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EMERGING DIGITAL ECOSYSTEM BUSINESS MODELS AT THE CONFLUENCE OF THE IT, TELECOM, AND MEDIA AND ENTERTAINMENT INDUSTRIES

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Digital Ecosystem business models of the past

Though their lines are intermingling today, the three sectors of the Digital Ecosystem—the telecommunications, media and information, and technology (IT) industries—have historically operated within well-established business models that reflected the distinctive competencies that each industry believed to be at its core.

Particularly stable in the past was telecommunications. Its basic business model involved generating a reasonable return on capital-intensive network infrastructure assets that connected businesses and individuals in a highly regulated environment. Rates were largely determined by the costs incurred in transporting the "bits" of voice or data information and were, therefore, linked to measurable concepts of distance and time used. Myriad variations evolved, but the basic metering principle remained unchanged. Even recent "all you can eat" models for broadband data access fall within the model—given the "always-on" environment and recognition that the largest part of the cost of the infrastructure is in the local loop and, hence, largely fixed.

Media business models have been more diverse simply because the designation covers many activities along the value chain—from the production of content (words, images, or audiovisual) down to aggregation and eventual distribution or broadcast. Many companies have operated in a vertically integrated manner, muddling the distinctions further, although each model had been very stable until recently. Players adopted a subscription,

advertising, or transaction (pay per piece of content) business model; some combined the three. Cable operators, for example, focused on the subscription model, while broadcast networks relied on advertising. Film studios employed transaction-based business models, whether by box office or DVD sales. Newspapers and magazines executed a hybrid of all three.

The IT realm (defined as software, hardware, devices, and services) developed its own diverse set of models, many of which had multiple variations. Device sales were the most straightforward. Products were priced at the unit level and sold either through retail or direct routes to market. Mobile devices, particularly in Europe, were the main exception. There, mobile operators subsidized their initial cost as a way to drive customer acquisition and retention. As a result, users paid for the full cost of the device through the monthly telephone bills.

The software side evolved a dominant packaged-software model. This licensing schema generated five revenue streams: license, maintenance, upgrades, professional services, and support. Meantime, professional services was becoming an important stand-alone sector within IT, in the form of system integrators (SIs) and outsourcing firms.

Recent forces of change and their impact

While well known, the massive changes that hit all three industries over the past seven or eight years are worth briefly re-examining. These changes have caused the three industries to begin rethinking their core mission and to question their traditional commercial models. Let's delve into these forces:

- The storage capacity and processing power of computers (both servers and PCs and other devices) has continued to grow exponentially. That has enabled both servers and portable hardware to perform an enormous variety of tasks;

- The cost of devices has plummeted with advances in silicon technology, making them affordable to virtually everyone;

- The miniaturization of components has provided a variety of additional features (such as photo and video capabilities), thus broadening the range of possible applications available on personal devices;

- The development of the Internet and of a new telecommunication network architecture has enabled movement of very large amounts of digital information (much beyond traditional communication and messaging) to every point connected to the network;

- A ubiquitous broadband infrastructure (significantly ahead of most predictions only seven years ago) has been developed, which has enabled virtually everyone in the developed world to be connected both to other users and to a server network with massive processing and storing capacity;

- Mobile networks have become pervasive and have added data capabilities at higher speeds, which has extended the reach of services;

- Finally, all these advances have helped develop simple and well-designed user interfaces to drive more rapid adoption of new technology and business models.

As individuals, we are familiar with how these trends changed our personal and workday lives. Today, most forms of information (business transaction records, videos, personal and professional communication, news, and so on) have crossed over into the digital realm.

That will continue to have profound implications on our social and economic interactions. It is reshaping how we enjoy information, entertainment, and a variety of other applications (songs, not albums; stories, not newspapers; applications, not full-featured software packages); how we work (design teams in Silicon Valley; discrete development teams in Russia, China, and the Philippines; integration in India); and even how we experience community (the people we physically see in our everyday life, or those with whom we share our interests and passions in the virtual/net world).

However, the change has affected not only our lives, but also the way these industries operate and how each thinks of itself in relation to the others. Here are a few fundamental impacts of the trends we described:

- In telecommunication and media distribution, these forces of change have blurred the boundaries between the two industries. Telecommunication companies can now (or in the very near future) "do media" and cable can "do communication." No wonder that each of these two industries is starting to reconsider its business model;

- In content creation, traditional business models based on physical IP protection mechanisms have been disrupted by digitization, forcing content owners to re-think their business models. In parallel, the proliferation of digital distribution platforms has led content owners to consider alternative channels or going directly to the consumer;

- In the device space, the fact that PCs, mobile phones, MP3 players, and gaming consoles are becoming prime "real estate" (due to users spending more and more time in front of them—rather than in

front of billboards or TV sets) has led device makers to consider ways of collecting alternative revenue streams, by becoming more "service" than "hardware" oriented. (Interestingly, mobile operators are thinking along the same lines and have started moving into the device space.);

- In software, the high level of penetration has led software providers to contemplate different ways of developing an ongoing relationship with end users, with industry leaders stepping up their efforts to offer "on-demand" applications. Software developers have also stepped up their involvement in hardware, both in the form of using their influence in promoting their platforms and in the area of full ownership of the device proposition;

- Finally, the digitization of the value chain has created powerful new intermediaries sitting across the boundaries of software, media, and communications. Search-based advertising business models such as Google's have created not just a new form of marketing, but are also reshaping advertising and the entire content-distribution landscape.

Above all, each of the three industries hold that the "grass of growth" may be greener in the neighboring space, and that what matters most is the battle for direct "customer ownership" (a common but unfortunate industry term that does not necessary reflect the ultimate aspiration of the end users).

A period of intense experimentation

There is certainly no shortage of examples illustrating the richness of recent experimentation in new business models in each of the three sectors of the Digital Ecosystem (defined as the telecommunications, media and IT industries). Some examples below illustrate the variety of activities in each sector and how, as a result, the boundaries among the businesses are increasingly blurred.

For example, in telecommunications we have seen a number of recent experiments in developing new revenue streams by charging for unit of content rather than for bandwidth in mobile (witness ring tones, wallpapers, downloads in the case of Vodafone Live!, and Orange Verizon Wireless's V-Cast). Advertising models are being explored as well; examples include Blinkx or Sugar Mama trading mobile voice minutes or text message against ad viewing. Firms are also experimenting with payment services and charging for share of transaction (with DoCoMo's Felica service in Japan being an example). And a number of Telecom operators are developing their IPTV offerings along the lines of a subscription plus pay-per-view model very similar to traditional cable (see BT Vision, AT&T U-verse, Verizon's FiOS).

Traditional cable and satellite companies have at the same time started to bundle communication services into their offering, either through third-party infrastructure (as with Sky's acquisition of EasyNet) or through their own upgraded one (Comcast or other cable companies in the US and Europe).

In addition, some of the recent business models in telecom have involved charging the service providers a percentage of content revenues (see imode or Vodafone Live!). In other cases, at least the possibility of charging content companies or intermediaries (like Google) according to the traffic generated has been raised by DT in Europe and AT&T in the US (see discussions involving industry and policy makers over the last couple of years in the US and Europe).

In the area of content creation and aggregation, the level of experimentation with new business models is similarly very rich—consortia of traditional players have started new online platforms (for example, NBC Universal and Fox with Hulu in the US; BBC, Channel 4 and ITV with Kangaroo in the UK). New ventures with similar offerings have been started as well from scratch in WebTV (see Joost or Babelgum). In music and video, experimentation continues with various flavors of offering with different degrees of DRM protection (see recent agreements between Warner, EMI, Universal, and Amazon on one hand or the deal between Fox, Disney, and iTunes on the other). Not to mention the 2007-2008 Writers Guild of America strike, which has reiterated the need of adapting traditional media models to the digital age.

In the device space, there have been multiple cases of device makers moving rapidly into services' revenue streams (iTunes has been the prime example, but more recently also deals between Apple and operators on the iPhone, which include a revenue-sharing component). Another example is Nokia, which has strengthened its service proposition both with OVI and with the purchase of Navteq and has even reorganized along services and hardware lines. Qualcomm's efforts with Brew have also a very similar flavor of entering the services space.

In software, Microsoft has been very active on multiple fronts, investing, for example, in Windows Mobile and promoting device offerings in addition to the traditional ones available through traditional mobile device makers, not to mention its activities in gaming consoles with the Xbox and the Multimedia IPTV platform development for operators.

Among the new intermediaries, Google moved into new territory with its recent entry into the mobile software platform space with Android on the back of an opportunity to unleash greater variety of applications on mobile devices by driving a set of alliance members around it. And, of course, Google is even considering a bid for spectrum in the US auction.

The software space is in the throes of a major transformation as well, with the packaged software model under pressure from Software-as-a-Service (a subscription-based business model), "Web services," and "mash-ups"; in addition, they will likely soon have to wrestle with the impact of virtualization as well.

The list could go on.

Issues generated by recent evolution of business models

Consumers, businesses, and the society at large have largely benefited and will continue to benefit from the innovation that the Digital Ecosystem has generated and will generate—think about the increases in labor productivity, the availability of lower-cost channels, greater geographic reach for companies and individuals, the ability to source talent globally, the benefits of mass collaboration among individuals online, greater consumer choice, and enhanced and instantaneous access to knowledge.

The Digital Ecosystem participants have benefited, too, and can continue to do so. However, in our view, it is legitimate to question whether the current trends of deploying new business models aimed at entering new competences in neighboring industries within the Digital Ecosystem will have an unambiguously positive impact on the ecosystem's health.

One possible scenario is that what appears currently to be a collision among these industries will result in a zero-sum—or even negative—game across IT, media, and telecommunications due to each competitor aiming at maximizing its share of the pie rather than the size of the pie itself. There are many examples of trends that could lead to this outcome, but let's pick two examples illustrating the point:

- As telecommunications companies aggressively enter the media domain, and cable and satellite companies bundle communications services in their offerings, it is possible that the outcome would be simply a reduction of the overall pie;

- As traditional forms of IP protection become vulnerable in the online world, IT players without existing vested interest in content copyright may be tempted to ride this trend to their temporary advantage. The possible result: a reduction of the overall "content value pie," which ultimately feeds all these industries.

There are also other reasons why the proliferation of business models replicating neighboring-industry ones could reduce the overall pie:

- The plethora of business models could end up acting as a barrier to more widespread adoption of newer services, because companies are spreading their resources and attention too thinly across a broad set of initiatives and the resulting fragmentation could generate more complexity than add value for the consumers,

- That many potential partners are also increasingly potential competitors may make companies more inclined to do everything internally, rather than to think

more dispassionately about where they should partner or outsource certain activities, which could make collaborative "grow the pie" solutions less likely.

These zero-sum game, or "shrinking of the pie" scenarios, are not at all inevitable. We are clearly still at the dawn of the digital revolution and there is still enormous upside to come. There are positive scenarios in which the industries can share in the welfare created for consumers, businesses, and society at large.

Some of the themes that the Digital Ecosystem players will need to address to achieve the win-win scenarios are explored below.

Developing a Digital Ecosystem "agenda" for the future

The Digital Ecosystem participants have an opportunity to shift the scenarios away from a purely zero-sum game and toward a win-win. This requires that they develop a shared vision on some of the key issues that need tackling in order to grow the pie while continuing to positively change the way we all work and communicate. It also requires looking at issues both inside and outside the Digital Ecosystem. Here is a list—by no means exhaustive—of areas in which the ecosystem participants could engage.

- **Social issues.** Ecosystem players could spend more effort in identifying the next areas of welfare creation that can be targeted in all sectors of the economy, thus generating additional value for the industry to share in. Sectors such as healthcare, logistics, transportation, financial services, education, and retail are all likely to present significant opportunities to leading companies within the digital ecosystem in the coming years. Indeed, shifting focus away from competing with-

in their existing boundaries to solving pressing social and business problems in these sectors may afford participants in the TC, ME and IT industries opportunities to collaborate and grow their collective and individual profit pools.

- **Intellectual Property.** Today, an accepted set of rules governs the protection of intellectual property in the physical world. This is indeed considered one of the foundations of the rule of law in a free society, whether it covers innovation and patents for new products (e.g., software, engineering, pharma) or for information and entertainment services (books, music, works of art, movies). The Digital Ecosystem participants have an opportunity to work together towards drawing the new rulebook of frameworks which is compatible both with the spirit of IP protection and with the digitization of content;

- **Infrastructure.** A large infrastructure still needs to be put in place and upgraded for the economy and the community—servers, routers, fibre to the curb or to the home, new generation networks—to derive the benefits of the Digital Ecosystem. The investment case may often be uncertain at least in the short–medium term and, in some geographies, current business models may never allow the costs to be fully recovered. This deserves the full attention of the ecosystem participants so that they can work out creative solutions. These may involve making "grand bargains" with regulators and policy makers or some form of private public partnership to unleash the full potential of the ubiquity of the infrastructure;

- **Standardization.** The creation of standardized environments in a variety of industries has historically accelerated revenue growth and adoption, irrespective of whether standards have been proprietary, or open and industry driven. Some examples of success stories are the GSM standard particularly in Europe or the global standardization around the DVD format, not to mention HTML, USB and other efforts. Alternatively, some less successful stories, like the low take-up of mobile content have been driven at least in part by the significant fragmentation in standards, which has created a very costly environment for developers. The ecosystem participants have an opportunity to jointly identify what are the next barriers to growth caused by lack of universal standards and decide what they can do to remove these barriers.

These are examples of issues that the ecosystem can only resolve with some form of cooperation across the industries. Ecosystem leaders will be companies with both vision and influence that—while accepting they will continue to compete for their fair share of the pie—will be able to align the system around them toward some common and mutually beneficial goals.

The World Economic Forum can help further the evolution of the Digital Ecosystem by encouraging industry participants to develop a shared view of where collaboration among actors could benefit all, and where continued aggressive competition is better suited to driving innovation and differentiation.

For more information, please visit www.bain.com

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