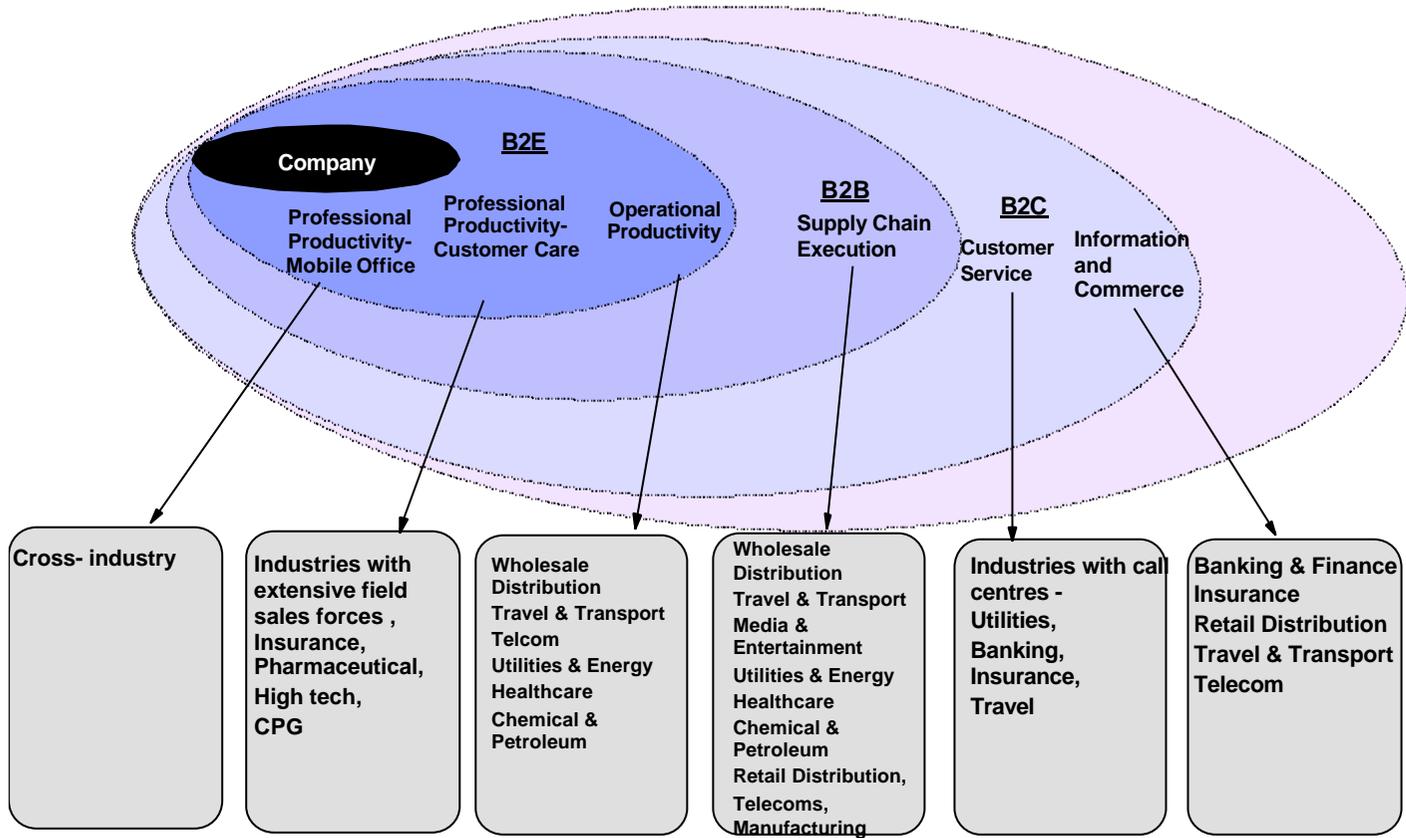
Buyer Segmentation





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Enterprise Buyer Segmentation by Industry





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... The Implementation Challenge ...

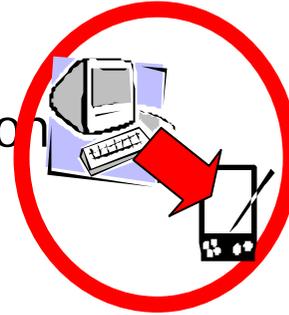


Device Management Subscriber Management



Security

Optimisation



Content Adaptation

- TPF
- CICS
- Oracle
- DB2
- IMF
- R/3



Connectivity



Any Device

Customer Care



Billing



Any Data



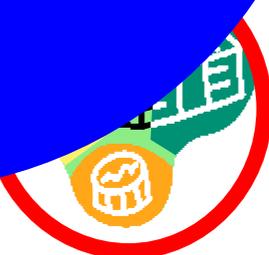


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... The Solution



- TPF
- CICS
- Oracle
- DB2
- IMF
- R/3



Extend & Integrate :

- WebSphere
- MQSeries
- Lotus Domino
- Tivoli
- DB2

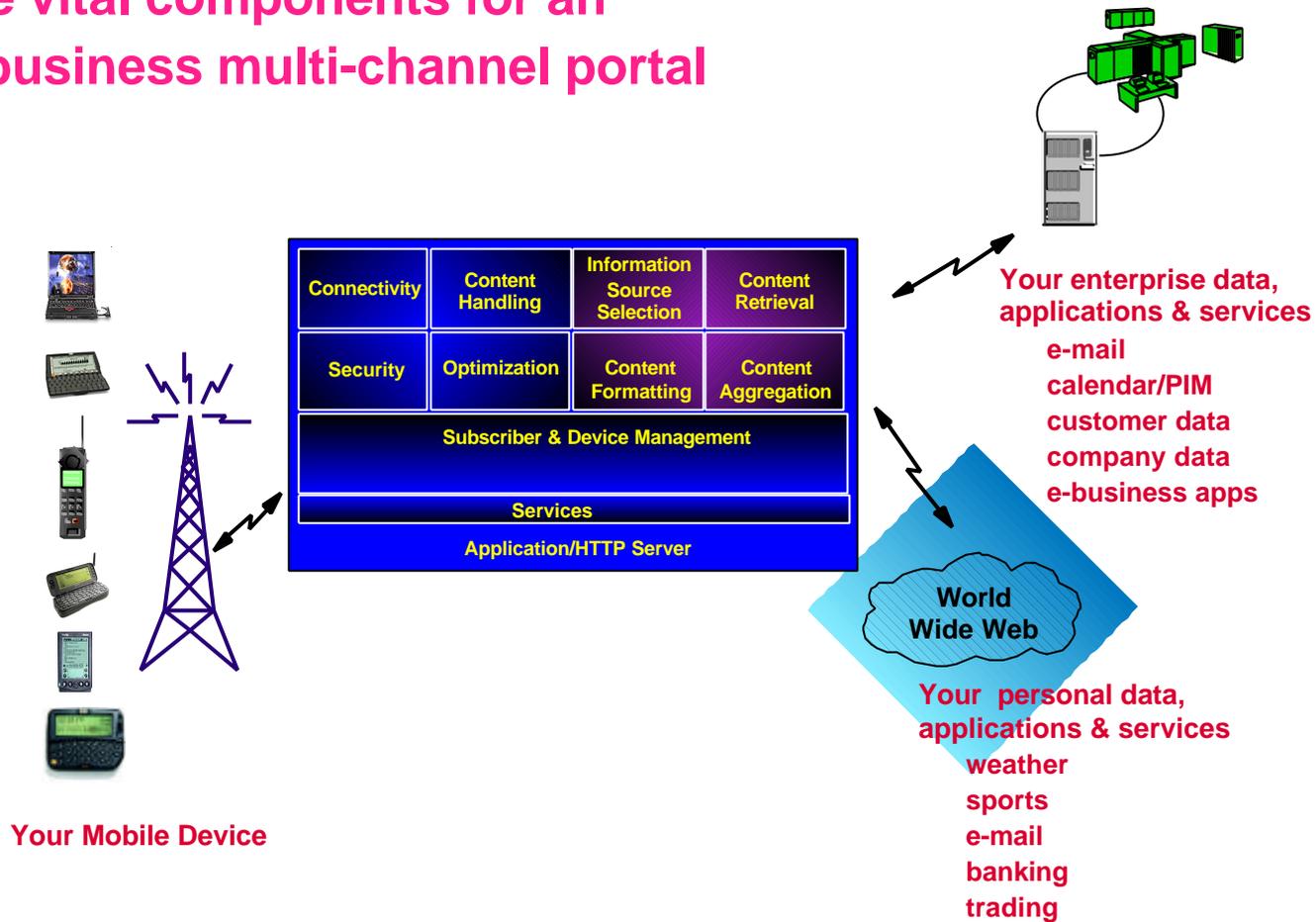


Any Device ...

Any Data ...



The vital components for an M business multi-channel portal



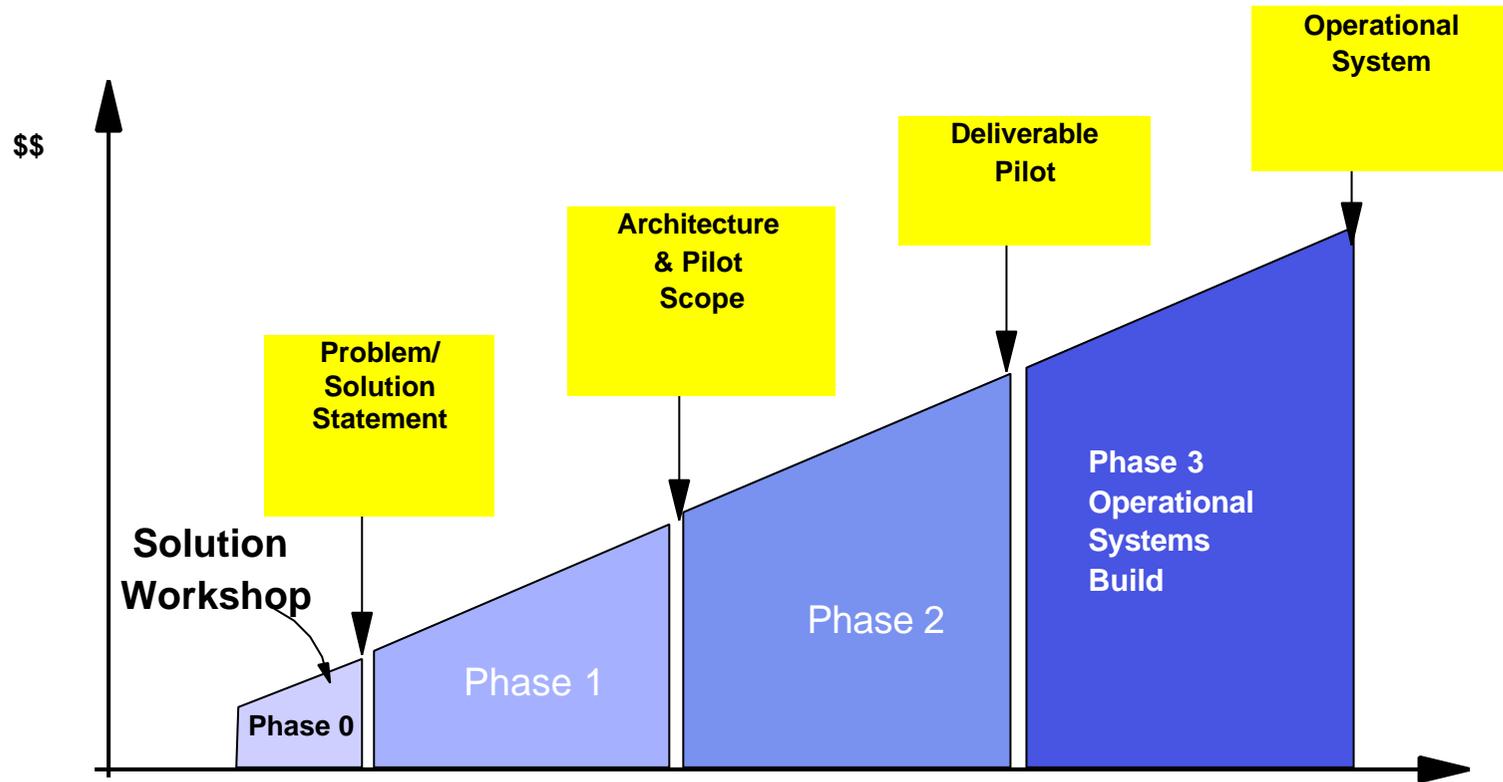
Your Mobile Device

Multimode Portal = Your device, your network, your content



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The approach to Mobile e business projects





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Customer Project Example

Safeway

Challenge

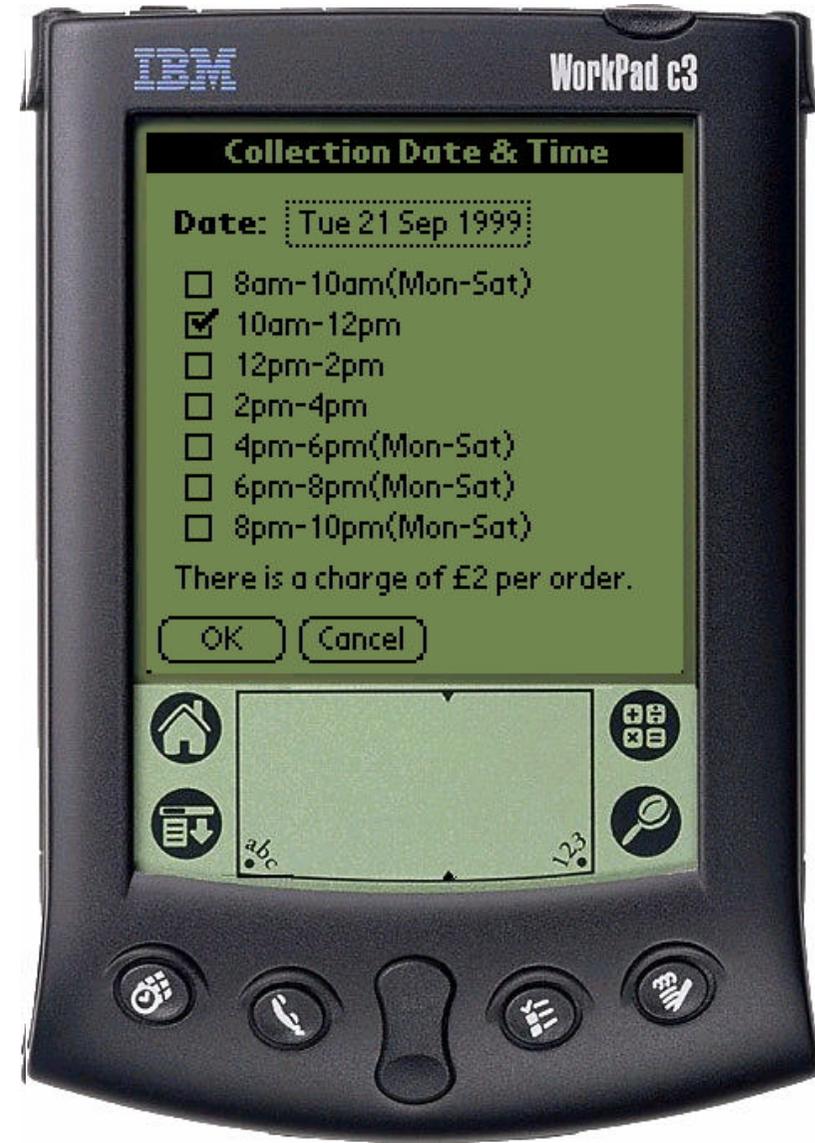
- ▶ Provide customers with a simple & convenient way to order groceries from home

Solution

- ▶ Personal Digital Assistant (Palm) loaded with individual shopping list
- ▶ Customer orders groceries from simple forms based interface, from home
- ▶ Device docked to upload shopping list to Safeway and download new prices, offers, suggestions

Business Value

- ▶ Improved customer loyalty
- ▶ Increased revenues
- ▶ Market visibility as innovator





Business to Employee



Need: Telus needed a faster way for service technicians to communicate with its workforce management.

Challenge: A system that provides secure, managed access and allows dispatchers to monitor jobs for up-to-the-minute status - replaced dial-up with secure wireless connectivity, including to company intranet.

Solution: Providing Service technicians with wireless access

Value: Provide more flexibility for rescheduling jobs, while improving cycle time for internal workflow. Technicians feel less isolated from the company, and more prepared for each job. **"With the productivity gains, this system has already paid for itself."**

IBM Contribution: Secureway Wireless, Secureway Web Express, IBM Thinkpads, RS/6000

"One of the main ideas behind this initiative was to give us a way to stay in touch...to treat service technicians the same, whether they were in the office or on the road."

Darryl Miller, Customer Technical Service Manager, Telus





Business to Business

ETHICON, INC.
a Johnson & Johnson company

Need: Frequent product "out-of-stock" complaints, slow reordering process, crisis reordering, etc. are eroding sales.

Challenge: Needed to lower supply chain costs for the entire spectrum of Ethicon customer, from the small regional hospital to the large medical center.

Solution: Provide hospitals with low-cost inventory system using PDA's with bar-code readers for automated inventory and order entry.

Value: The first trial has established that E-sy Scan can reduce the manual product ordering process - from product depletion through to completion of orders - by 30 minutes on average.

IBM Contribution: IBM Services, Applications Development, IBM Mobile Connect

"We used IBM as our solutions partner because we have a history of successful projects together, and they shared our customer focus and rapid deployment deadlines"

Ian McMillan, IM Manager, Ethicon



The classic IBM logo, consisting of the letters 'IBM' in a bold, white, sans-serif font, set against a dark blue background.



Business to Consumer

British Airways

Need: Provide premium service to Executive Club members

Challenge: Provide real-time flight info, mobile flight check-in, graphical interface for seat availability and selection

Solution: Mobile WAP-based Customer Information System integrates with BA's existing e-business systems

Value: Higher customer satisfaction

Increased customer relations

Reduced customer service cost

More efficient allocation of customer service resources.



IBM Contribution: Transcoding, IBM Consultancy, IBM Global Services

Launched December 2000

"This move signals the next phase of BA's e-commerce strategy, designed to give our customers more choice and control. BA is breaking new ground yet again"

Pat Gaffey, Head of e-commerce, British Airways





Conclusion

- **Mobile Internet & pervasive computing technology is introducing new ways to conduct business.**
 - **More rapid, fully connected, greater efficiency**
 - **New markets, new competitors, new partners**
- **Companies who were first to realise the benefits of e-business are now going 'multi-channel'**
- **Where to begin ?**
 - **Appoint a Mobile e business sponsor**
 - **Look at how the Mobile e business can support Corporate Strategy**
 - **Hold a workshop to compare the opportunities with tactical projects for early wins and experiences**
 - **Consider an early pilot Solution**

'it was cheaper to actually do the pilot than to build the case to justify it'



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Thank You!

