



# nni trendscentent

## WAP The Standard of the Future?

### 1 introduction

M(obile)-commerce is the latest area to spark interest in organisations seeking to exploit new technologies by opening markets, improving communication, and potentially leverage existing investments.

Still in its early days, there is much hype about what might be achieved and when. Many prophesize that the new m-commerce technologies will be the enablers that lead to significant cost savings through improved business processes and faster response times for information delivery regardless of location.

More than just cost reduction opportunities, m-commerce is also being heralded as a revenue

enhancer that will create value through its highly targeted locational marketing and profiling capabilities.

To gain the greatest value from their investments, m-commerce players must focus on customer reach. Given the large number of different devices and vendors operating in the m-space, ground rules and standards are necessary to achieve the reach that will ultimately make it a success.

M-commerce revolves around the transfer of information, or data, over different devices. As such, the need for a common standard is paramount. Wireless Application Protocol (WAP) was the first 'standard' developed

to meet this requirement.

WAP was the first set of standards to outline the presentation and delivery rules for wireless information enabling application for access on mobile phones and other wireless terminals. It originated from, and continues to be developed by, the WAP Forum.

However, despite considerable

1	introduction	1
2	creating value through standardisation	2
3	criticisms of WAP	4
	3.1 the technology did not meet user's expectations	4
	3.2 vendors imposed restrictions	4
	3.3 limited applications	5
4	summary	5

investment and energy being devoted to the technology to date, little real value has been achieved and early adopters have complained loudly about poor user experiences and excessive costs on WAP enabled devices.

Serious questions are now being asked about the value of WAP and whether the reported backlash is the beginning of the end for this technology protocol. Alternative

standards are presently on offer, including the increasingly popular DoCoMo's i-mode, but the likelihood of even this application's success may be limited.

Certainly, until functionality and use of the protocols are better developed, and supporting infrastructure and channel delivery are formatted, many punters may do well to sit tight until a suitable in-hand wireless device that offers

direct access to the WWW and the internet is available, offering real functionality at an acceptable price.

This Nolan Norton Institute article discusses some key issues and concerns surrounding WAP and competing wireless protocol technologies, and considers what alternatives might develop to meet the expectations that m-commerce pioneers are predicting.

## 2 creating value through standardisation

### *Standardization can create value through connectivity...*

M-commerce is built around the premise that "the whole is greater than the sum of its parts," meaning that greater value can be created through integrating wireless products and services than by having them stand alone.

For the application vendors, an environment where all mobile devices are compliant means various versions of code are not required for different mobile devices.

For the device vendors, it means

their products can be leveraged further, with the safety of knowing that they are compatible with the telecommunications' servers.

For the telecommunication companies it means better value and improved service levels can be provided as customers have access to more applications and customized contact points.

Finally, for the customer, their choice in products and services is increased as different vendors' products and services comply with each other allowing a host of interactions and a personalized 'experience'.

### *...which was initially created by WAP...*

The aim of the WAP Forum was to create a standard that could be accessed by all vendors. Members worked together to create an interoperable, air interface independent, and device independent protocol. At the time of its creation, it was the only protocol that offered a host of features designed for the high-latency and low-bandwidth restrictions of the mobile device, that was vendor-independent and licence free. This encouraged vendors from all areas of the market to use the WAP

specification. Through this standardization, an initial mobile-commerce environment was created.

*...but now WAP, like its competitors, is a proprietary technology...*

The nature of patents is to restrict the use of the innovation to certain parties, reducing the ability for industry vendors to follow the same guidelines.

Recently WAP has been patented by Geoworks Corporation, which is offering a licensing program to WAP Forum members. Although the WAP Forum has a large membership, the high joining fee may prevent some companies from entering.

WAP's main competitor, DoCoMo's i-mode, is also a licensed technology that is being offered to a select few. To date, it has targeted very large, powerful, vendors based predominantly in the US.

*... and unless one standard is taken up by everyone we won't achieve complete connectivity and user experiences will remain unsatisfactory....*

As no global or even country

connectivity exists, these proprietary technologies are limited in use.

While applications that are country or organization specific may still be utilized it's likely to prevent a complete 'Open and Mobile' experience for users who anticipated unrestricted access as per their WWW Internet experiences. Examples of the applications that are presently on offer are weather forecasts, local news and some transactions with small to medium enterprises (though speed and document transfer quality have not met with expectations).

*...but there is another alternative...*

One platform that is standard globally is the HTML browser, used on the common desktop computer. It is an open model, with no licensing agreements required. New technological developments now let us use this browser to access the internet on portable devices. This allows service carriers to leverage their existing infrastructure investments as no special server is required (unlike WAP which requires a WAP server). Application developers are relieved from coding

issues, as the display on the mobile device will mirror the one on the desktop.

The application of this model extends beyond a novelty to one that delivers transactions from customer to business, employer to business, and business-to-business.

*...connectivity is possible through XML standards.*

Developing applications using an XML based language can create total connectivity. Coding in XML aligns the browser to the format of a business document. This is achieved by defining XML tags. Industries have already developed standard tags so that e-commerce could be realized; for example, the financial industry has developed standard tags specific to their requirements.

The advantage of coding using XML is it can be read on the mobile HTML browsers, and will soon be able to be converted for display on WAP browsers. This will be achieved with the completion of the extensible Style Language (XSL) that is currently being developed by the World Wide Web Consortium (W3C).

## 3 criticisms of WAP

Many of the complaints surrounding WAP such as slow download times, devices that are not suited to accessing the Internet, high user costs, and restricted access to sites are not necessarily attributable to WAP's shortfalls, but rather due to ineffective technology and restrictive practices by some vendors.

### 3.1 the technology did not meet user's expectations

Many users had the misperception that WAP would allow the Internet to be delivered to the mobile phone, with no major adaptations needed. Now that these expectations have not been met, blame is being directed at the supporting infrastructure, such as GSM and the mobile devices. The truth is, WAP was designed specifically for this restrictive infrastructure. At the time of development, the infrastructure was simply unable to deliver the complete Internet over the wireless network, and so an alternative, WAP, was developed.

*The enabling infrastructure has changed...*

With the introduction of GPRS,

and 3G arriving soon, data transfer will be much faster, less restrictive and users will have continuous connection. This new infrastructure will enable the complete Internet to be delivered over wireless means. It will also improve the ability to conduct wireless transactions online.

*...but WAP still has a place in the market.*

Due to its low bandwidth requirements and the existing infrastructure, WAP is likely to remain as the lower cost option. For user requirements where only simple functionality and text based output is needed, WAP may deliver more value relative to cost compared to mobile HTML browsers.

### 3.2 vendors imposed restrictions

Vendors dampened the users' experience by decreasing the value that could be obtained from the technology, and implementing a pricing model that made the service expensive.

*Users found WAP more expensive than the alternatives...*

The high prices experienced by

users are partially due to the pricing model employed by telecommunication vendors. They bill according to time and connections, similar to that used for normal phone calls. This is not suited to the Internet which, with the high drop out rate and slow downloads, make the service costs excessive.

NTT DoCoMo gained popularity by using a billing model based on the amount of content downloaded. Whether or not it can offer this model outside of Japan will be determined by the alliances and partnerships DoCoMo establishes. The mobile HTML browsers also use a pay-for-content based model rather than time based.

*...and the service carriers restricted the technology's value.*

Many wireless carriers have created gateways that act as portals, restricting the customers' ability to surf the Net. Initially, this was implemented as a way to overcome the security failings of early WAP. However, these security concerns have been addressed with the release of WAP

1.2. Despite this, carriers have continued to restrict WAP user access.

One of the major advantages NTT DoCoMo's, i-mode, and the HTML browser on mobile devices, have over WAP, is its open-access model that allows users to input any URL. This is preferred as it is consistent with the user expectations of being in control and free to roam the Internet.

### 3.3 limited applications

Currently, the sites most accessed by WAP users (not necessarily by choice) are the stock exchange and horoscopes. The limited number of available applications is not solely due to service carrier restrictions. For a site to be viewed on a WAP browser, it must be coded in Wireless Markup Language (WML). This is a major drawback as most applications are coded in

HTML or XML based languages. At present, this means application developers have to produce two sets of code. Given the low user take-up of WAP, most application developers have not seen this as a commercially viable option. Next year promises to bring a solution to the problem, with the introduction of eXtensible Style Language (XSL), allowing the automatic transfer of XML into WML.

## 4 summary

Although WAP began as a means to an end, it is unlikely that the protocol will disappear in the short to medium term.

Based on our research we anticipate that both WAP and the mobile HTML browser will co-exist, serving two very different markets within m-commerce. Deciding where to place investment will

depend on user requirements and costs; if wide application variety, multimedia and high transaction frequency is needed, then the mobile HTML browser is suited; if low cost, simple text based applications will fit the bill, then WAP will be more suited.

It is a case of looking at what

needs one is trying to fulfill, what is the purpose of using m-commerce; and, balancing that with the costs involved.

But why try and turn WAP into something that it was not meant to be, ie an entry point into the full Internet world, when a better alternative, the mobile HTML browser, already exists?



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