



**Exploring the Communications
Economics of Electronic Communities**

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Summary

This brief will explore the economic drivers behind Internet-oriented electronic communities as forums of communication and business activity. An electronic community is one in which people communicate via email, newsgroups or websites. For the purposes of this brief, we will assume that the community assembles people from disparate organizations, since it is that application that is often of the highest interest to Internet-enabled e-business strategies. In addition, this brief will focus its analysis of communications' value to electronic communities through two chief characteristics, digitization and asynchronicity. Prior to the analysis, it will briefly define and discuss electronic communities and why they are of such high interest to Internet-enabled e-business.

What Is the Nature of Electronic Communities?

What are electronic communities, what do they do and why do they communicate electronically? Although electronic communities can develop on proprietary systems within enterprises, in this brief we are concerned with open communities that are enabled by the Internet. The Internet provides an unprecedented level electronic connectivity at a very low cost of entry. It is a virtual meeting place for almost any group of people who want to assemble to discuss or work through anything.

The economics of communities are very compelling. Using asynchronous digital communications, people from all over the world can hold a coherent conversation at a very low cost to themselves, taking into account real costs and opportunity costs. The greater the number and diversity of people involved in the community, the more compelling the economics become. Consider that a meeting of five engineers from different companies who are geographically dispersed will cost thousands of dollars in travel and lodging (real) costs. The meeting will also be high in opportunity cost because it will demand significant additional time to travel, and it will remove the engineers from their other business activities, delaying decisions and productivity. An electronic meeting or discussion group could, depending on the subject, enable them to discuss the same issues with much the same result. Even better, their electronic communication can continue indefinitely at no additional real cost.

Now consider a group of 20 people who may hail from suppliers, manufacturers, customers and professional services consultants gathering to discuss a new supply chain strategy. The ongoing savings of the electronic communications can be extraordinary; these communications can connect people that are geographically and temporally dispersed on a continuous basis to conduct very specific business-related activities.

The savings can be extraordinary; electronic communications can connect people who are dispersed in space and time on a continuous basis to conduct very specific business-related activities.

Major characteristics and economic drivers behind electronic communities

- Scalability: electronic communications carry infinite reusability, extensibility, rapidity and multiplicity (for definitions of terms, see Notes, pp. 6).
- Spontaneity and sharing: information is on demand for all participants and can be shared in original form almost instantly with one person or hundreds.
- Non-invasive: when compared to the telephone and face to face meetings, electronic communications are non-invasive; that is, one participates at one’s convenience. The former are invasive, especially when groups are involved, because they demand one’s attention with immediacy due to their synchronous nature.
- Specificity: electronic communities make extensive use of written communication, which enables extended, spontaneous sharing with virtually no degradation of communication (contrast with analog communication, which must be re-communicated by someone in order to be extended and shared, at the high cost of degradation).
- Asynchronous, combined with real-time: this is a powerful combination. Participants can provide low-cost, real-time feedback, continuously.

Digitization

The concept of digitization is not new, but it is at the heart of electronic communities. Of course, the modern business enterprise links its workers via electronic communications, and the latter have in large measure made it possible for global enterprises to thrive. Business decisions are made using factual data as inputs, and the digitization of communication supports this. Of course, once communications are digitized, they can be reused at will later, which is in contrast to analog communications such as human meetings, telephone conversations and voice mail messages. Voice mail systems have a limited ability to reuse and extend communication but such reuse is labor intensive and limited to within the enterprise.

Asynchronicity

The less understood characteristic of electronic communications is asynchronicity. This characteristic creates the ability to remove geographic and temporal constraints from communication, which is of high interest to widespread communities, be they inside or outside of global enterprises. Each party to the communication joins in at the time and place that is most convenient. Global communities are almost completely dependent on this aspect of electronic communications.

Electronic Communications Analysis

Procedural notes

This brief compares five methods of communication with each other by using characteristics that are of general interest to Internet-based e-business. These are shown in Table One.

Table One—Modes of Communication: Basic Characteristics

Face to face	→	Postal mail	→	Telephone	→	Voice mail	→	Electronic
Analog		Analog		Analog		Analog		Digital
Synchronous		Asynchronous		Synchronous		Asynchronous		Asynchronous

The less understood characteristic of electronic communications is asynchronicity, which removes geographic and temporal constraints from communication.

To make the comparison most useful, the Table Two's uppermost rows focus on the relative costs of each type of communication, while the lower rows show the relative benefits. Implicit in the cost discussion is an opportunity cost concept; in other words, how costly is the type of communication in terms of taking one's availability from other activities? For example, if one is geographically constrained to a communication (for example, a face to face meeting), one is prevented temporally and geographically from participating in other activities that also have temporal or geographical constraints. Finally, the color scheme works like this: green cells carry the highest value for a benefit category or the lowest value for a cost category while magenta cells carry the highest value for a cost category or lowest value for a benefit category. Therefore, the communications medium with the most green cells and fewest magenta is, all else equal, most beneficial to Internet-enabled electronic communities.

Email/newsgroups

Electronic communication (email and newsgroups) earned the highest score by far and is the most beneficial communications medium for communities. It has the lowest cost, as described above, because all parties communicate when the communication cost is lowest, and the medium supports this "asynchronous" element. It is also tied for the highest in rapidity with voice mail. Since it is digital, it carries high multiplicity, extensibility, reusability and detail specificity, factors that are all valuable to widespread electronic communities. Its main weak point is in human specificity because each party's spontaneous emotional communication is largely absent; in fact, it is only present if a person deliberately includes it, and much emotional communication is nonverbal. Another minor point about email is the constraint that it imposes regarding equipment. Depending on one's other geographical and temporal constraints, it may be difficult to use a computer for email, while making a telephone call is easily accomplished from almost anywhere.

Voicemail

Voice mail is a useful means of communication due to its complete removal of temporal and geographical constraints as well as its low equipment costs, when compared to email. That said, it loses out due to its analog nature and the fact that it is a proprietary system; therefore, its forwarding, reuse and extending features are limited to use within the enterprise.

Telephone

Telephone communication simulates face to face meetings. It relies on oral communications, which are analog, and carries the benefit of removing the geographical constraint. All parties can join the conversation irrespective of geography as long as a reliable telephone is available. Telephone communication, in line with its face to face cousin, carries the second highest value for human specificity, the emotional content of communication. Voice mail, although it takes place on the telephone, relinquishes human specificity because it is not interactive real-time, as is the telephone. That said, the telephone has major drawbacks: it is very analog, and it carries the temporal constraint: especially when several people are involved, that is a very high cost.



Electronic communication earned the highest score as a medium for communities; it carries high multiplicity, extensibility, reusability and detail specificity, all which drive knowledge sharing.

For the purposes of this brief, I have included videoconferencing within the telephone category. There are important differences, which balance themselves out, more or less. Of course, videoconferencing seeks to provide better human specificity by providing visual and auditory representation of each party. Also, several people may participate simultaneously. That said, the medium has drawbacks that curtail its benefits for electronic communities: its audio-visual interface is very cludgy, and equipment costs are very high.

Face to face

This means of communication is precious: it carries the highest costs, and it is analog, which gives it very low scores in all digital categories. However, it uniquely carries the highest score in human specificity. This characteristic merits serious consideration regarding electronic communities: depending on their proposed constituents, a community may in fact not form in the absence of face to face communication.

Snailmail and fax

Our first asynchronous means of communication merits consideration, although it is surely an anachronism while on the subject of electronic communities. It does enable communication irrespective of time or place, or does it? No, it does not truly enable asynchronicity because the receiver must be at one specific place to receive the communication. This is also why “snails with jet skis,” faxing, is not more valuable as a communications medium. It is constrained geographically (one must be in a geographical location to receive), and its analog character and technology degrades the communication each time that it is resent. Reflecting on this shows once again how powerful email is: one’s address, at which one receives messages, is accessible from anywhere, so it truly removes the geographical constraint. Moreover, its digital nature enables infinite reuse. In 1999, faxing is rapidly converging with email, which makes it far more valuable: numerous websites offer fax programs in which anyone can fax to a web server and the recipient can download the fax from anywhere, as with email.



Electronic communities provide a unique selling proposition to people dispersed in time and space and will be a major vehicle for the development of e-business and knowledge management.

Table Two—Modes of Communication: Detailed Characteristics and Economic Drivers

	Face to Face	Telephone	Voice Mail	Electronic ¹	Postal Mail
	Synchronous		Asynchronous		
Cost Factors	Geog. and time synchronization	Time synchronization	No geog./time synchronization	No geog./time synchronization	Some geog/time synchronization ²
	Geographical synchronization drives high opportunity cost	Geographical synchronization drives low opportunity cost	Geographical synchronization drives low opportunity cost	Geographical synchronization drives low opportunity cost	Geographical synchronization drives moderate opportunity cost
	Time synchronization drives high opportunity cost	Time synchronization drives high opportunity cost	Time synchronization drives low opportunity cost	Time synchronization drives low opportunity cost	Time synchronization drives moderate opportunity cost
	Equipment required drives low opportunity cost	Equipment required drives low opportunity cost	Equipment required drives low opportunity cost	Equipment required drives moderate opportunity cost	Equipment required drives low opportunity cost
Benefit Factors	Multiplicity³ low, cost increases with number of people	Multiplicity³ low, cost increases with number of people	Multiplicity³ moderate, but cost increases with number of people	Multiplicity³ highest, no extra cost with higher number of people	Multiplicity³ high, little extra cost with increased number of people
	Rapidity variable, highly dependent on ability to synchronize geog. and time	Rapidity variable, dependent on ability to synchronize time	Rapidity highest irrespective of geography or time	Rapidity highest irrespective of geography or time	Rapidity lowest
	Detail specificity⁴ moderate, due to oral interactive comm. with visual cues	Detail specificity⁴ low, due to oral comm. without visual cues	Detail specificity⁴ lowest, due to oral comm. without lack of visual and auditory cues	Detail specificity⁴ high, due to written comm.	Detail specificity⁴ high, due to written comm.
	Reusability⁵ low due to lack of data capture and transmittability	Reusability⁵ low due to lack of data capture and transmittability	Reusability⁵ moderate due to some data capture and transmittability	Reusability⁵ highest due to data capture and transmittability	Reusability⁵ high due to data capture and transmittability
	Extendability⁶ low due to lack of data capture and transmittability	Extendability⁶ low due to lack of data capture and transmittability	Extendability⁶ moderate due to some data capture and transmittability	Extendability⁶ highest due to data capture and transmittability	Extendability⁶ high due to data capture and transmittability
	Human specificity⁷ highest, due to rich cues	Human specificity⁷ moderate, due to auditory cues	Human specificity⁷ low, due to auditory cues	Human specificity⁷ low, due to visual cues	Human specificity⁷ low, due to visual cues

It is no surprise that electronic communications define communities, for they enable a high quality of persistent communication at low real and opportunity costs.

Notes:

- ¹Electronic is defined as email and newsgroups.
- ²Dependent on receiver to be at postal address.
- ³Multiplicity refers to the ability to communicate with many people simultaneously.
- ⁴Detail specificity is defined as the ability to communicate specific factual or numerical data.
- ⁵Reusability is defined as the ability to reuse the information in another place or in another time. A benefit of digitization.
- ⁶Extensibility is defined as the ability to extend the communication to others later. When digitized, a communication can be extended to others at face value, without being communicated through a third party (and therefore distorted).
- ⁷Human specificity is defined as the ability to communicate specific human and emotional information. In communication, vision dominates for most humans, followed by auditory and kinesthetic senses
- ⁸Fax is usually not used for communication per se, but rather as a means of transmitting paper documents electronically.
- ⁹Videoconferencing treated as telephone. Slightly stronger due to some visual cues but weaker due to high equipment cost.
- ¹⁰Rankings are: "highest," "high," "moderate," "low," and "lowest."

Conclusion

Electronic communities provide a unique selling proposition to people who are dispersed geographically and temporally and who need to discuss complex business problems. They enable highly specific communication among people, along with virtually limitless extensibility, reusability and multiplicity of focused information. Moreover, there are few set-up costs or barriers to entry for participants. For these reasons, I conclude that they will be a major vehicle for the development of e-business and knowledge management. It is no surprise that electronic communications, in fact, define the communities, for they enable a high quality of persistent communication at low real and opportunity costs.

Table Three—Modes of Communication: Relative Values to Electronic Communities

Cost of Communication	Low	Postal Mail	Highest Value Electronic
		Fax Voicemail	
	High	Lowest Value	Telephone Video-conference Face to Face
		Low	High
		Utility of Communication	

Contact
information

For More Information

Should you have questions about any of these topics or if you are interested to learn more about how we apply these concepts and principles to client engagements, I invite your inquiry as follows:

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