Psion Teklogix

"Information in motion"

Mobile work: trends and challenges

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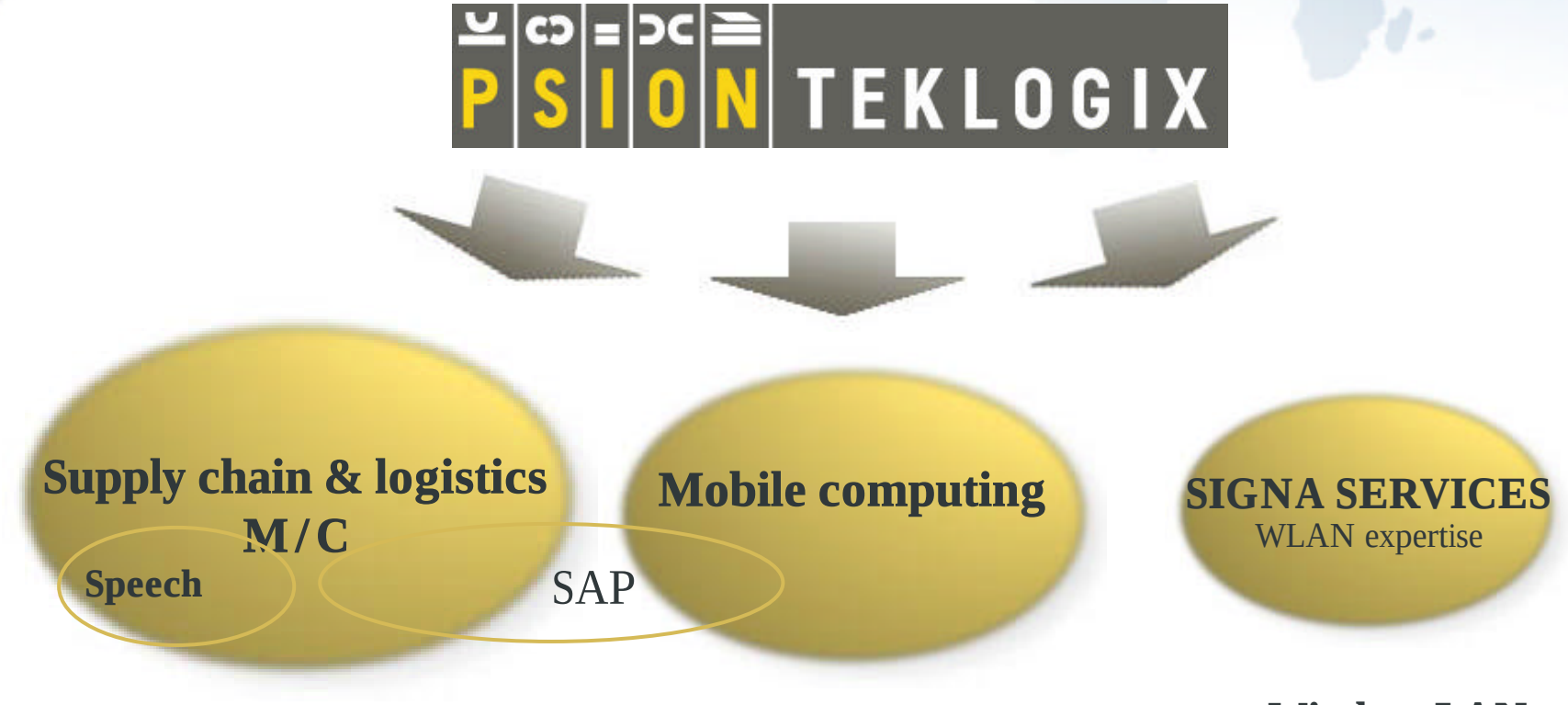
Our market focus



Wirelessly enabling the supply chain

Mobile service, mobile sales, mobile data collection

Wireless LAN professional services

We will cover

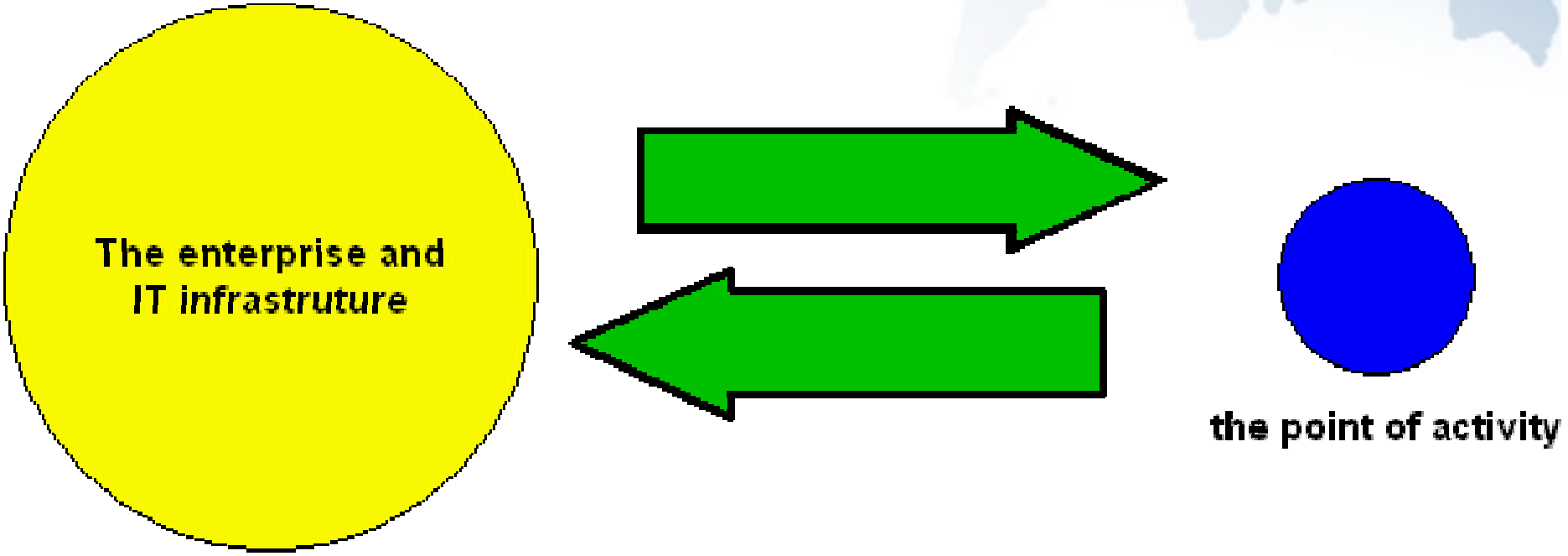
Mobile work: A report card

Broad technology trends as they relate to mobile work

Mobile work: natural computing

- For purposes of today, we will define mobile work as **work done away from a traditional place of work or within the place of work but done away from your desk.**
- Includes general management roles and task-specific functional roles. We need to keep these two distinctions clear as we move through our presentation today.
- Mobility is the extension of the enterprise to the point of activity. It is moving from **place-centric** to **people-centric** computing.
- In a sense it is the most "natural" form of computing.
  - During the industrial revolution, man was made to adhere to the limitations of the machine, we today are adhering to the limitations of the IT infrastructure and PC's; ***mobility cuts the cord.***

Mobility: moving the enterprise to the point of activity and vice versa



ERP / CRM / PIM
& vertical
apps

Repair,
invoice,
support,
query,
present,sell

Mobility report card

Generic computing	Task-specific computing
B-	D

Organizations are finding it harder to deploy mobile solutions for task specific work.

“What if” game

Question: If tomorrow we have ubiquitous wireless coverage AND a multitude of cost-effective devices – what % of task-specific mobile workers will be using mobile devices to do their job within 12 months ?

Answer: some small percentage because **business processes are not ready for mobilization**. These changes will take years and are just now beginning in the Tier 1 companies. Business process changes are the single biggest cost in a typical non-email/PIM deployment

Why? The mobility “gap”

- Enterprises face much more complexity when mobilizing task specific work – key business processes usually need to change.
- Professional work is mainly about moving my desk to a laptop with little change in my relationship to the enterprise. This is not usually the case with task-specific work.
- Task-specific solutions have a **higher level of impact** and are **less standard** across individual enterprises.

Other challenges

It is not as simple as giving your workforce a mobile device – business processes have to change – but there are technology issues:

- Security of corporate data: when deploying a mobile workforce, bits and pieces of important corporate data are being “kept” in the field and there are risks attached.
- Support of the newly mobile workforce
  - Mobile device configuration and systems management (IBM/Tivoli, Computer Associates, Altiris, Novell/Callisto, Xcellenet, Mobile Automation,etc.)
  - Data synchronization (Synchrologic,Avantgo, Extended Systems, Pumatech)
  - Backup of data (Connected, Xcellenet, Verita)

Mobility is moving from INFANCY to TODDLERHOOD

Mobile solution components

A mobile solution will usually involve all of these components.

Solution Components
A client device
Accessories
Device OS
A client-side application
Application development tools
A client-side database
Server
A server-side application
Server side OS
A server-side database
Wireless middleware / server / gateway
Network connectivity
Integration
Support and service

Mobilization in vertical markets: the adoption curve

Thought: Some vertical markets have been early adopters – what can we learn from this ?

Lesson: Benefit/Cost ratio is the key. Only certain verticals has a high enough ratio due to the need for real-time information.

Propensity to go mobile = ***f***(cost, time value of information(TVI))

Cost = ***f***(hardware, app. software, deployment, support)

Certain verticals (courier, field service) needed real-time information and were willing to be early investors because of a high TVI.

The real costs of deployment

- The real costs of deployment are not the hardware and wireless connection, but the BUSINESS PROCESS CHANGES required to utilize these devices.

- It is not just TCO, but TCI (total cost of implementation) that matters.

- Business has to re-organize around the new technology – this will take time

BPR II - *m*BPR

- Over the next five to ten years enterprises need to begin re-thinking how they “hang together”. This is a slow process and must be driven within the context of sound financial discipline (read: ROI)

- Mobilizing task-specific work will require re-engineering certain business processes.

- You cannot hand a mobile device to a field service engineer and get more productivity and efficiency.

- A cross-functional internal project team is required.

Key trends in mobile

Trend 1 — Corporations now see the value of equipping the mobile worker

Trend 2 — Open systems and standard platforms

Trend 3 — Connectivity and bandwidth improvements

Trend 4 — Convergence

Trend 5 — An appliance view of devices

Trend 6 — Desktop power in mobile devices

Trend 7 — The Supranet

Enterprises see value of mobilizing their workforce

- As the cost to mobilize falls and the need rises, enterprises clearly are starting to see the value.
- The key driver here is return on investment through lower costs and more customer responsiveness.
- **The “Boardroom” will only invest when there is a clear return and when the path to this return is clear.**

Open systems and standard platforms

- The adoption of various standards, both at the computing level and the connectivity level, are key enablers for mobilizing a workforce.
- Standards make cost-effective connectivity and data sharing possible.
- Standards create predictable investment payback scenarios due to platform stability and acceptance.
- Key standards and platforms in support of mobility are GPRS, CDMA, EDGE and 3G networks, 802.11, Java, Windows, Bluetooth, Symbian, etc. etc.

Connectivity improvements

- The data “pipe” into the enterprise is not in place. We are in a similar position today with wireless as we were with modems in the late 1980’s – **CONNECTIVITY AS NOVELTY**
- General opinion is that it will be in place broadly by 2003 and beyond.
- 802.11 hotspots are a “sleeper” here and we are not sure of impact – should be positive.
- Some have suggested 802.11 could be as dramatic in impact as the browser/internet. The economic and business models still need to “age”.

Convergence

- The coming together of multiple capabilities in one computing device.

- As voice, data converge in one platform, enterprises will find it more elegant and cost-effective to deliver working solutions.

Mobile devices as appliances

- Until portable computing devices (PDC's) which includes PDA's, smartphones, laptops, etc. are as stable and predictable as appliances, wide adoption will be slowed.

- The less such devices become like PC's with their "innards" exposed (i.e. where OS is explicit), the wider the adoption.

- Stability and low TCO is key.

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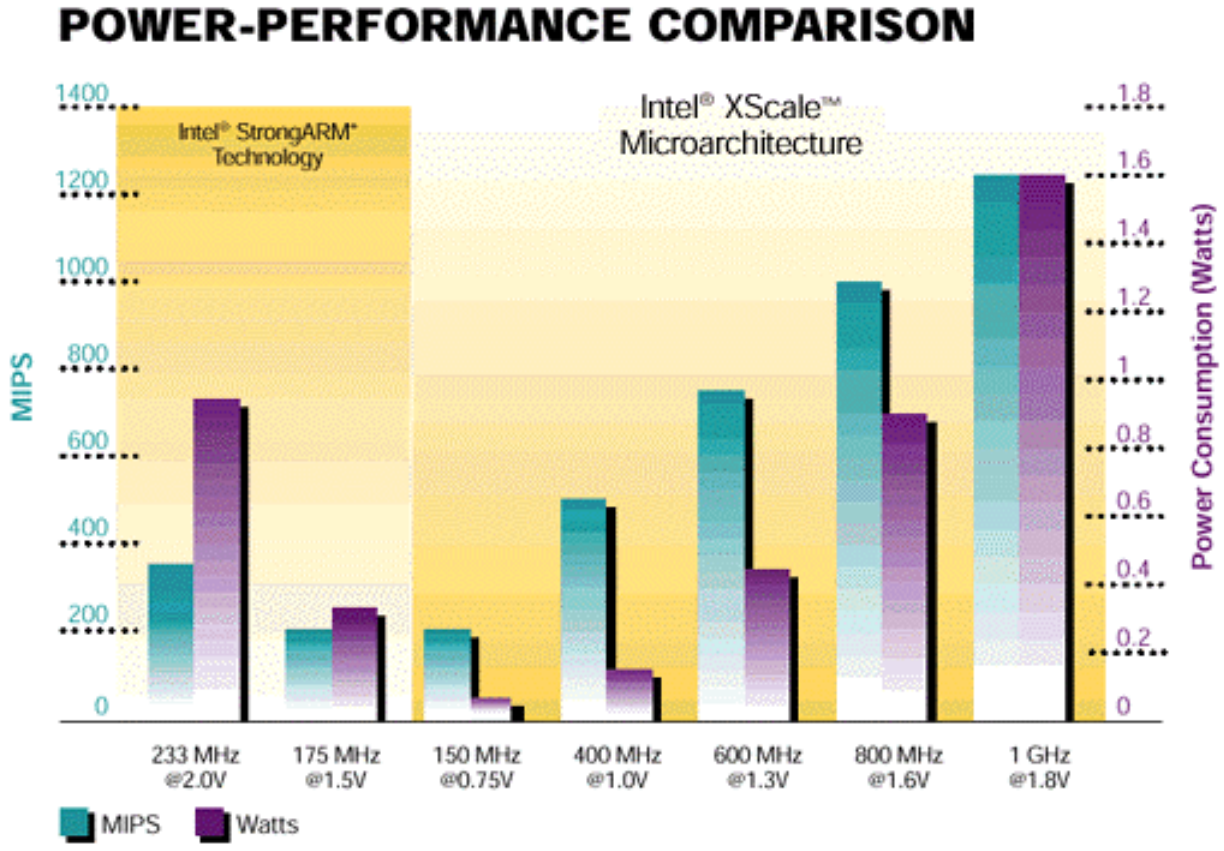
Desktop power in your hand

Technology road maps support fact that by 2005 we will have something close to desktop power in our hands.



Devices today: do more in less size

Message to device manufacturers

- Mobilizing enterprise workers requires stable yet evolving platforms. PDA's for the consumer market are changing "skin" and peripherals every 6-12 months.
- Businesses need device platforms designed with end-user needs in minds and with stability and durability.
- The consumer-driven solutions are much better suited for the generic deployments, not task-specific deployments.

The Supranet

A Gartner Group term describing the emerging, ubiquitous network infrastructure that links the "e-world" (i.e., the world of electronic devices such as computers, phones and televisions) and the "p-world" (i.e., the physical world of paper, houses, inventory, people, vehicles and other objects) within natural human interactions.

The Supranet is enabled by four key phenomena:

- Embedded computers in many everyday objects
- Next-generation wireless networking, providing global indoor and outdoor connectivity to the Internet
- Interfacing technologies that enable bi-directional communication between p-world and e-world components (e.g., bar code scanning, speech recognition and electronic identification)
- The design of applications that satisfy user needs in a natural way with combinations of media and devices

Implications and homework

- Organizations will need a mobility strategy to address the challenges.
- In terms of where we are today, it is in many respects like where we were in 1990 in the PC world. The process in PC's took 10 years. **We need to be patient and realistic.**
- **The "Wedge":** larger entities with the resources and needs should start by prototyping small workgroups with simple mobile tasks like email, PIM and basic CRM-type connectivity.

Known “knowns”

- Mobility for workers in enterprises is increasing and should continue to do so in a virtuous circle (the need exists, the technology allows it, and the need increases as the options increase to enable mobility).
- The desktop PC-centric era as the main model of computing is quickly being put behind us– as devices and software are coming together to make mobilization a **reality, not a novelty.**
- More and more power in our pockets, hands and jackets ! Do not be surprised when by 2005 we have in our hands the equivalent power that is now on our desktop.
- **There is no “killer application” on the horizon.** Voice was. Mobile work is more about the gradual **evolution** of technology and business processes to support more efficient ways of working.

Known “unknowns”

- Impact of WLAN standards and 3G standards: how will they both roll out ? – “hotspots” and 3G
- Will they road traveled in Europe be different that in North America?
- How will security best be addressed?
- How will screen and input technologies evolve ?
- What types of devices can we expect in the future ?