



This is a peer-reviewed, final published version of the following document:

**Wynn, Martin G ORCID logoORCID: <https://orcid.org/0000-0001-7619-6079>, Wise, John and Howes, Michael (2002) Key Technologies of the New Information Age. In: Bridge Series October 2002 Seminar Presentation, October 2002, University of Gloucestershire.**

EPrint URI: <https://eprints.glos.ac.uk/id/eprint/2426>

#### **Disclaimer**

The University of Gloucestershire has obtained warranties from all depositors as to their title in the material deposited and as to their right to deposit such material.

The University of Gloucestershire makes no representation or warranties of commercial utility, title, or fitness for a particular purpose or any other warranty, express or implied in respect of any material deposited.

The University of Gloucestershire makes no representation that the use of the materials will not infringe any patent, copyright, trademark or other property or proprietary rights.

The University of Gloucestershire accepts no liability for any infringement of intellectual property rights in any material deposited but will remove such material from public view pending investigation in the event of an allegation of any such infringement.

PLEASE SCROLL DOWN FOR TEXT.



UNIVERSITY OF  
GLOUCESTERSHIRE

# Key Technologies of the New Information Age

The Park  
Cheltenham  
October 3<sup>rd</sup>, 2002

Martin Wynn and John Wise, University of Gloucestershire  
Michael Howes, Business Link, Gloucestershire  
Steven Hughes, DLP Consulting



# Three key technologies of the New Information Age



UNIVERSITY OF  
GLOUCESTERSHIRE

## 1. XML APPS

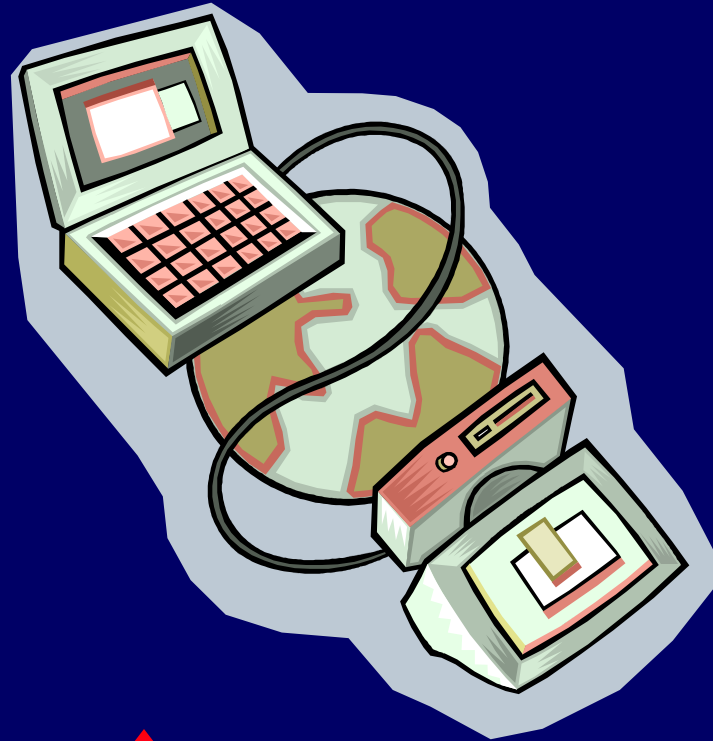
World-wide usage of the web continues to expand and XML is a key technology in the growth of internet applications.

## 2. BROADBAND CONNECTIVITY

Speed, quality and richness of data is increasing, and access is widening. The spread of Broadband is key to this growth.

## 3. HANDHELD DEVICES

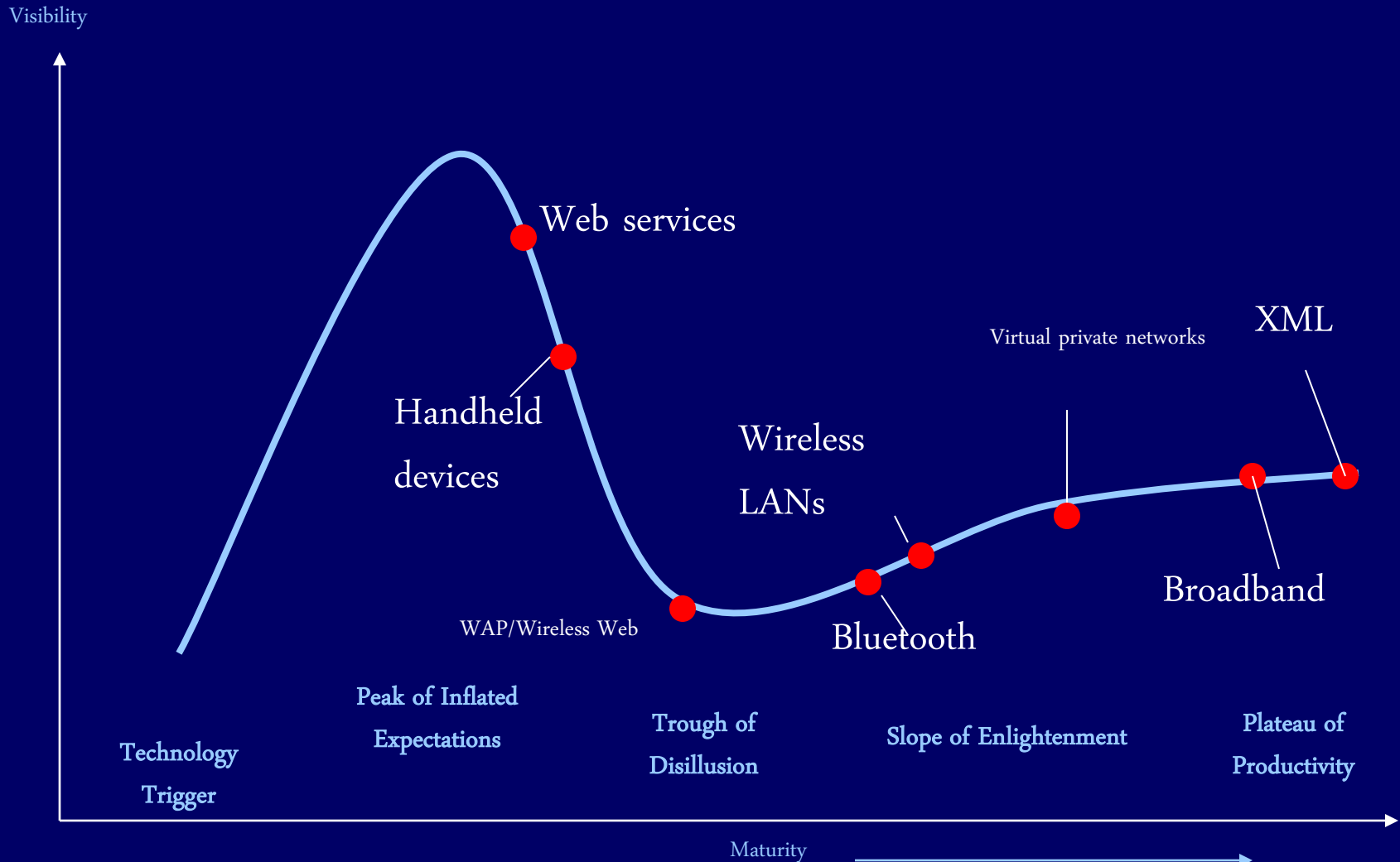
Wireless technology means increased mobility, and the power and sophistication of chip-based devices is increasing.



# Gartner's peak of inflated expectations for new business technologies:

Broadband and XML now on 'plateau of productivity'

Handheld devices yet to deliver real value (but will do so!)



# Law of Disruption

(after Thomas Mucha)

“Social, political & economic systems change incrementally, but technology changes exponentially”

“Results in dramatic shifts in the possible application of technology in industry”



# Key Technologies of the New Information Age



UNIVERSITY OF  
GLOUCESTERSHIRE

## 1. XML APPLICATIONS

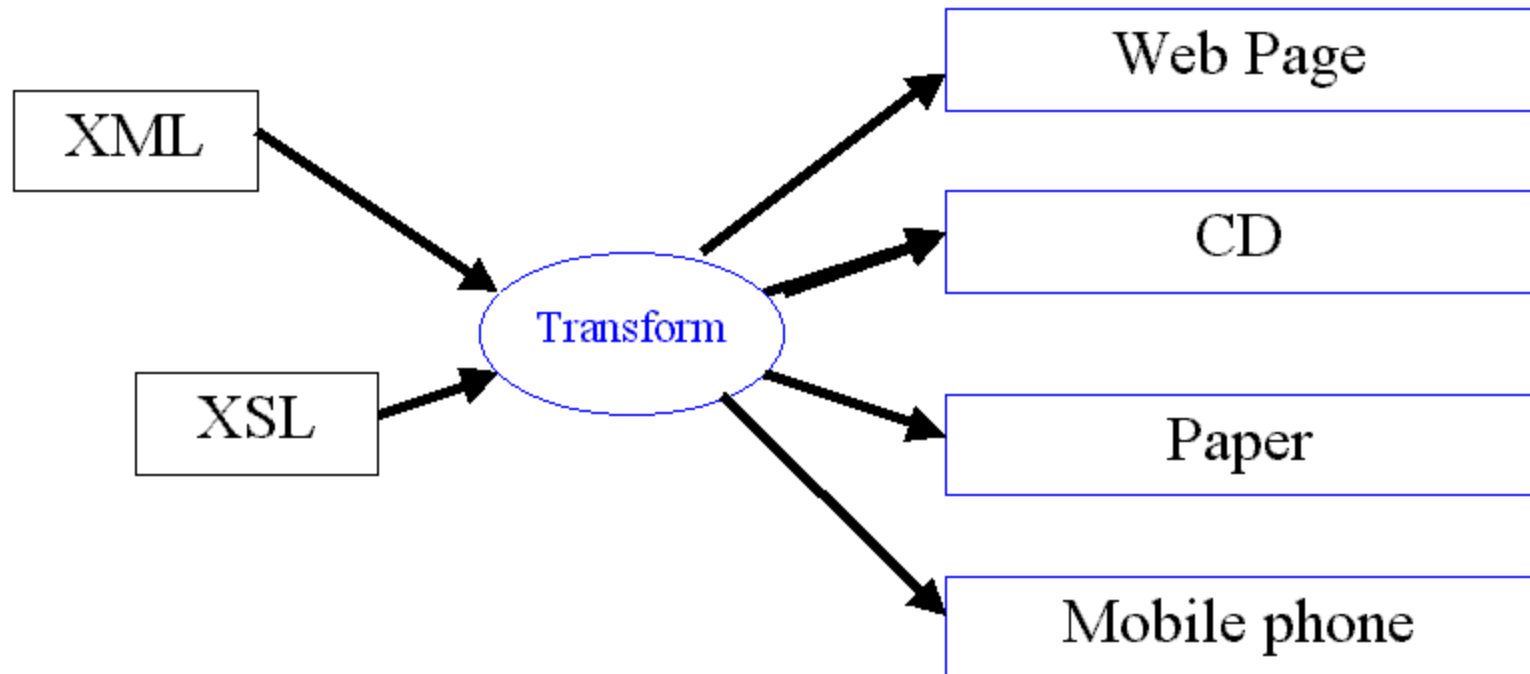




# XML – Where does it fit into IT/IS Strategy?



## XML codes the content



**Output may be HTML, PDF, SVG, ...**

Remember the database rule – store data more than once at your peril!





# Which types of data are suited to XML?

- Documents with a recognisable structure
- Data which do not fit comfortably within a relational database (Specifications, Procedures, Regulations)
- Data which may be viewed in several formats
- Content which may be edited by staff without responsibility for design



# What does XML look like?

```
<memo>
```

```
    <to>    Keith Rogers    </to>
```

```
    <from>  Jon Wise        </from>
```

```
    <date>  11 April 2003   </date>
```

```
    <copy>  Sohrab Saadat   </copy>
```

```
    <copy>  Kevin Hapeshi   </copy>
```

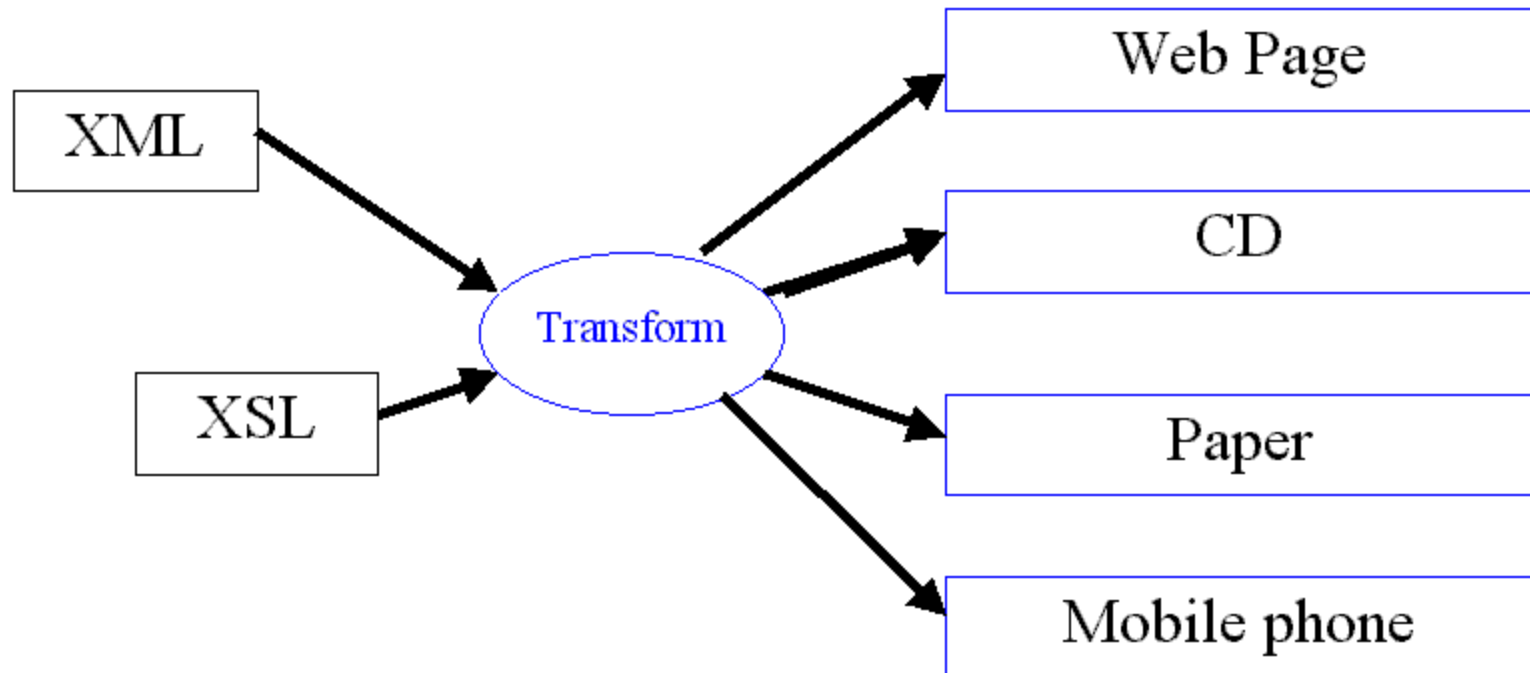
```
    <subject> Module guide for C0313 </subject>
```

```
    <text> The C0313 Module Guide has been modified  
          as agreed. The final version is now on  
          the Infoserver.
```

```
  </text>
```

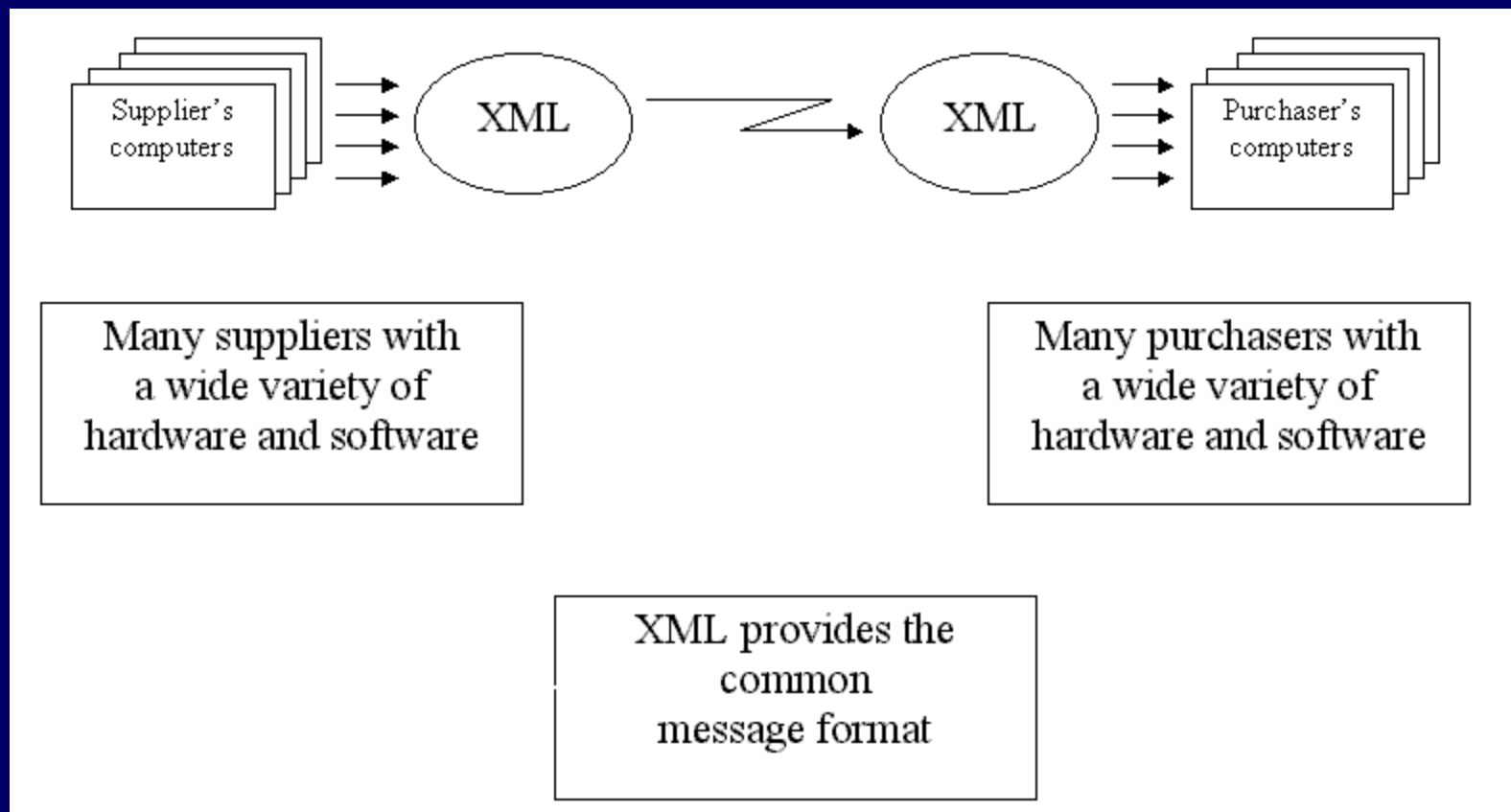
```
</memo>
```

## Alternative styles of presentation



**Output may be HTML, PDF, SVG, ...**

## XML for business to business communication

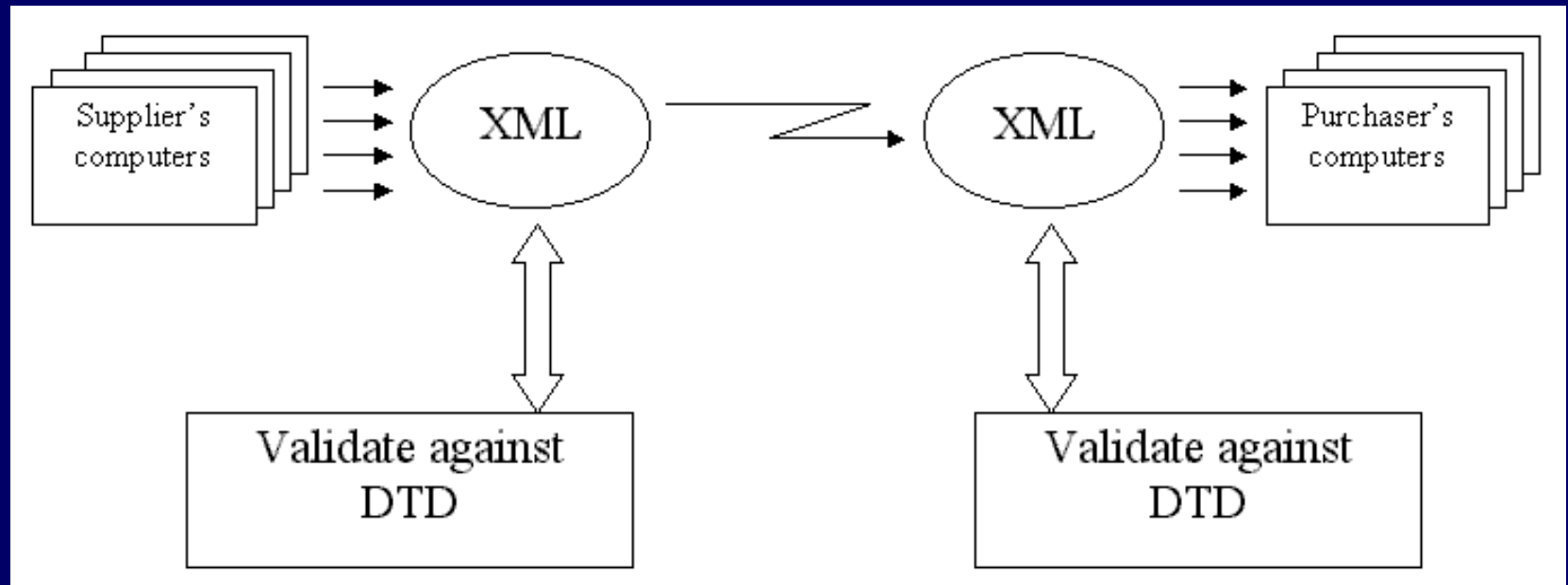


# What is a valid XML document?

Your invoice is not in our agreed format!

Yes it is!

No it isn't!



# How do I create XML?

- It may come from another application e.g. database, spreadsheet, custom application
- It may be created directly e.g. XmlMind





# XML and Relational Databases

- For regular tables of data,  
e.g. a price list,  
relational database reigns supreme
- For data which has a more complex structure, XML has  
several advantages  
e.g. brochures, manuals, ...



# Where does XML fit in overall IT/IS strategy?

- As a key tool in the development of e-business capability where information needs to be used in a variety of ways in a web environment.
- Where the user company does not wish to be constrained within the products of one software supplier – XML offers the possibility of providing effective bespoke web-based applications.





# Key Technologies of the New Information Age

## 2. BROADBAND CONNECTIVITY



## Some Initial Observations ...

- One in four business owners are working online at home sometimes
- Aerospace and advanced engineering firms mostly insist that their contractors are Broadband enabled
- The IT outsourcing industry offers cost effective services to small and medium sized businesses
- The cost of Broadband delivery has halved in the last six months





# Broadband can be delivered to just about anywhere....



- The **IT Secrets Show** at Cheltenham Racecourse
- Internet connection for 29 exhibition stands (55 PCs) and a presentation theatre
- Using a two way satellite dish
- With IR radio to 'bend' the signal round the Grandstand, which obscured the view of the southern sky.



Here are some of the  
'exhibitors' using Satellite

Broadband at the **IT Secrets Show** ...



UNIVERSITY OF  
GLOUCESTERSHIRE







# IR radio can be used to quickly connect two buildings ...

- Up to 3km 'hop length'
- Needs 'line of sight'
- But can be daisy chained
- The LED-type broad beam is robust against building movement & passing obstructions



# Broadband can be delivered securely and cost effectively by Microwave radio ...



- Cheltenham Police Head Quarters use 'Microwave' radio
- The Force needed to connect the outlying police stations to the Force IT network to provide access to the various police computer systems
- Requirement for Line-of-Sight
- Balloon used to aid in remote station location



# 'Microwave' installations at Gloucestershire Police Stations ...



Leckhampton



Whaddon

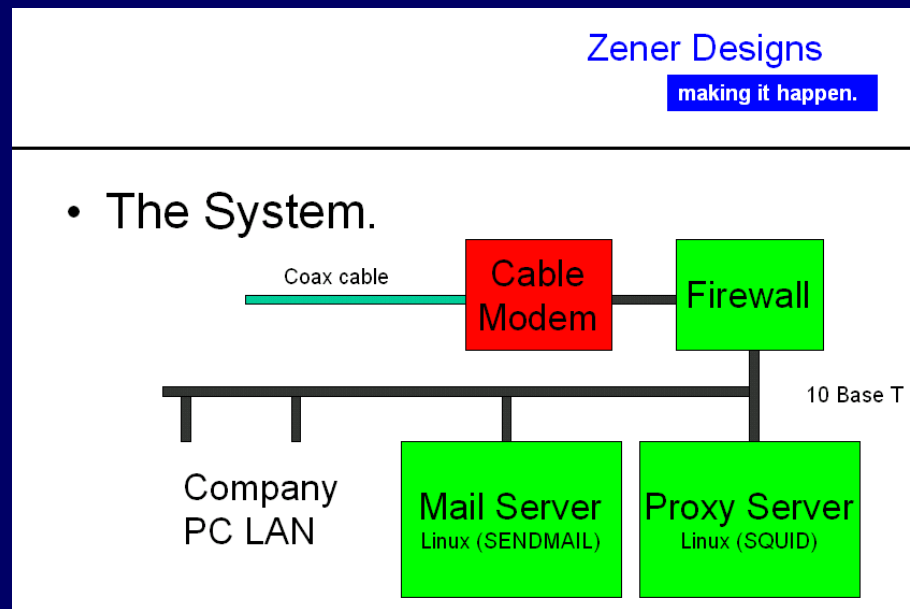


St Marks





Broadband can also be  
delivered in urban areas  
by cable service providers ...







ADSL Broadband is  
generally available in urban areas by telephone service  
providers and ISP's ...

- Around 512 kilobits per second
- 'Always on' connection
- The ADSL roll out aims to have "70% coverage of businesses in the UK"



## Summary Observations ...

- Business owners and employees now work at home sometimes
- Private and public sector organisations are working more closely with business partners who are Broadband enabled
- Small and medium sized businesses no longer need to have their IT on site: they can be hooked into cost effective outsourced services
- This could be the right time is to install Broadband: the cost of delivery is at an all time low!



# Key Technologies of the New Information Age



UNIVERSITY OF  
GLOUCESTERSHIRE

## 3. HANDHELD DEVICES





# Technology change is accelerating.....

- Moore's Law
- Cooper's Law
- Miniaturisation
- Technical Literacy





# ..and culture change is evident in organisational operations and structuring

- Removal of organisational layers
- Empowered staff
- Less support – more end-user independence and responsibility
- Remote workers
- Mobile workforce





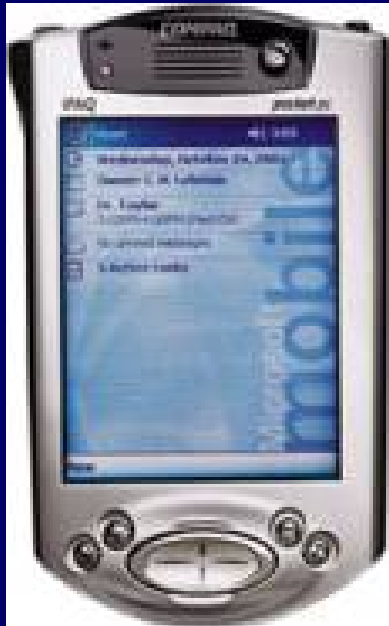
# Key issues remain

- Information processing
- Managing the data
- Managing risk
- Communication
- Personal Organisation





# The PDA has come at the right time



# Characteristics of PDAs

- Fast
- Cheap
- Pocket-able
- Extension of a user's desktop computer – not a replacement
- Genuinely useful







# Common Applications

- Diary
- Email
- To- do Lists
- Take notes
- MS Office
- Expenses, Mileage
- User Manuals



# Benefits

- Single source of personal data (home and work)
- Synchronisation with other people and other devices
- Mobile communication
- Save time
- Reduced administration





# Spoilt for choice

- Well-known manufacturers
- Product is continually evolving
- Colour vs. Black & White
- Palm vs. Microsoft (+ Linux)
- Infrared vs. Bluetooth vs. 802.11





# Issues

- Platform
- Links to laptops and mobile phones
- Patches
- Backup / Security / Loss
- Training
- Bluetooth vs. 802.11





# What's Next

- Integrated phones and PDAs
- 3G + 2G
- Movies / Pocket TV
- Music / Internet
- Tablet PCs
- Complication of a personal device with a business use



# How to manage and integrate these new technologies in the corporate environment?

- Bring these new technologies into your IT strategy development thinking (inside-out
- in Earl's model)
- Trial the technologies – find the key users
- Solve the 'teething problem' issues quickly
- Train users and review the implementation
- Champion the benefits and enlist senior management support
- Recognise and assimilate these technologies in an agreed IT strategy



# IS/IT Strategy Formulation (after Earl)

*Top Down*

**Business Plans  
& Goals**

*Analytical*

**Deduction of  
IS needs by  
methodology.  
Identification  
of CSFs**

*Bottom up*

**Current  
Systems**

*Evaluative*

**Surveys &  
Audits of  
current  
investments  
in IT/IS to  
see if they  
can be  
improved.**

*Inside Out*

**IT/IS  
Opportunities**

*Creative*

**Identify  
Opportunities  
offered by new  
IT/IS  
capabilities**

**Trial and evaluate the  
new technologies**

**STRATEGIC PLAN OF INFORMATION SYSTEMS APPLICATIONS  
and TECHNOLOGY DEPLOYMENT**

# IS/IT strategic alignment

- Venkatraman's approach

