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Mobile “Real-Time” Business Intelligence & Communications

- A Personal Perspective -

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(1) Business Background – The Last 10 Years

My aim in this short discussion paper is to summarise developments within the Mobile Enterprise Marketplace, and to outline my personal proposals for the way in which the market may develop during the coming 5 years for Mobile Product Manufacturers, Value-Added Solutions Providers and the Mobile Operators.

- ✚ **Consumer Commerce - 1995 to 2000** - The original Internet – Web1.0 – emerged as a commercial marketplace during 1995 when the primary focus was experimentation, entertainment and basic e-commerce. On-line consumer markets such as eBay and Amazon were founded, and mp3 Music Channels started to flood the on-line highways. However, businesses did not really take it seriously, apart from dysfunctional corporate websites, until around 2000 with the founding of Google.
- ✚ **Business Confidence - 2000 to 2005** - From the beginning of the new Millennium, business has quickly grasped the commercial opportunities, and websites are now highly tuned to capturing traffic with Search Engine Optimisation and PPC. Within the Mobile Marketplace, the non-voice use has really focused upon SMS, and email, together with multimedia consumer applications for music, radio, image and video.
- ✚ **Multimedia Entertainment - Web2.0 – 2002 to 2007** - The last 5 years has seen the re-emergence of strong on-line business with a new generation of peer-to-peer social networking applications, BLOGS, MySpace, YouTube, and many imitators! However, the core market for Multimedia has been the “Mobile Generation”, whilst yet again, business has been noticeably slow to adopt such applications outside the traditional email using devices from Nokia, Blackberry and other Handset Vendors.

So in summary, whilst the consumer marketplace is now actively embracing on-line and mobile Web2.0 applications, we’ve yet to see the real penetration of mobile applications into supporting “real-time” business with the magical potential of multimedia solutions.

Business is starting to undergo a massive transformation from the traditional hierarchical model with weekly Board meetings, to that of “real-time” 24/7 operations with event driven Business Intelligence from across the global operations. New “Real-Time” Enterprise Mobile applications can provide significant ROI for 21st Century Business.

(2) Mobile Marketplace – The Next 5 Years – 2007 to 2012

During the next 5 Years the Web2.0 commercial focus will quickly shift from Multimedia Entertainment to “Real-Time” Business Intelligence, Operations and Applications. Following on from the Web1.0 dynamics, this will apply both to fixed, mobile Wi-Fi, 3GSM and all other forms of on-line communications.

So in this section we shall discuss some general areas in which Web2.0 applications may impact businesses – from Blue-Chip FTSE100 through to SME’s and Start-Ups. Then in Section (3), we package these ideas into some preliminary ideas for New Ventures that may be of interest to the Mobile Industry.

In the “Real-Time” Business Scenario I’m thinking of ways in which the traditional Board of Directors Meetings could be realised “on-line” through mobile communications. Of course, the concept of the Board dates back to the pre-Victorian Age and the birth of the Industrial Revolution with Woollen Mills and large semi-automated businesses. Now we finally have the supporting technologies that allow businesses to re-structure with a radically new peer-to-peer architecture more akin to “self-organising systems” than to the dynamics of the industrial steam engine!

Of course, some of these applications may require a Mobile Device with Dual 3GHz Processors, and 30GBytes Memory, but this will not be a constraint in 5 years time! It seems probable that these devices will largely replace the executive laptop, whilst mobile devices with larger screens such as the latest Apple iPhone will emerge as market leaders.

Let’s briefly discuss some specific themes for Multimedia Mobile Applications:

- ✚ **Mobile Board Meetings** : With Mobile Multimedia Communications we’re now in a position to stream video, “real-time” business intelligence, sales pipelines, logistics and critical event information direct to powerful mobile devices. During the next 3 to 5 Year phase of Mobile Evolution, Chief Executives could initiate “Board Meetings” with fellow Directors, at any location, 24/7, across multiple geographies, and then stream video links, and live business intelligence too all attending the virtual meeting.
- ✚ **Mobile Operations Room** : An analogy that I sometimes use is the battleground war room or operations room based around the US DOD developed C4ISR Command and Control Architecture from the late 1990’s. However, in the case of Enterprise Mobile Communications we actually have a “Virtual Operations Room” that can be actualised by any senior manager once a critical event is detected by the live On-Line Analytical Process Applications (OLAP – Business Intelligence Software).
- ✚ **Location Proximity Advertising** : The latest mobile devices already have built-in GPS Systems for navigation. This allows a new generation of proximity advertising based upon your distance to specific locations such as hotels, shops, & restaurants. The Price per Click can then be dependant according an algorithm that incorporates your distance to the advertiser’s venue or geographical location.

- ✚ **“Real-Time” Sales Force** : This projected mobile application allows sales management access to the full sales pipeline, as well as inventory, on-line orders, and multimedia access to the field sales force. In summary, it would serve as a complete management decision package, as well as for customer & partner negotiations

- ✚ **Business Intelligence** : At present, most corporations have installed data-ware houses and CRM applications, as well as advanced on-line data-mining applications. However, static executive dashboards are no longer sufficient for running the real-time 21st century corporation. The next generation of applications will be event drive, with the resulting alerts being routed directly to executive decision makers through intelligent mobile devices.

- ✚ **Mobile Travel Secretary** : As a relatively simple application, we could imagine an expert system configured as an on-line agent for Expedia, Travelocity or LastMinute. The executive completes his/her Mobile Board Meeting, but needs to fly directly to, say, Moscow, that evening. The mobile application manages the flight bookings, transit to/from airports, hotel reservations, and any necessary changes to the Executives Diary for the following days after this possibly disruptive urgent trip.

- ✚ **Open-Source Office** : During the last week, Google has launched its own low cost On-Line Suite of Office Applications. These could interface to a wide range of Business oriented Open-Source Applications for Mobile Devices. This in turn would easily accelerate the re-structuring of business towards the almost flat peer-to-peer “self-organising” architecture – more akin to a meshed network than staff hierarchy. This will ease the penetration of mobile business applications, although will create a new generation of issues relating to information access and security management.

- ✚ **Multi-Media Intelligence Conferencing** – The latest Nokia N95 Devices and Apple iPhone give a glimpse of the tremendous power of the new generation devices for both business executives and general consumers. Soon there will be lower-cost multi-channel video streaming for Skype-like mobile conferencing, coupled with the secure links to real-time business intelligence streamed from corporate data centres.

- ✚ **Ultra-Mobility** – As a final theme, I introduce that of “Ultra-Mobility” in which your full office support is available through your mobile device, including secretarial functions, travel bookings, Board Room Conferencing, as well as the Virtual Operations Room. Of course, the real-time information will be streamed over 3GSM or Wi-Fi networks, whilst the local template applications will be run within the device. This computing model lies at the heart of Web2.0, and leading proponents such as Google that see future business applications being run through a combination of networked super-fast server farms and user device intelligence. The resulting combination will support a new generation of “Ultra-Mobile” Business Users through their multi-functional mobile devices. Within 10 Years, these are destined to be several times more powerful than today’s multimedia PCs & Gaming Machines!

(3) New Mobile Ventures

In section (2) we described some possible enterprise multimedia applications. In this section we package them up into three new Mobile Applications Zones, each of which provides increasing power to the Mobile Worker, and Mobile Business Team:

- ✚ **Venture 1 – Ultra-Secretary** – This multimedia enterprise application incorporates both the Mobile Travel Secretary as well as most other traditional secretarial support from both local and server based software applications. This would include multimedia communications with a traditional group secretary or on-line support team since there will always be exceptions that cannot be dealt with through intelligent mobile applications.
- ✚ **Venture 2 – Ultra-Conference** – This application combines the traditional audio/video conference with the real-time data streaming required for the Virtual Team Meetings and Board Meetings discussed in section (2). Of course, with regards to the marketplace, there will be far more demand from the “lower-end” of the market from networking teams than for Management Board! So the development focus should be more on the real-time support for functional teams, such as the sales force, event marketing, engineering and customer support.
- ✚ **Venture 3 – Ultra-Operations** – Finally we come to the high-end application that is probably around 5 years from the marketplace. Here we integrate real-time business intelligence event streams that could arise from any aspect of the client’s business operation. This provides the equivalent of the mobile “virtual war room” that enables real-time decisions to be executed securely from the Executive or Team Member’s mobile device. In addition, the applications allows mobile teams to conference on-line and then to implement their decisions with the relevant positive sanctions from their functional management.

In summary, I envisage a rich set of real-time enterprise applications that draw upon existing multimedia applications and products within the consumer marketplace, particularly from multi-player gaming, video chatting, life blogs and navigation.

(4) Next Steps – Towards Implementation

These ventures are each complex systems engineering programmes. The next steps would be to verify the concept through scenario enrichment, focus groups and experiments:

- ✚ **Scenario Enrichment** – Development of in-depth scenarios relating to the day-to-day use of each of these projected real-time enterprise mobile applications .
- ✚ **Executive Focus Groups** – Essential discussion of the mobile applications with experienced executives and workers sampled from all levels & size of business
- ✚ **Simulated Test Environments** – Engineer prototype devices (possibly simulated) to further check on their feasibility, usability and projected Business ROI.

(5) Mobile Discussion Paper - Conclusions

This short discussion paper has explored the ways in which the power of multimedia applications for the consumer, might be harnessed for the enterprise during the coming 5 years as the next mainstream wave of web2.0. The key thrust will surely be that of providing “real-time” business intelligence and communications to all levels of management from Team Worker to CEO. It seems likely that video will play a rather greater role than during the previous 5 years, but the pivotal development will be the integration of mobile communications with a more dynamic and accessible corporate data warehouse. Business Intelligence will be accessible through options such as executive live alerts, operational event streams or simply through regular dynamic Dashboards.

The time is now finally ripe for the development of Mobile Multimedia Enterprise Applications, which I predict will mainstream worldwide within 3 to 5 years! *Good Luck!*

Appendix 3 – About **VAZA** International

VAZA International was established by Dr David E Probert with the following mission :

- I. To provide innovative strategic business consultancy in partnership with a network of *international* business associates.
- II. To create, publish and present visions and applications for new and emerging technologies. These may include 3G mobile & wireless networks, multimedia communications, on-line search, self-organising and learning networks and “real-time” collaborative computing & communications.
- III. To provide project management and mentor support for major national and international projects specifically in the fields of strategic business planning & modelling, multi-media networking, environmental protection, and the deployment of emerging & leading-edge technologies.

During the last 25 years, David Probert has provided the vision and thought leadership for many successful projects including :

- ***Long Range Planning Model (LRPM)*** – The 1st Dynamic Strategic Planning Model for British Telecom that was developed during advanced management research at Cambridge University during the late-1970’s. The model was used to support BT Board Level strategic analysis and decision-making both “pre” and “post – privatisation”.
- ***Computer Integrated Telephony (CIT)*** – Established and led British Telecom’s £25M EIGER Project during the mid-1980s’ to integrate computers with telephone switches (PABX’s). This resulted in the successful development and launch of CIT software applications for telesales and telemarketing operations in a worldwide marketplace.

- ***Blueprint for Business Communities*** – Visionary Presentation for Digital Equipment Corporation during late-1980’s that included the creation of the “knowledge lens” and “community networks”.
- ***European Internet Business Group (EIBG)*** – Established and led Digital Equipment Corporation’s European Internet Group for 5 years, from 1994 to 1999. Projects included support for the national Internet infrastructure for the countries of Central and Eastern Europe, Russia & the Former Soviet Union and the countries of the Middle East. Dr David Probert was a member of the European Board for Academic and Research Networking (EARN/TERENA) for 7 years (1991 → 1998)
- ***Supersonic Car (ThrustSSC)*** – Worked with Richard Noble OBE, and the Mach One Club to set up and manage the 1st Multi-Media and e-Commerce Web-Site for the World’s 1st Supersonic Car – ThrustSSC.
- ***KolaNet*** – Established and led the KolaNet Project within the Arctic Kola Peninsula, Russia. This multi-national project run from 1992 to 1998 and provided Internet Communications, Web-Sites and Training to Research and Government Institutions within both Russia and the Former Soviet Union. The primary applications for KolaNet were the monitoring of radioactivity from nuclear power plants and sea-borne reactors as well as other harmful industrial chemicals & heavy-metals
- ***Secure Wireless Networking*** – Business Director & VP for New Venture to establish a portfolio of innovative secure wireless networking products with advanced technology partners from both UK and Taiwan. Dr Probert was also appointed as the New Products Director to a well-known UK Group plc in the networked security products sector prior to its successful acquisition by a US corporation.

Dr David Probert is a Fellow of the Royal Statistical Society, and he has a 1st Class Honours Degree in Mathematics (Bristol University), and PhD Degree from Cambridge University in the field of Self-Organising Systems (“Evolution of Stochastic Automata”). His biography is included in the 2007-2012 Editions of Marquis Who’s Who Worldwide.

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