Sacred Heart
UNIVERSITY

Sacred Heart University
DigitalCommons@SHU

WCOB Faculty Publications

Jack Welch College of Business

2008

Sport New Media

James Santomier
Sacred Heart University, santomierj@sacredheart.edu

Joshua Shuart
Sacred Heart University, shuartj@sacredheart.edu

Follow this and additional works at: http://digitalcommons.sacredheart.edu/wcob_fac

Part of the Communication Technology and New Media Commons, and the Sports Management Commons

Recommended Citation

Sport new media

James P. Santomier* and
Joshua A. Shuart

Department of Marketing and Sport Management,
John F. Welch College of Business,
Sacred Heart University,
5151 Park Avenue, Fairfield,
CT 06825-1000, USA
E-mail: santomierj@sacredheart.edu
E-mail: shuartj@sacredheart.edu
*Corresponding author

Abstract: One of the dominant strategies currently used to address increased complexity in competitive business environments is to adopt technology at all levels of the enterprise. New media is a dimension of technology that is being adopted almost universally by sport enterprises worldwide. The purpose of this paper which is based on meta-analysis, secondary sources, technical reports and interviews, is to build on current knowledge related to sport new media to discuss: (1) new media technologies relevant to the sport industry and (2) considerations for developing and implementing sport new media projects. Within the complex global business environment, sport managers should be prepared to identify: (1) sport new media resources and technologies relevant to and appropriate for their enterprise and (2) benefits and potential opportunities offered by new media adoption.

Keywords: new media; environmental complexity; digital; convergence; mobile technologies; digital image compression; 3G; broadband; video/audio streaming; digitainment.

Biographical notes: James P. Santomier is currently a Professor in the John F. Welch College of Business and Chair of the Department of Marketing and Sport Management at Sacred Heart University, Fairfield, Connecticut. Prior to Sacred Heart University, he held an academic positions at the University of New Haven, Hong Kong Institute of Education, New York University and the University of Oregon. He received a BA and an MA in Physical Education and Health from Montclair State University and a PhD in Physical Education from the University of Utah. In addition to sport and new media, his research interests include organisational deviance and change, stress management and the psychosocial aspects of physical activity and sport.

Joshua A. Shuart is an Assistant Professor of Sport Management in the John F. Welch College of Business at Sacred Heart University in Fairfield, Connecticut. He received a PhD in Sport Management at the University of Connecticut, where he worked in the Laboratory for Leisure, Tourism and Sport as a Research Consultant. Prior to UConn, he received an MA in English

from St. Bonaventure University and a BA in Communication Arts from Grove City College. His research interests include celebrity endorsements, sport sponsorship, new media and strategic marketing.

---

1   Introduction

The globalisation process that has transformed the organisation of sport is also affecting the traditional ways in which media sport can be produced, delivered and consumed. Information and Communication Technologies (ICTs) have opened up new possibilities for sport to convey its message and create new markets. The rhetoric that accompanies the interactive era of digital telecommunication suggests a new 'computer age' in a rich equality-laden 'information society' (Boyle and Haynes, 2000).

In his prescient 1969 book, *Age of Discontinuity*, Drucker (1969) wrote that normal incremental change would be disrupted by a period of discontinuity and that there would be a radical shift in the way the world worked. He foretold:

1   explosions of new technologies resulting in major new industries

2   a change from a national economy to a global or world economy

3   an emphasis on knowledge as the resource of the economy.

Today, these changes are manifested in the New Economy, which refers to a set of qualitative and quantitative changes that, in the last 15 years, have transformed the structure, functioning and rules of the economy.

> "The New Economy is a knowledge- and idea-based economy where the keys to job creation and higher standards of living are innovative ideas and technology embedded in services and manufactured products (Progressive Policy Institute, 1998)."

However, the New Economy is also one where risk, uncertainty and constant change are the rule, rather than the exception.

As a result of New Economy dynamics and globalisation today's business environment is significantly more complex and less predictable. This increased complexity has caused, at least in part, a shift away from traditional styles of management and towards enterprise thinking. From this perspective business is conceptualised as a network of complex adaptive systems, characterised by numerous interactions among various agents (employees, suppliers, customers and competition) resulting in non-linear relationships between action and outcome (Anonymous, 2005). The role of management in this complex environment is to produce a viable, robust, adapting organisation that is able to survive and prosper in an unknowable variety of future environments, sustained by several, but relatively simple, principles and values (Anonymous, 2005).

> "Globally, the business world today is awakening to the fact that knowledge management and organization learning are the new frontier for both competitive leadership and for sustainable viability. Individually, this awareness doesn't come from foresight or from innovative strategists, but from a demonstrated inability to keep up with the furious pace of changing knowledge (Dove, 1998, p.28)."

One of the dominant strategies currently used to address increased complexity in competitive business environments is to adopt technology at all levels of the enterprise. The difference, however, between internal management Information Technology (IT) and new media implementation is that the development and implementation of new media projects are judged on a cost-and-return basis (Wigley, 2003). New media is a dimension of technology that has been adopted almost universally by sport enterprises worldwide. Consequently, sport enterprise managers are now making operational and financial decisions related to developing and implementing viable (commercial or non-commercial) sport new media projects in an increasingly more complex, competitive and technologically sophisticated environment (BW SportsWire, 2000).

The purpose of this paper, which is based on meta-analysis, secondary sources, technical reports and interviews, is to build on current knowledge related to sport new media to discuss:

1   new media technologies relevant to the sport industry

2   considerations for developing and implementing sport new media projects.

2   New media

New media (any digital media production that is both interactive and digitally distributed) is a term used in relation to 'old' media, such as print newspapers and magazines, which are static representations of text and graphics. New media include: websites, streaming audio and video, chat rooms, e-mail, online communities, web advertising, DVD and CD-ROM media, virtual reality environments, integration of digital data with the telephone (internet telephony), digital cameras and mobile technologies. Use of the term new media implies that data communication is occurring between devices receiving data (computers, Personal Digital Assistants (PDAs) and cell phones) and the media from which the data originates (compact discs, digital transmissions).

New media also is defined in terms of the convergence of telecommunications, computing and traditional media; a conceptual definition that embraces a set of rapidly changing technologies. Convergence refers to the ability of a single platform to process different sources of electronic information (Rines, 2000).

There are two fundamental factors that distinguish new media from media that preceded them. The first factor relates to how new media are transmitted and accessed. New media integrate text, pictures, video, sound and the increasing use of the internet for distribution. The second factor relates to interactivity, which is the defining feature of new media and the dimension of new media that is likely to be the most significant for future sport-related new media development and adoption (Boyle and Haynes, 2000).

New media has four defining characteristics. The first is that data and information increasingly will be delivered in digital form and as many non-consumable services (bills, auto service records, financial statements, airline tickets, etc.) as economically feasible will be distributed electronically. The second characteristic is that digital transmission is combined with addressability, which enables individualisation and dynamic delivery of content via the internet. The third characteristic is the recent proliferation of digital products for use by consumers worldwide, and the fourth characteristic is that the internet is an open and autonomous system – its

communications' protocols are public and non-proprietary and open and interoperable (Digital Deliverance, 2004).

Sport managers responsible for new media projects must be able to make intelligent decisions concerning the most appropriate and effective way to develop, maintain and distribute the enterprise's digital communications. Although, new media offer numerous opportunities for sport, developing and implementing new media into the sport enterprise present unique challenges for sport managers, including:

1   identifying the objectives and opportunities for new media adoption

2   determining what specific new media technologies are appropriate

3   developing (or finding) relevant new media management skills

4   creating new financial resources to maintain existing levels of media expenditure and funding

5   developing necessary production skills within the enterprise to capture digital content and use it effectively and efficiently

6   sourcing the technology skills that will enable all the previous challenges to be met in an increasingly complex digital world (Wigley, 2003).

3   New media technologies

New media technologies perform the following specific functions:

1   information gathering, searching, sorting and communicating

2   production, design and editing

3   distribution

4   access and display.

The rapidly accelerating development of new media technologies is made possible, at least in part, through the application of nanotechnology, which, simply stated, is a manufacturing technology that makes most products lighter, stronger, cleaner, less expensive and more precise (Walzer, 2003). Frequently, several of these functions are integrated into a single device, such as a laptop, PDA or cell phone. The recent introduction of a cellular phone combined with a digital camera is an example of this type of integrated multifunctional device that is capable of receiving and transmitting data, pictures and voice.

3.1   *Information gathering, searching, sorting and communicating*

New media technologies related to information gathering, searching, sorting and communicating include Global Positioning Satellite (GPS) devices, immersive, 3D and omni-directional sensors and acquisition tools and intelligent agent technology. Immersive, 3D and omni-directional sensors and acquisition tools are technologies incorporated into optical tracking systems that are used for tracking a moving object with a camera. These technologies are behind features such as the K-Zone on ESPN's Sunday

Night Baseball or the ShotSpot animation that marks the exact spot a tennis ball lands. These sensors are placed on at least two cameras measuring the pan, tilt and zoom.

> "That data is then combined with algorithms that recognize certain pixel configurations as representing a particular object, such as a moving ball. The data can be analyzed to figure out the trajectory or location of a ball, and then be represented graphically on a screen" (Bernstein, 2005, p.15).

An example of the application of intelligent agent technology is the TiVo digital video recording system, which automatically records sporting events, and may be programmed to record all of one's favourite sports broadcasts. Also, TiVo allows viewers to bypass commercial breaks during a television programme or sporting event that was prerecorded (Anonymous, 2004b).

3.2 *Production, design and editing*

In terms of new media production, design and editing, there are numerous digital non-linear video and audio editing hardware and software tools available, as well as graphics applications such as Adobe Photoshop and JavaScript, which is a programming language that enables interactivity in a web page. Increasingly, the products of these applications (images, videos, etc.) are able to run on low-cost, portable devices, such as hand-held devices (PDAs) and cellular phones.

Non-linear editing is a key technology for sport new media because it allows users to change the order of events in digital video clips and perform other editing functions without having to rely on a sequential timeline, such as an analogue video tape. Once digital video or audio has been saved to the computer, it can be edited using a software-driven system, such as Adobe Premier. With this, users can create video or audio clips in any length or sequence, which can be accessed instantaneously (Anonymous, 2004d). Another new media technology, object-oriented multimedia (i.e. video), is made up of click able or interactive objects. In an object-oriented system, for example, overlapped objects may remain accessible individually and these object-oriented images benefit from high-quality output devices. The higher the resolution of a monitor or High-Definition TV (HDTV), the sharper an object-oriented image will appear. One of the most widely used formats for object-oriented graphics is PostScript, which is a Page Description Language (PDL) that makes it possible to describe objects and manipulate them in various ways.

Object-oriented multimedia enable consumers to view additional objects that have been embedded in a digital video. For example, a digital video broadcast of a sport event may include linear narrative, images of the event's action and additional content available on demand. While viewing the broadcast, consumers use a mouse, remote-control stick or voice command using speech recognition technology to access the video details or biographies of specific players, previous plays or game highlights or promotions for licensed merchandise. From a content and revenue perspective, the broadcaster is able to layer in much richer content and information than is currently available; therefore, enhancing the value of its broadcast and consequently its brand.

Other new web-development tools and applications, such as Macromedia's Dreamweaver and Sun Microsystems' Java platform, have contributed to the development of sophisticated websites for numerous sport enterprises. Also, the Macromedia Flash development environment coupled with the Flash player client is another application used in the sport industry. An example is the *gameday* feature found

on MLB.com, which provides real time game tracking. This is delivered entirely through the Flash client, which enables instant updates and real time data 'pushing' (Demers, 2005).

Perhaps the most important technological development contributing to the adoption of sport new media, however, is digital image compression technology. This technology enables a given message, such as a television picture, to be converted from an analogue signal to a digitised code of data that occupies a much smaller amount of transmission capacity than the original analogue signal. This technology increases the amount of usable spectrum currently allocated, which means that it can greatly expand the number of available channels on cable TV systems (Strachan, 1996).

In addition, digital image compression technology is required for video streaming on the internet and is used in web cameras because the compressed video file size is small enough to run rapidly through a network line of the internet or a Local Area Network (LAN). To compress images for transmission, broadcasters use MPEG-2 compression (Moving Pictures Experts Group, the name originally given to the group of experts that developed these standards), which allows selection of both the screen size and bit-rate when encoding the video. Bit-rate is the rate of data transmitted per second, which is expressed in kilobits per second (Kbps) and megabits per second (Mbps). At present, the maximum capacity for transmitting a digital video or stream is 19.39 Mbps via cable. To broadcast a sport event, which has a significant amount of movement, at 1080i (the number of lines of information (i) transmitted, which determines the resolution on the screen), the entire 19.39 Mbps is needed to transmit a high-quality digital video. This is why digital broadcasts of sport events are best viewed on a HDTV, which has essentially the same resolution as a computer monitor (Pennington, 2005).

According to Bernstein (2005), ten key technologies that are changing the way that people consume sport are:

1   Video On Demand (VOD)

2   digital asset management (the storage of digital assets)

3   optical tracking systems

4   3G (third generation mobile communications)

5   portable people meters (a measurement device that tracks consumer exposure
    to various media)

6   HDTV

7   sports ticker (a device that keeps fans linked to their favourite team's
    data stream)

8   Internet Protocol Television (IPTV)

9   online video gaming

10 satellite radio.

3.3   Distribution

New media adoption by consumers is driven primarily by high-speed broadband delivery and internet access via cable modems and/or Digital Subscriber Lines (DSL). The term 'broadband' refers to any technology capable of delivering 'always on' high-speed

internet access that enables combinations of data, voice and video to be carried at speeds of more than 200 Kbps (kilobytes per second). More recently, the rapid rollout of Wi-Fi (wireless fidelity) networks worldwide has provided millions of consumers with 'always on' wireless connectivity to the internet. According to the Wi-Fi Alliance, the number of 802.11 (wireless) ready devices (computers, PDAs, cell phones, etc.) will climb from approximately 25 million in 2003 to 60 million in 2007 and public Wi-Fi access points (hot spots) will climb from approximately 30,000 to nearly 150,000 (Tynan and Captain, 2004).

By 2007 broadband penetration in Europe is expected to reach 35% of households and 60% of businesses, for an overall access market worth roughly €20 billion (Montagne, 2005). The Pew Internet and American Life Project placed the adult residential broadband population in the USA at 48 million or one-quarter of all adult Americans. Among college-educated adults age 35 and younger, penetration has reached 52% (Jesdanun, 2004).

In the USA, households are rapidly shifting their internet connections to broadband, which is drastically changing the way in which the movie, music, telephone, computer and cable businesses operate. The rapid adoption of broadband by consumers has increased the complexity of the telecommunications sector and has forced providers to streamline their application and installation processes and expand broadband coverage areas (Anonymous, 2004a). There is now little difference among telephone, cable and media companies – they all provide similar services to consumers. According to the Yankee Group, the average US household that has home-phone, cell phone, cable and internet service paid, on average, US$2400.00 in 2004 (Kadet, 2005). In addition, cable companies are positioning themselves to take a large share of the traditional telephone business by using internet technology to deliver Voice over Internet Protocol (VoIP) and telephone companies are planning to offer bundled services and lower-cost internet calling to attract customers.

What is most important to the successful distribution of sport new media, especially the video streaming of live sport events via the internet, is the increasing availability of bandwidth. Bandwidth is the capacity of the transmission medium stated in bits per second or as a frequency. For digital devices, bandwidth is usually expressed in bits per second (bps) or bytes per second. For analogue devices, bandwidth is expressed in cycles per second or Hertz (Hz).

Effective video-streaming of live sport events requires a dedicated T-1 line (a data circuit that runs at 1.55 Mbit/s line rate, or upload capacity) and a dedicated circuit running from the sport venue to a digital content management company such as Akamai Technologies. The bandwidth available in a T-1 circuit, as in any internet connection, rises and falls during the transmission and, when the upload speed surpasses the bandwidth available, the end user's experience is greatly diminished. Therefore, when implementing the streaming of live sports events, it is necessary to make careful decisions relative to the selection of bandwidth capabilities, dedicated lines and content management companies. During the 2004 Olympics in Athens, BBC Sport used optical fibre networks to provide massive bandwidths up to 155 Mb/s between Athens and London (ArkSports, 2004a).

Akamai and other content management and streaming distribution providers, are responsible for ensuring the quality of the streamed broadcast, website reliability and various customisation and personalisation options (SportBusiness International, 2005). After the video feed from the sport venue is coded by Akamai, it is then sent

to various Internet Providers (IPs) to be accessed by their customers. Digital distribution, either audio or video, may be through IPs providing asynchronous DSL, cable modem technology, digital cellular telephony and finally, advanced wireless networking – including Low-Earth Orbital (LEO) and Direct-to-home Broadcast Satellite (DBS) technology (ArkSports, 2004a).

3.4   Access and display

Access and display of digital communications is undergoing rapid transformation through development of devices such as PDAs, electronic books, tablet PCs, smart phones, wearable computers and HDTV technology. Important new media technologies are incorporated into digital audio recorders, digital video and still (mega-pixel) cameras and cellular phones using 3G technology. 3G or 3rd generation technology, is characterised by high data speeds, 'always-on' data access and greater voice capacity. The 3rd generation technology in cell phones allows for significant interactivity, such as online gaming and enables advanced features such as live, streaming video (ArkSports, 2004b).

These formats are continually improving, becoming increasingly thin and light, providing enhanced resolution and colour rendition and importantly, becoming more affordable for consumers. The next generation of display technologies will be increasingly portable, have high resolution, be intuitive in design and have an increasingly transparent user interface. This has significant impact not only for sport consumers, but also for sport managers making decisions about how to broadcast their digital properties.

Mobile technologies are an increasingly more important and successful way for sport enterprises to reach new consumers. The almost universal availability of cell phones and significant market penetration worldwide provide sport enterprises with an opportunity to reach a wider audience than is achievable through either broadband or interactive TV. The 2.5G (primarily USA) and the 3G (primarily Europe) enabled cell phones, with high-speed mobile networks, have enhanced levels of functionality and new services, including photo transmission. Combined with the convenience of anytime, anywhere accessibility, mobile technologies are becoming an essential dimension of a sport enterprise's new media portfolio. In addition to Short Messaging Services (SMS) and Multimedia Messaging Services (MMS), network operators, in conjunction with their sport partners, can offer team-specific ring tones, wallpapers, interactive games, ticketing and in-stadium voting and competitions.

Some US stadia are already equipped with wireless devices to allow fans to Instant Message (IM) friends, order food and drinks and request personalised video replays. One US Major League Baseball team, the Oakland Athletics, is using a wireless solution to interact with fans on their cell phones during games. In Oakland, fans use text messaging to answer questions that are displayed on the scoreboard (Anonymous, 2004c). It also appears that SMS are of greater value than TV commercials in some markets. Users of PDAs in the USA consider wireless-enabled devices to be second only to e-mail for receiving sports news and scores. Mobile content has multiple proven revenue streams with a customer base that is accustomed to paying for new services and this allows network providers to view sport as one more way to increase average revenue per user.

The mobile distribution network today is designed to bring physical products (handsets and accessories) to the user at the retail point-of-sale. A significant feature of this type of network is the importance of the operator in the distribution chain, with roles as distributor, content/service provider and retailer. In Europe, Vodafone is involved in all aspects of mobile technologies and is a primary sponsor of sport. Its sponsorships include English Cricket, Ferrari, Emirates Team New Zealand sailing, Manchester United and additional football sponsorships in Japan, Greece, Italy, Germany, Spain and Portugal (Vodafone, 2005). In the USA, cell phone network provider Nextel agreed in 2004 to a sponsorship deal with NASCAR worth $750B over 10 years. Nextel's NASCAR branded cell phones and calling plans have been incorporated into numerous copromotional strategies (Montgomery, 2003).

According to Tynan and Captain (2004), 'digitainment', the term used for the convergence of PCs and consumer electronics, has arrived. Consumers will continue to have PCs and wireless LANs, but new devices will connect the more-traditional PCs to big screen HDTVs and to surround-sound stereo systems. The PC will continue to evolve from a processing device to an entertainment and networking hub. It is projected that by 2007 18.5 million households in the USA (about 1 out of 5) will own digital media receivers that connect their PCs to home entertainment systems. With respect to the adoption of new media:

> "the 18-24 year old age group has cornered the market and complicated most marketing models advertisers use today. When marketers wonder what happened to 18-24 year olds usage of traditional media like TV, the answer is they are early adopters of new media according to just released information from BIGresearch's newest Simultaneous Media Survey (SIMM VI) of over 14,000 consumers. New media studied in the survey included internet, picture phones, instant messaging, blogging, cell phones, MP3 players, satellite radio, text messaging, TiVo/Replay TV and web radio (BIGresearch, 2005)."

The percentage of respondents to the BIGresearch Simultaneous Media Survey who regularly or occasionally use the aforementioned new media by age groups is presented in Table 1.

Table 1 New media usage by age groups

New media usage by age group	18–24 (%)	25–34 (%)	35–54 (%)	55+(%)
Blogs	29.6	21.7	15.5	11.4
Instant Messaging	79.8	68.3	58.1	43.1
MP3/IPODS	45.3	29.9	17.5	6.7
Satellite radio	12.2	12.5	9.5	5.5
Picture phones	30.6	22.7	14.1	5.2
Text messaging	58.3	46.1	27.6	8.3
TiVo/Replay TV	17.0	21.5	14.6	8.3
Web radio	44.4	42.6	33.0	13.5

Another key technology, interactive TV (iTV), brings consumers digital interactive services that are integrated with traditional TV. These services are broadcast alongside the video feed and are instantly accessible. The reality television phenomenon in the USA and Europe demonstrated how a very large number of television viewers could be driven to interact with the programme via telephone and internet, creating

unprecedented demand for streamed video. What iTV represents is the ability of distributors to mass customise their digital communications.

A leader in Sport iTV is NDS, a company that enables broadcasters, network operators and content providers to profit from the deployment of digital TV technologies including innovative interactive applications, personal TV systems and secure broadband solutions (NDS, 2005). NDS created a complex and interactive sports application specifically for the 2002 FIFA Soccer World Cup. While viewing the game, consumers engaged in interactive activities such as voting for their favourite team, choosing multiple camera angles, accessing match statistics and viewing match highlights. It seems that it is only a matter of time before the major professional leagues, federations and US-based collegiate athletics, concede to the demand for increased interactivity and begin implementing elements of iTV into their broadcasts.

Related to another application of iTV, Interactive Systems Worldwide Inc. recently announced that London-based BSkyB successfully launched the ISWI interactive television version of its SportXction (TM) real-time, play-by-play betting system. This betting software has been made available to all of BSkyB's 7.6 million satellite TV households throughout the UK and Ireland (SportsPipe, 2005).

The design and functionality, as well as the brands of various access and display technologies, are important considerations for sport managers because they link the enterprise with its consumers. With these devices consumers are able to select events from anywhere in the world, choose how and when they want to consume sport, compare live action to archive footage, download any type or amount of information or purchase sports-related licensed merchandise.

4   Considerations for sport managers

Given the increasing complexity and hyper-competitive environment within the global sport industry and the continuing rapid development and rollout of new media technologies, sport managers are faced with an often daunting task when integrating new media into the enterprise. After identifying the key objectives of the proposed new media project, the sport manager should consider three important factors when making decisions related to developing and implementing new media. The first is related to the identification and selection of the most appropriate new media technologies available at the time, as discussed above.

The second is related to the production and broadcast of digital content. It is important to understand that any sport enterprise producing digital images can also broadcast these images, which ultimately allows it to provide information and entertainment (either audio or video) directly to its stakeholders. This capability increases the control the sport enterprise has over broadcast revenues and other extraneous factors that previously were controlled by cable companies and television networks. Broadband distribution drastically reduces the influence that TV networks hold over sport by allowing teams and leagues to offer games and other services directly to consumers (examples include: www.mlb.tv, www.nba.tv, www.mutv.com and www.nfl.tv). Media companies are facing increasingly larger obstacles in retaining sport content and are now adopting flexible rights strategies as sport leagues, franchises and federations are exercising greater autonomy and control over digital content distribution. This

disintermediation of broadcasters, therefore, makes rights holders into content distributors (Real, 1998).

The third consideration for sport managers is related to revenue. For sport enterprises new media represent another distribution channel and revenue generated from consumers using broadband services to access sport events, play sport-related games or view data or additional coverage of sport will become a significant revenue stream for sports broadcasters and rights holders. According to some analysts, for many major sports, overall online revenues will account for at least 25% of their total revenues (Adams, 2004).

Global revenue from sports broadband reached over US$344M in 2002 – and Asian Pacific markets contributed US$140M. According to a report by ArkSports (2004c), revenue from sports broadband services was considered to be worth over US$619 m by the end of 2003. By the end of 2005 ArkSports calculated that this would have increased to US$1.58bn and to US$6.4bn by the end of 2008. Also, online purchases of sports equipment continue to grow and according to data in the National Sporting Goods Association's consumer purchases study in 2002, the internet was the source of 4.6% of all sports equipment purchases, up from 4.5% in 2001. In 1999 (the first year internet purchases were surveyed), online purchases represented just 1.4% of consumer purchases of sports equipment.

One of the most important determinants of the precise direction that sport new media will take is related to the revenue-generating potential of specific sports. In a 2004 survey, ArkSports (2004c) polled ($n = 100$) sport marketing specialists, research companies, sport website producers and various independent consultants about which specific sports they considered to have the most revenue-generating potential. Table 2 is a list of the specific sports and the number of respondents selecting that sport to be the most likely to generate revenue from new media. Interestingly, respondents selected motor sports, such as F1, CART and NASCAR as having the most revenue-generating potential. American football and action/extreme sports were ranked second and third, respectively.

Table 2 Opinions on which one of the selected sports (excluding soccer) is most likely to make money from new media

Motor sport	28
American football	16
Action/extreme sports	14
Cricket	9
Golf	9
Baseball	4
Basketball	4
Boxing	4
Other	4
Rugby	4
Tennis	3
Ice hockey	1

Note: $n = 100$.

Source: ArkSports Sport and Technology Survey (2004).

Revenue generation via sport new media is vital to leagues, franchises and federations worldwide and in addition to subscription services via cable and satellite companies, revenues are derived from advertising, sponsorship, e-commerce, content syndication, Pay-Per-View and gaming, including Fantasy Sports. One major problem related to generating online revenues was the difficulty in creating a 'micropayment' structure, whereby many small charges can be assigned to the consumer. This problem is being solved by companies such as Peppercoin, a US-based company, which is rolling out new services that allow merchants to bundle several small transactions together and process them as one.

A survey conducted by Peppercoin and the research group Ipsos-Insight indicated that from October 2003 to September 2004, the number of Americans who bought something online for US$2 or less rose from 4 to 14 million. A senior analyst with IDC Corporation estimated that digital music sales increased from US$60 million in 2003 to an estimated US$330 million in 2004 (Oswald, 2005).

Satellite radio is a newer but extremely viable and credible source of new media revenue. In late 2004, XM had over 2.5 million subscribers paying nearly $10 per month for satellite radio services. In November 2004, Sirius Satellite Radio Inc. agreed to a three-year deal to air the men's NCAA basketball tournament, "the latest move made in an attempt to draw customers through sports programming" (ESPNgo.com, 2004). This agreement came only one month after Sirius' main competitor, XM Satellite Radio Holdings Inc., agreed to an 11-year, $650M deal with US Major League Baseball to broadcast games. In January, 2005, Major League Baseball signed a $50M, five-year contract with Major League Baseball Advanced Media, a league-owned entity, giving them exclusive rights to all of MLB's fantasy games. Plans are to then sublicense the players' likeness and all league trademarks and logos to other companies. It is estimated that over 15 million people in the USA play fantasy sports, a strong market segment that is willing to pay top dollar in exchange for the latest in technology (Rovell, 2005).

In summary, three considerations – new media technologies, broadcast rights and distribution and revenue – are important to address when developing and integrating a new media project within the sport enterprise. A fourth consideration, which is of equal importance, is related to reaching sport consumers.

5   Reaching sport consumers

Probably the most significant opportunity for sport presented by new media is its ability to develop a deeper relationship with sport consumers. New media technologies already have changed the way in which fans consume sports news, statistics and events. The continued rollout of iTV, improved screen resolution and enhanced camera angles should increase viewing interest in traditionally less consumed sports, such as women's sport, extreme sports and low-revenue sports. Interactivity is at the forefront of nearly every new media endeavour and the US-based National Football League found that not only do fans regularly check NFL.com to receive live game updates, but also to vote for their favourite players and play fantasy football. These efforts continue to enhance the NFL's branding initiative and their focus on the wants and needs of the fan. Their strategic use of new media has helped the league to grow faster than any other league (Adams, 2004).

The 2004 research study conducted by ArkSports (2004c) reinforced the notion that the consumer ultimately is the final determinant of the best way to deliver new media. In terms of digital content in sport, the study found that the best delivery method was video coverage (26% of respondents); the other methods were: data (16%), inside knowledge/expertise (13%), special offers (10%), regular news (9%), guest columnists/personalities (8%), chatrooms (4%), pre and post-event analysis (4%) and merchandise/e-commerce (2%) (ArkSports, 2004c). The major finding, regarding video coverage, is consistent with previous research on communication technology, which found that slow-motion video and varying camera angles have been instrumental factors that drive the development of the sport media lexicon. This previous research also reiterates the need to closely examine new media, particularly in terms of how they colour sport audiences and consumer perception (McDaniel and Sullivan, 1998).

5.1 Managing new media projects

For many sport managers the most complex and demanding task may be initiating and managing a new media project. The following brief summary, which is adapted from a white paper on managing new media projects by Briggs (2003), should provide sport managers with a basis from which to create, plan and implement a new media project.

Developing a new media concept that will be successful is perhaps the most difficult aspect of the project. Sport managers may want to investigate several new media projects and identify the key dimensions related to their success. A number of characteristics are shared by successful new media formats and include: simplicity, revenue, repeatable, viral, multiplatform and cultural fit.

5.1.1 Simplicity

Most successful new media formats are simple. Sport managers should identify the primary objective of the project. Is it to sell licensed merchandise, link the franchise to fans, broadcast digital audio or video or provide information and interaction?

5.1.2 Revenue

Revenue should be considered during the concept development phase and should be one of the components of the format. How will consumers (audience) pay for the service or services provided by the format? Will revenue be generated by subscription, reverse billing on mobile phones, advertising, e-commerce or premium charge phone lines? Thought also should be given to sponsorship and support from other companies or organisations.

5.1.3 Repeatable

To maximise revenues, especially from licensing (if appropriate), the sport new media format should be repeatable. Sport managers should consider the possibilities of how websites, video or audio broadcasts or fantasy sport platforms will develop over time and perhaps how each format will differ. A question arises about whether or not the audience will continue to be interested in subsequent versions of the platform.

5.1.4 Viral

In the current sport new media market, any new concept or platform will be competing with numerous others; therefore, building brand awareness is imperative. Ideally, the audience will promote the platform; however, the format should include 'viral' elements such as free messaging, e-cards, and possibly a format that allows fans or stakeholders to contribute material, opinions or to vote on specific related topics.

5.1.5 Multiplatform

When developing a sport new media concept sport managers should consider the strengths and weaknesses of specific new media technologies. The focus should be on key strengths, such as adopting a television platform (via the internet) for delivering high-quality, high-bandwidth material and adopting mobile phones for low-bandwidth interactivity. Success of the sport new media project is more likely if a multiplatform approach is selected.

5.1.6 Cultural fit

A project's cultural fit relates to how well the concept or platform will work with the audience or stakeholders for whom it is intended and on prevailing and emerging trends and attitudes. Sport managers also should consider if they have access to any exclusive content that could form the basis of a new project.

In addition to those elements above, sport managers should also follow a series of steps to ensure the project is developed and implemented appropriately. These steps include:

1   assembling a core team to assist in the development

2   brainstorming specifically about content and technology opportunities
    in order to take the concept beyond the initial idea

3   market testing on a representative audience or focus group

4   financing, budgeting and revenue

5   legal and rights issues

6   technology planning

7   prototyping

8   construction and testing

9   quality control

10 delivery and marketing

11 on-going management or maintenance.

In summary, developing and implementing a multiplatform sport new media project is a significant undertaking that requires many different and unique skills on the part of the sport manager (Briggs, 2003).

6 Conclusion

Within the complex and competitive global business environment, sport managers must be prepared to identify:

1 new media resources relevant to and appropriate for their enterprises

2 benefits and potential opportunities offered by these new technologies.

Sport managers should emphasise understanding the conceptual and practical dimensions related to developing and implementing new media projects. Dynamic strategic planning is needed for integrating mission-critical new media into the systems and operations of sport enterprises. Most importantly, sport managers must realise that, although new media are extremely complex, with intelligent and rational strategic planning and appropriate e-business implementation strategies, new media allow for maximum adaptation to the rapidly changing global business environment.

Ultimately, for those delivering sport to the consumer, the knowledge that "followers of … sport are more happy to readily accept new media platforms on which to follow their sport" is of paramount significance (ArkSports, 2004c). The rapid roll-out of broadband, wireless, and bundled services combined with the rapidly developing trend in 'digitainment' has and will continue to have seriously complex implications for the sport industry, media companies and consumers.

References

Adams, R. (2004) 'NFL spruces up its web site for new season', *SportsBusiness Journal*, 9 September, Retrieved on 10 September 2004, Available at: http://www. sportsbusinessjournal.com.

Anonymous (2004a) 'Broadband channel dedicated to SHOT show coverage', *Sporting GoodsBusiness*, 12 October, Retrieved on 14 July 2005, Available at: http://www.sbrnet.com.

Anonymous (2004b) 'Broadcast sponsorship boosts 2004 forecasts', *SportBusiness International*, February, Retrieved on 14 July 2005, Available at: http://www.sbrnet.com.

Anonymous (2004c) 'Revenues from sports venues', *Cell Phone Idea Working in Oakland*, SBRnet, 3 June, Retrieved on 15 July 2005, Available at: http://www.sbrnet.com.

Anonymous (2004d) 'Video encoding FAQ', *What is Non-linear Editing*? Retrieved on 10 November 2004, Available at: http://www.beyondhorizon.com/web/ VCD2.html#non-linear.

Anonymous (2005) 'Managing complexity', *The Decision Makers Direct*, Retrieved on 18 July 2005, Available at: http://www.decisioncraft.com/dmdirect/complexity.htm.

ArkSports Limited (2004a) 'Case study: BBC technology, bringing the Olympics back home', *Sport and Technology*, Retrieved on 1 December 2004, Available at: http://www.sportandtechnology.com.

ArkSports Limited (2004b) 'Case study: the mobile betting revolution', *Sport and Technology*, Retrieved on 1 December 2004, Available at: http://www.sportandtechnology.com.

ArkSports Limited (2004c) 'Monetising digital sports content', *Sport and Technology Survey Results*, 14 January–13 February, pp.1–12.

Bernstein, A. (2005) 'Ten technologies that are changing the way people consume sports', *SportsBusiness Journal*, 8 August, p.15.

BIGresearch (2005) *New Media Usage Growing Fastest among 18-24 year Olds According to New Simultaneous Media Survey by BIGresearch*, Retrieved on 23 July 2005, Available at: http://www.bigresearch.com.

Boyle, R. and Haynes, R. (2000) *Power Play: Sport, the Media and Popular Culture*, New York: Longman.

Briggs, J. (2003) 'Managing new media projects: from conceptual development to commercial exploitation', *OTHER Media*, 16 June, Retrieved on 15 August 2005, Available at: http://www.othermedia.com.

BW SportsWire (2000) 'Top industry leasers confirm attendance to IOC world conference on sport and new media; Conference to explore critical points in the developing relationship between sport and new media', *Business Wire*, 6 November, Retrieved on 2 December 2004, Available at: http://www.businesswire.com/webbox/bw.110600/203110388.htm.

Demers, D. (2005) *Personal Communication*, 29 August.

Digital Deliverance (2004) *Digital Deliverance*, Retrieved on 20 November 2004, Available at: http://www.digitaldeliverance.com/philosophy/definition/definition.html.

Dove, R. (1998) 'Learning: now more than ever', *Automotive Manufacturing and Production*, Vol. 10, No. 10, pp.28–30.

Drucker, P.F. (1969) *The Age of Discontinuity*, New York: Harper & Row.

ESPNgo.com (2004) *Top Dog: Sirius To Broadcast NCAA Tournament*, 29 November, Retrieved on 29 November 2004, Available at: http://sports.espn.go.com.

Jesdanun, A. (2004) *2 in 5 Web users have Broadband at Home*, 18 April, Retrieved on 18 April 2004, Available at: http://biz.yahoo.com/ap/040418/broadband_study_5.html.

Kadet, A. (2005) 'Cut your cable, cell, Internet and phone bills', *Smart Money*, September, pp.67–75.

McDaniel, S. and Sullivan, C. (1998) 'Extending the sports experience: mediations in cyberspace', in L. Wenner (Ed). *MediaSport*, pp.266–281.

Montagne, R. (2005) *Broadband Markets: Europe, Asia, and North America*, Retrieved on 15 August 2005, Available at: http://www.totaltele.com/telcorevolutions/bb4.shtml.

Montgomery, L. (2003) *Nextel to Sponsor NASCAR's Top Division*, Turner Sports Interactive, 19 June, Retrieved on 25 August 2005, Available at: http://www.nascar.com/2003/news/headlines/wc/06/19/nascar_nextel/.

NDS (2005) *The NDS Company*, Retrieved on 31 May 2005, Available at: http://www.nds.com/about_nds/about_nds.html.

Oswald, E. (2005) 'Digital Music Sales Soar in 2004', Betanews, 20 January, Retrieved on 26 January 2005, Available at: http://www.betanews.com.

Pennington, J. (2005) *Personal Communication*, 9 January.

Progressive Policy Institute (1998) *The New Economy Index: Understanding America's Economic Transformation*, Retrieved on 23 July 2005, Available at: http://neweconomyindex.org.

Real, M. (1998) 'MediaSport: technology and the commodification of postmodern sport', in L. Wenner (Ed). *MediaSport*, London: Routledge, pp.14–26.

Rines, S. (2000) 'Sponsorship and the killer content', in A. Gellatly (Ed). *Sport and New Media*, London: SportBusiness Limited, pp.27–28, 30, 32, 34.

Rovell, D. (2005) 'Names, league marks will be sublicensed', *ESPN.go.com*, 19 January, Retrieved on 19 January 2005, Available at: http://sports.espn.go.com/espn/sportsbusiness/news/story?id=1970454.

SportBusiness International (2005) *Going Deeper into the Mobile Opportunity*, SportBusiness International, May, Retrieved on 14 July 2005, Available at: http://www.sbrnet.com.

SportsPipe (2005) *New Interactive Television Betting*, SBRnet, 24 February, Retrieved on 25 July 2005, Available at: http://www.sbrnet.com.

Strachan, D. (1996) 'Video compression', *SMTPE (Society of Motion Pictures and Television Engineers) Journal*, February, pp.68–73.

Tynan, D. and Captain, S. (2004) 'For 2004 – and beyond', *PCWorld*, January, pp.95–104.

Vodafone.com (2005) *Sponsorship*, Vodafone, Retrieved on 7 July, Available at: http://www.vodafone.com/section_article/0,3035,CATEGORY_ID%253D305%2526LANGUAGE_ID%253D0%2526CONTENT_ID%253D216153,00.html?

Walzer, E. (2003) 'Although fibers and fabrics have undergone dramatic advances, the best is yet to come', *Sporting Goods Business*, 1 January, Retrieved on 7 November 2004, Available at: http://www.sportinggoodsbusiness.com.

Wigley, J. (2003) 'Reality check for new media', *SportBusiness International*, September, Retrieved on 3 December 2003, Available at: http://www.sbrnet.com.