

E–Novation for Competitive Advantage in Collaborative Globalization:

Technologies for Emerging E–Business Strategies

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Chapter 11

E–Novation Deployment: Creating New “Spaces” and Distribution Using E–Novation

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ABSTRACT

Space is the final frontier for e-marketing. Advances in storage space, digital data transmission, and infrastructure development have created a near limitless market space that exists over the contemporary physical marketplaces, and as an independent market of ideas, data, experience, and content. This chapter overviews a series of key issues in the use of the new “space” for e-novation with attention given to the rise of user generated content through prosumer activity. This chapter is based on exploring how companies and individuals are currently co-creating value in the dynamic marketplace of the new collaborative platforms, and how these new concepts such as the “home shopping channel”, digital rights management, and user generated distribution channels can factor in the future success on and offline for marketing.

INTRODUCTION

E-Novation refers to a process of combining innovation, e-marketing, and the new collaborative platforms into an entrepreneurial mindset that views the blurring boundaries of the market space

and marketplace as a series of opportunities, rather than a range of threats. E-novation incorporates an approach to innovation which involves the strategic use of collaborative platforms in an e-marketing environment as a driving force for change in markets, business processes and consumer behaviour. Functionality in the e-novation framework places distribution as the cornerstone of this new market-

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ing practice. Historically, distribution has been the unglamorous workhorse in the marketing stable, whether concerned with the movement of physical objects from producers to consumers, interchange of data through distributed networks or the flow of benefit to, from and between customers, marketers and the marketplace. E-novation requires a revision of the role, importance and priority given to the distribution channel as the host, enabler and venue for the contemporary e-marketing practice. This chapter covers the use of the internet as a collaborative platform for customer and organizational developed value, the rise of user generated channels, and the use of software shop fronts to capitalize on e-procurement and physical distribution.

BACKGROUND

Marketing's history with the distribution channel can be succinctly encapsulated in one of the earliest definitions of commercial marketing. In 1937, the fledging American Marketing Association defined marketing as the direction of the flow of goods and services from producers to consumers (Gundlach, 2007). Seventy years and four definitions later, the American Marketing Association (AMA) definition marketing has evolved into a more complex system of business management which engages multiple stakeholders in the process of creating, communicating, delivering and exchanging offerings of value. The AMA (2007) definition of marketing reads as "the activity, set of institutions and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large" (Keefe, 2008). Fundamentally, the nature of marketing depends on distribution as the cornerstone to manage the multi-directional flow of offerings of value among the range of actors in the marketplace.

E-Novation deployment is one facet of the management of the multi-directional flow of value

offers through the wired and unwired electronic networks which interconnect consumers, prosumers (producer-consumers) and producers into a global marketplace of value exchange.

Prosumption is a form of consumer behaviour whereby the individual gains benefit from combining consumption and production of products through co-creation of value which is redistributed to other consumers via user generated marketplaces. It occurs through the creation of a derivative offering of value based on the individual's consumption experience as a transformative experience of redistributed co-production. Offerings that can have value are reprocessed through consumption into derivations that have value for the original consumer, and a market of secondary tiers. The key to prosumer behaviour is that benefit is derived from both the consumption and production experience, and that product consumption can be a means to access the personal benefits to be gained from the production process. Deployment is the use of marketplace and marketplace technology to distribute an initial value offer by a marketer, or, as outlined later in the chapter, the use of the self-same technologies by the proconsumer to redistribute their personalized reversioning of the initial value offering. Marketplace is the "virtual realm where products and services exist as digital information and can be delivered through information based channels" (Rayport and Sviokla, 1995 in Blois, 1998). Although the origin of the marketplace concept is grounded in the AMA (1985) definition of marketing, with its reliance on the digital goods and services mix, the digital product concept is best suited to the contemporary framework of "offerings that have value". (Keefe, 2004; 2008). Indeed, the development of service dominant logic (SDL) which views the role of goods as a physical embodiment of a service function (Vargo and Lusch, 2004), and the expansion of the SDL framework to value-in-use (consumption) rather than value-in-exchange (ownership) (Ballantyne and Varey, 2008) emphasizes the non-corporeal,

transient nature of the modern marketing offering. Features have given way to benefits as the central platform of the marketing offer, even if features still have the top billing in the promotion of the marketing producer-created product.

Products in the digital world are predominantly service orientated in that they can be consumed without the transfer of ownership. The paradox of the digital world is the continued existence of goods in an electronic form. Although the use of a website based service does not result in the transfer of ownership of a product an mp3 file purchased from iTunes requires storage, movement and inventory management in a manner akin to its physical world predecessors (CDs, tapes, vinyl albums). Whilst the physical size of the object has changed, making it possible to transport a mid 1990s radio station's library worth of CDs in your pocket, it still takes a mid-1990s radio station library management system to make the music collection useful to the listener. Although the software as service model has been subject to considerable debate with the success of web-based software delivery, consumers have expressed a preference for goods-like ownership of software on their personal physical devices. Microsoft Office is perceived as a digital good whereas use of Google Documents is seen as accessing a digital service, and while both address related but dissimilar markets of consumers. Either way, both software-as-goods and software-as-services both depend on the consumer accepting the digital product (pdf files) as the substitute for the atom-based products (printed paper).

Beyond the classic goods/service divide in the digital framework is a third category of information product (Frieden et al, 1998). The information product is the near perfect case study of the value in use paradigm (Ballantyne and Varey, 2008). In a raw state, digital information products exist as data which can be transferred, copied and replicated to a near infinite number of times with no loss or degradation of the original data

source (Frieden et al, 1998). However, from the consumer's perspective, data is not information – 0110010101100111 is no substitute for an e-mail, mp3 or virtual world experience. Data must be converted into a meaningful format through its use as an information product. The information product in turn is bounded by the level to which it will create, communicate, deliver or be part of the exchange of value between information product producer and information product consumer. The information product itself is capable of supporting an embedded service as it represents a separated form of product removed from both goods and services (Vargo and Lusch, 2004). This separated form of product is classically identified by AMA (1985) definition as “idea”, and as either knowledge (Dann and Dann, 2004) or experience outcomes (Arnould 2008). That said, these conceptualizations are usually focused on the outcomes of physical experience of a good or service, rather than interaction with the information product.

The increased interest from marketers in the embedded service within a physical good, alongside the development of the co-creation of value as the central platform of the marketing exchange, has created a stronger market for the distribution of the intangible experiential information product. If marketing is no longer dependent on the physicality of goods, or the co-location of services, but instead focuses on the development of an offer of value which is co-created in the exchange between company and client, then the non-physical realm of the marketplace is better suited to marketers than the physical marketplace. As Friedman (2007) notes with the widespread availability of “world flattening” technologies, the movement of idea, experience and knowledge products is considerably easier than in previous points in history. That said the Gutenberg press functioned as a similar device for distribution, with similar statements regarding the rapid increase in the ease of idea distribution. The key

to both historical distribution and contemporary e-novation deployment is in how the technology's capacity is applied to provide the value offering to the desired end-user. Whereas Gutenberg's technology became a mechanism for broadcast, the current e-novation deployment framework is far better suited to collaborative means of value development and value re-deployment.

"Value deployment" is the assumption that customer co-creation can occur wherever and whenever the customer is available to interact with the value offering. Building on the principle of service dominant logic which assumes all products to be some form of actual or embedded service, the co-creation of value presumes the customer will engage in an active self-service role to self-produce a desired outcome using the available tools (goods), staff (services) or knowledge (information). Customer co-creation of value also alters the dynamic of the marketplace in a fundamental albeit subtle way insofar as the consumption of the embedded service depends on the participation in production of the final outcome. (Ballantyne and Varey 2006) Consequently, the mass markets of previously passive consumption are now microcosms of self-produced product variants, each subtly different and customized to meet the specific needs of consumer. Although the marketplace has always engaged in this form of behaviour, it has previously thought very little of the consequences of generations of mass market tinkering, tailoring and user-generated candlestick making. However, traditionally, barriers to entry to the marketplace have been perceived as greater than most consumers would be willing to overcome – from the financial costs of distribution, through to the psychic costs of independence from the mainstream.

An unintended consequence of the new world view of marketing which acknowledges, respects and depends on the customer's contribution to the creation and consumption of products has been the massive decrease in barriers to entry for

the consumer self-produced content. In addition to the declining production costs for consumer self-produced embedded services is access to the internet which provides a viable mechanism for the self-producer to distribute their experience to the wider marketspace (Friedman, 2007). Returning briefly to the concept of the information product as a separate form of co-created experience, ideas were usually only as viable as the extent to which they could be accurately replicated and distributed. Word of mouth involves imprecise replication which gradually degrades the original content to the point of becoming more noise than signal. Printed distribution depends on finite resources which are consumed through the replication process. Digital deployment greatly reduces both replication issues (distortion and resource consumption). Consequently, the consumer is now in a position to develop an experience which they can encode into information, replicate, duplicate and distribute as part of their engagement with the co-creation process. Witness the rise of YouTube videos of the "unboxing" process of unpacking a new product, and detailing the recently acquired device as an example of the ease of encoding the experience of "new product joy". Widespread access to digital deployment has created a wide array of prosumer (producer-consumer) opportunities which are now forming the backbone of consumer-to-consumer marketspaces.

A counter point to the lowered barriers for deployment of co-created content is the maintenance of the mental cost of co-creation. The psychic costs of independence is exhibited through risk-aversion and the desire to conform to the majority view, group norm or socially approved "mainstream" practice. Drawing on the Rogers (1995) innovation adoption framework as a key indicator of the preference of the majority of a population for mimicry and conformity, the need to individually personalize a product does result in an increased risk of non-conformity which is viewed positively by the innovator and early adopter categories, and

negatively by the early and later majority groups. Consumers who make decisions based on majority opinion, social norms and group-level support for an idea or product are faced with increasing uncertainty as market fragmentation decreases the level of confidence an individual can feel in a product being “the right” socially endorsed choice. Increased choice also increases the risk of making the wrong choice either by supporting the “wrong” product, or failing to identify and support the fashionable ‘right’ choice. The rise of Apple’s market power mirrors the decline of its “Think Different” mantra as the target moved from the innovative and creative elite to the mass marketplace more content with “Think Similar”.

Additional risks arise for the individual who engages in the co-production and re-deployment of the co-created product insofar as they have invested ego, time, effort and reputation in the redistribution of the idea as they believe it has a value to others. Consequently, if the re-deployment of the value offer is unsuccessful, criticized or met with loss of social prestige, this can increase the total social price faced by the individual for attempting to engage in the practice again, and raise the price for those people in the social circle who have observed the consequences of the failure.

The need for conformity is also an e-deployment perspective insofar as the long-tail phenomena where a small number of highly influential figures attract the majority of traffic can result in an identifiable ‘leader’ for the market to follow. The advantage for the e-marketer is the capacity of the marketplace to produce a series of social microcosms where the long tail effect occurs within smaller communities guided by self-interest. However, the advantage of the fragmentation of the marketplace is also the weakness inherent in the complexity of either becoming the market leader for first mover advantage, or finding the market leader for second mover advantage and ‘me-too’ product innovations.

CONSUMER TO CONSUMER: NEW COLLABORATIVE PLATFORMS FOR VALUE DEPLOYMENT

The development of a C2C marketplace has created a new space for commercial and non-commercial content to co-exist as the prosumer market develops a range of use innovations for existing products through their co-creation activities (Toffler, 1980; Berman et al 2007; Griffiths, 2007). User generated content has become increasingly recognized by marketing as a companion to the professionally produced marketer controlled materials, and, more importantly for marketing, as an integral part of the value offering for key influencer target markets.

PRINCIPLES OF USER GENERATED CONTENT

User generated content pre-dates the e-innovation movement. As user generated content is only as visible and viable as the reach of the consumer generated distribution channels, it has been less able to capture large shares of the market. That said certain traditional mechanisms have had significant impacts – from the church doors distribution approach in the Reformation period through to hand to hand underground distribution channels for music fanzines in the post-Xerox era. However, as with all physical networks, capacity constraints reduce the impact of the average user generated content product to the users localized social networks or physical geography (Griffiths, 2007).

In discussing the creation of new spaces resulting from the e-innovation, and world flattening technologies, it is important to note that rise of the prosumption movement coincides with the market’s ability to combine consumption, customer co-creation, and the customer-produced user generated content. To that end, the new marketplace

of the e-novation deployment is seen through the consumer's active engagement in the new marketing process whereby the creation, communication, delivery and exchange occurs within and between the marketer, customer, partners and society at large. The AMA (2007) definition respects and recognizes the rising presumption movement by acknowledging the "offerings that have value" flow through a more complex network of interactions than was acknowledge in the predecessor definitions. From this world view, presumption becomes the active involvement of the market (customers/clients) in the activities and processes of creating, communicating, delivering and exchanging offerings which have value through the use of the new e-novation marketspaces and marketplaces.

APPLICATIONS OF USER GENERATED CHANNEL

For the purpose of the chapter, presumption is defined as consumption and production based on user generated co-creation of value which is redistributed to other consumers via user generated marketspaces, or through the access to the distribution networks provided by the electronic marketspaces and marketplaces. The chapter outlines a user generated marketing mix which explores how user generated content uses new technologies to develop marketspaces to create opportunities for C2C and B2C marketing activities. The user generated mix is based on the four process elements of the AMA (2007) definition which form a de facto marketing mix in the form of "create, communicate, deliver and exchange". These four elements are explored in depth; however each must be seen in the context of marketplace-information product dynamic. All forms of user generated content can, and probably do, exist without the intervention of e-distribution channels. However, the user generated content mix discussed below is biased towards the use of

e-deployment as the facilitator for the offerings of value. Without this backbone technological framework, virtual offerings of value could not be created, knowledge of their existence would be limited to traditional word of mouth networks, and, most critically, the market entry barriers would remain higher than the ordinary consumer would be willing to accept simply to share their co-created experience with like minded others. Flattening the world through ease of access to global deployment channels lowers the cost barriers for the consumer, and makes entering the marketplace to share their experiences a valued experience as part of prosuming co-creation behaviour.

Although user generated content is most visibly associated with the advertising and promotion, the strength of the process comes from the user generated distribution networks which use the unique elements of the internet to cluster into communities of like-minded consumers. One of the highest profile user generated networks is Livejournal (www.livejournal.com) which started as a non-commercial network of social diaries between the founding developer Brad Fitzpatrick and his personal social network. As the social network grew through friends of friends, Livejournal used the advantages of e-deployment to create a service based around the duplication and replication of information product (diaries) and the network capacity of the internet to develop a networked community hosting service. Livejournal evolved beyond a user-generated distribution channel into a commercial service provider and now hosts a range of user generated communities and micro channels which are developed around shared interests, fandoms, and more recently, by commercial marketers seeking to engage their consumers in a co-created community atmospheres. Similar co-created social networks can be produced across a diverse range of platforms which provide infrastructure for community hosting, consumer-created groups, and the areas which cluster consumers around key themes, sites or product use experiences.

A second tier of user generated distribution channels occur through the use of the peer to peer networks protocols such as Bittorrent, USENET, (or in the old language Napster and Gnutella). Without regard to the legality of the content being transmitted, the peer to peer protocols create ad-hoc networks between the individual users and frequently depend on the individual members of the network to provide content to be shared across the whole of the community structure. Peer to peer systems also create the unusual dynamic of load sharing within the community whereby the strength of the whole network is dependent on each member contributing bandwidth, costs, energy or content. This is a reversal of the traditional business network whereby the host organization produces the core value offer to be consumed by the members. Blizzard Software's World of Warcraft update systems are delivered through a combination of server-side push delivery (classic download) and peer to peer file transferring which shares the download distribution between players in nearby sections of the internet. The end result is a faster delivery of the mission critical patches and updates to allow the World of Warcraft playing community to reconnect with their virtual world on an equal level.

Peer to peer structures have physical equivalents through concepts such as Open Mesh Wireless Networks which is where wireless internet connections are hosted by a series of users who share infrastructure load, and either contribute by hosting a hub or repeater node to create the mesh network. Devices such as the Meraki (<http://meraki.com/>) allow for private broadband connects to be securely shared as public wireless space insofar as the Meraki owner can't view the traffic over their public wireless point, and the public user can't view the contents of a private LAN using the Meraki wireless signal.

Open Mesh internet access creates a new level of public commons where individual users contribute broadband access to their community to form a wireless shared commons. This form of

community wireless space will become increasingly valuable to the offline and online business sector with widespread diffusion of wireless internet capable handheld devices such as the iPhone able to tap into the public wireless commons. Increasing the coverage of wireless networks through community engagement also increases the rate at which public and private networks will provide the multiple redundancy level saturation coverage necessary for the wireless handheld devices to reach their full e-commerce potential.

THE ONLINE/OFFLINE DISTRIBUTION

In addition to the ad-hoc value distribution networks created by the C2C marketplace, traditional value delivery channels also co-exist with the new delivery mechanisms. The classic top-down implemented networks are examined in the following section.

The "home shipping channel" has emerged through digital product distribution of ideas, experiences and services designed to ship to individual desktops, set tops and handheld devices. Software such as iTunes (www.apple.com/itunes) and Steam (www.steamworks.com) on the computer and the proprietary networks of the Sony, Microsoft and Nintendo console platforms provide retail store level supply lines right into the desktops and living rooms of the consumer. To some extent, downloadable content is now easier to access than the equivalent physical products on DVD or CD. However, network congestion, bandwidth charges and the technical limitation of providing continuous high speed data movement have not eliminated the value of physical shipping as a supplement to online ordering.

Expansion of network capacity, consumer technologies and home ownership of high end computer or gaming platforms have developed the capacity to deliver a second layer of virtual worlds into the homes around the world. This

in turn allows for the development of a second layer of virtual community structure that creates a series of market places and distribution channels independent of the physical location of the consumers.

The internet is the third channel after radio and television that allows for home delivery of services and experiences without reliance on atoms or physical delivery. Radio was the first home shipping channel that brought the experiential product to the customer under a distributed exchange subsidy scheme – consumer received “free” entertainment in exchange for advertising sponsorships, license fees or related indirect payments. The first phase of home shipping channels, products were largely shipped at the discretion of the supplier. Radio station determined playlists were influenced by music sellers’ interests (and the payola scandals). Early developments in television mimicked the radio station model. With limited channel choice, television was a producer’s marketplace. To a lesser extent, the global similarity in television program offerings indicate radio and television’s producer orientated pedigree remains a viable means for product offerings to be distributed at an audience through the media channels (EurodataTV, 2007)..

A second phase of home shipping emerged through the widespread distribution of cable television, and the promise of interactive television including concepts such as movies on demand and 24 hour licences for “Box Office” movies. These offer a restricted demand side structure for consumers to request product from a preset menu of options. That said the current “movie on demand” structure for home television viewers is only a generation or two advanced from the widespread “in-room” movie systems of the average hotel chain. In many respects, the ideals of the home shipping network were equally parodied and predicted by The Jetsons cartoon series where a push button future promised anything and everything could be shipped to the user’s house with varying levels of satisfactory perfor-

mance. The Jetsons creators understood the future would suffer quality control problems equally as frustrating as their present. However, whilst the physical world’s push button era failed to arrive on schedule, an alternative one-touch home shipping network developed with the widespread access to broadband and cable internet.

The third phase of the home shipping channel has emerged through the integration of the PC, internet and a range of household appliances to create viable pull-based market structures. Unlike movie on demand which is based purchasing a time limited “access pass” to one of a limited selection of movies playing on loop, the home shipping options of the current systems allow for digital content delivery to a range of different platforms from such as the home computer, games console for PC, and handheld devices such as the iPad and iPhone. The Valve Corporation (<http://www.valvesoftware.com/>) proprietary digital distribution platform “Steam” (<http://www.steam-powered.com>) will be showcased as an innovative form of e-marketing channel creation which has been expanded for access by any marketer with a video game product.

Steam was initially used as a form of rights management to ensure copies of Half Life 2 were legitimately owned and registered. From this starting point, the software was also used to push updates and patches to the registered users, and progressively, the software has upgraded into a fully fledged virtual games store. Currently, Steam offers several hundred retail video games, and other digital products ranging from demonstration versions, add-ons and expansion packs, through to videos and trailers for forthcoming game releases. Inbuilt community options include the capacity to manage a social network within the Steam software, and access to a range of game play based matching services – server management, player versus player skill matching, and related services. Steam also maintains a set of sports-style achievements, records and statistical data on each player as part of their community profile – the

digital equivalent of a personalised trading card for every Steam player.

Steam still functions as a rights management system. Game ownership is tied to the account login rather than the host machine, allowing Steam users to access the games they own across a range of machines (some downloading required). This form of ownership-right recognition greatly expands the value of Steam, and encourages legitimate game ownership with recognition that the company provides an insurance policy that if the machine is lost, damaged or destroyed, the virtual assets (games) can be recovered from Steam. This form of digital rights management operates in reverse to the usual trend where DRM is used to lock a virtual good to a specific piece of hardware. From a marketer perspective, Steam is one of the quintessential channel mechanisms for e-innovative distribution. Valve has elected to open the marketplace it developed for shipping its own products to any game producer through the SteamPowered program. In addition, Valve shares a large amount of the data gathered by Steam's access to its 15 million gamer user base to partners in the SteamPowered program (www.steampowered.com). The Valve system is based on a collaborative value creation platform whereby increasing the volume of products available through the Valve store improves the value of Steam for the organisation by improving the net value of having Steam software installed on the consumer's computer.

Steam represents a classic distribution channel model whereby efficiencies and competencies created by the Valve Corporation in their own channel are leveraged to provide a wholesale/retail outlet for competitor and partner organizations. Whilst top down in nature, the strength of the channel has been the value provided to the consumer through key decisions such as recognizing product ownership for the user rather than the hardware, and allowing the recovery of lost digital assets through the Steam client. In addition, the social network functionality of connecting players in game, and

community structures provide additional levels of value which encourages loyalty to the Steam platform.

The Steam model is interesting in its acceptance and engagement of the competitor gaming companies as allies for the development of the distribution channel. With a 15 million strong marketplace, Valve has leverage over competitors, yet simultaneously, Valve is dependent on the flagship products from the competitor companies to deliver the value for the customer. In contrast, a range of other organizations have developed mono-product or mono-organization channels to lock competitors out of access to their market. For example, Apple's steadfast refusal to allow non-iPod devices to have recognized access to the iTunes library has limited the channel options for the non-iPod devices. Although device exclusivity has yet to harm Apple, it has made the prospect of an alternative to iTunes an item of significant interest to developer-entrepreneurs.

However, not all mono-channel software devices are based on trade restriction or device protection. Several virtual specialty stores have been developed as part of the software shop front movement. One particularly beneficial application of software shop fronts is where the organization is the provider of a specific physical product range, and can utilize a combination of e-procurement and physical distribution. The Lego Company has released a virtual Lego software package that allows the user to create Lego toys from a range of original component parts. Whilst fan-based versions of the Lego CAD software such as LDraw (www.ldraw.org) predate the official package by many years, the Lego Digital Designer's competitive edge comes from operating as a micro-toy store. At the completion of the design and development of the virtual model, the user can elect to upload the model to the Lego Gallery site, receive a quote for the parts and pieces, and order the custom kit to ship in an official Lego designed box. In essence, Lego have developed the penultimate combination of user-generated content, and just-

in-time inventory management through the use of a sanctioned CAD software package that will create a customized product within the limits of the organization's available asset base. The e-innovation lesson from the Lego Digital Designer is based on combining the inventory management capacity of the virtual value chain with an online shop front where purchase transactions are hosted on the Lego website through standard credit card ordering. Essentially, the Lego Digital Designer is an offline procurement software system refined for customer use both as a shopping cart and as a standalone virtual toy kit. The combination of organizational value (ordering, procurement, customized sales) and equal levels of customer enjoyment (virtual Lego kits) produce a unique point of customer and organization co-creation of value.

FUTURE TRENDS

Three trends have been identified within the chapter - the rise of the user generated channel through peer to peer networks online and mesh wireless offline; development of e-procurement/physical shipping in the form of software storefronts such as the Lego Digital Designer; and, the virtual vending machines of iTunes and Steam. These three forms of distribution are in their infancy, and as such, may result in this chapter providing a historical snapshot of a failed venture into the e-deployment. Alternatively it may provide recognition of the forerunners of more sophisticated co-production and deployment mechanisms.

There are two potential hurdles on the horizon for e-deployment. First, digital rights management has been a major barrier to the ongoing success of a range of home shipping options. The collapse of MSN Music and Yahoo! Music stores with their DRM laden music has resulted in the customers who paid for legitimate copies of digital music products being informed that their products would cease functioning. It's hard to imagine a good

scenario arising from the marketplace realizing that they can only lease digital objects, and that the lease can be revoked because of the failure of the retailer. , The dominant use of DRM systems seems to have been to hinder the use of legitimately purchased products rather than to increase their value to the customer (Valve's insurance, auto-update and recommended added content network stands out as an isolate case of good DRM in a sea of bad decisions by other firms). Customers may perceive lower risks of DRM and rights revocation from physically distributed objects (even if those can be controlled remotely through DRM systems). This perception will reduce the overall effectiveness of the electronic distribution channels. The market should rightly question the value of product that only works in the store where you bought it, and fails to function once you try to take it home.

Second, there are serious concerns regarding the environmental impact of the virtual world. Whilst early discussion of Second Life included romantic notions of virtual worlds replacing face to face meetings, the energy drain of maintaining these environments may create a larger per person carbon footprint than the various forms of travel it was supposed to supplant. Carbon neutral computing is an issue that will experience increased interest as the environmental impact of the virtual marketplace comes under increased scrutiny by businesses seeking to reduce energy costs, and by environmentalists looking to reduce energy consumption overhead. It should be noted that Google's movement towards sustainable energy use is both corporate social responsibility (environmental impact) and corporate survival (financial impact) as energy costs increase. Finally, the contemporary virtual world environments are still inherently primitive in their interface, visual construction and tolerance for nuanced customization. The promise of the immersive virtual marketplaces of people, goods, services and experiences is still well removed from the current reality of limited graphics and lagged communications.

However, there are also several new technological developments that can greatly increase the potential of the e-deployment. Existing systems such as the Meraki wireless sharing platforms allow for plug and play level simplicity for creating mesh networks that can allow small, medium or large businesses to allocate a portion of their bandwidth to the public domain. Shopping centres, cafes and other locations can use these simple platforms for rolling out a wider wireless network which can in turn increase the value of the physical space by augmenting it with a marketplace capacity. Similarly, peer to peer software currently allows networked computers to share bandwidth loads, and distribute content in a more efficient manner than single source downloads. Given the current technology in mobile phones, Blackberries and iPhones, and the theoretical capacity of Bluetooth to provide short distance ad hoc peer to peer networks, it will be a matter of time rather than technological breakthrough before handheld devices were able to start forming mesh networks with each other to share data broadcasts. As the capacity of standard mobile handsets increase to equal or better the iPhone or iPad or other palm-top devices, the potential for physical spaces to be augmented with an e-deployment network is greatly increased. If the market combines the generation of ad hoc network structures with social networking systems such as Facebook, the augmentation of the virtual social network with physical proximity creates an entirely new marketplace for customer, partners and marketers. This is not necessarily a utopian outcome as social, ethical and legal issues surrounding consumer privacy are yet to be fully realized in the current wired and limited networked spaces. Given the gap between the capacity of a network to reveal intimate details of the user's location, habits and activities and the debate over the ethicality of accessing and using this information skews towards the technology, there are many unresolved issues if "Should we?" to be addressed after the market has already demonstrated that "Could we?" is not

longer an issue. The exploration of these issues is beyond the scope of this chapter, and is an area for further research and debate.

Future developments in areas of 3D rapid prototyping can also lead to advances in converting virtual models to physical products. If the rapid prototyper is considered the equivalent of the photocopier rather than the personal printer, then the opportunity exists for Kinkos, Officeworks and other office supply store chains to add a prototype printer alongside the colour photocopier services provided to the public. Whilst not quite the Star Trek replicator in sophistication, rapid prototype machines and 3D printers bridge the gap between the virtual and physical worlds by producing hardcopies of the intangible. Although Lego currently draws on pre-existing stock to assemble their custom kits, potential exists for the customer to design a custom product in a software shop front, and send it to print at local store for collection, or physical mail out to the end user.

CONCLUSION

The internet provides an unusual set of opportunities for marketers with regards to channel creation, channel management and retail outlets. The open nature of the system, including the dominance of non-proprietary open standards, allows more opportunities to create spaces, venues and channels than can be afforded by the offline world. The internet bypasses planning regulations, space restrictions and other physical world considerations that limit physical goods distribution. At the same time, physical limitations such as data transfer speed limits over optical fiber or twisted pair copper creates a new layer of restrictions for the digital environment. The pros and cons of the e-deployment channels are also subject to change as the network technology develops and evolves, and the transfer protocols adapt to fill the space available in the bandwidth. E-deployment presents an unstable

field of marketing technology where promising future developments run into insurmountable obstacles (physics, chemistry, venture capital shortfalls), or where the logistics of the physical world shipping (rising fuel prices) negate the cost-savings of the virtual environment. Currently, the gap between the physical and the real is felt in two opposite directions – shipping costs that exceed the price of the original product by a factor, or download/shipping time costs that exceed the value of the desired experience. Movies on demand which take longer to download than to watch alters the costs of the movie. Pipeline issues such as bandwidth speed, filtering and bandwidth quotas alter the extent to which some of the e-deployment ideas, particularly the Steam style clients, can compete against a physical world store. Physical DVDs which provide the buy-once, own forever access to a movie are still more price competitive than video on demand systems 24 hour leases, or the time limited storage of movies and TV shows on TiVO like devices.

However, as demonstrated by several markets, including the Steam software, digital rights management systems can be used to enhance distribution channels, improve customer trust in the distribution networks, and encourage reliance on the virtual product. As barriers to entry to virtual distribution networks continue to decrease, and customer generated channels arise where likeminded individuals cluster in ready made market segments with self provided distribution channels, the role of the e-marketer in the e-deployment may move back toward the classic AMA (1937) understanding of marketing as the guiding force from producer to market. The only certainty for e-deployment is that the Internet (like radio, television and telephony) has a long period of development before the technology can be considered to have reached stability and maturity.

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