A COMPARISON OF THE FOUR MEDIA OF INTERNATIONAL BROADCASTING

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Since the 1920s, the primary medium of international broadcasting has been shortwave radio. What is shortwave? Well, on your typical AM-FM radio, tune on AM to the right, past 1000 kilohertz, past 1300 kilohertz, past 1600 kilohertz, and finally the knob will stop. But don't stop. Keep turning that dial to the right, until you break the tuning mechanism. What you hear will be shortwave.

Shortwave is the range of frequencies between 3,000 and 30,000 kilohertz, or 3 to 30 megahertz on some radio dials. On the radio spectrum, that's above the AM or medium wave band, at 540 to 1700 kilohertz, and below the FM band, at 88 to 108 megahertz. Within shortwave, certain segments are allocated to broadcasting.

The past twelve months provided evidence of the decline of shortwave as a medium of international broadcasting. The biggest blow was the decision by BBC World Service to drop shortwave to the United States, Canada, Australia, and New Zealand. Swiss Radio International's phase-out of shortwave continues apace; SRI will drop shortwave altogether by 2004 in favor of their Website swissinfo.org. Israel announced its decision to quit using shortwave for international broadcasting, except in Israel's national languages. That decision has been delayed for three months because of complaints from the Jewish diaspora.

Shortwave receiver manufacturers are less active than they used to be. Lowe, a British manufacturer of very good high-end shortwave receivers, has gone out of business. R.L. Drake, a U.S. manufacturer, is down to one high-end shortwave receiver and is concentrating on other electronic products. The only three companies making good-quality portable shortwave radios are Sony, the Taiwan-based company Sangean, which makes its radios in mainland China, and the U.S. company Lextronix, which sells Chinese-built radios with the Grundig nameplate.

So in the midst of what seems to be a decline of shortwave as a medium of international broadcasting, let's look at the alternatives. Then we can consider what might be left for shortwave.

Rebroadcasting

Rebroadcasting is international broadcasting accomplished by placing content on domestic radio or television stations in the target country. Rebroadcasting dates back to before World War II, when Germany and Italy sent programs on transcription disks to radio stations in the Americas. Now programming is nowadays usually delivered to rebroadcasting stations by satellite.

For international radio broadcasting, there is probably nothing better than an FM outlet in key cities, especially the capital city, of the target country. If listeners have a choice of hearing your programs via a clear local FM signal, or even a clear local medium wave signal, versus a distant, problematic shortwave signal, the choice is obvious.

On the negative side, the host FM station in the target country might not be willing to take all the program an international broadcaster transmits via shortwave, or to broadcast it at the convenient times it may be available on shortwave. And it would take many FM transmitters to reach the territory that a single shortwave transmitter four thousand kilometers away can cover. This is probably why the BBC World Service goal for FM rebroadcasting is expressed in terms of the number of national capital cities served. Indeed, BBC might achieve more listeners by way of an FM transmitter in the capital city than by the shortwave receiveable throughout the country. And there is some logic to the capital-cities FM approach, because that is where the influential elites tend to live. As rebroadcasting replaces shortwave in some target countries, people outside of major cities may find themselves without external sources of news and entertainment.

Perhaps even better than an FM outlet in the target country is access to television. In more and more countries, the preferred medium for news is domestic television. International broadcasters might consider replacing the expense, effort, and talent they now put into

producing a half-hour radio program in the target country's language, to producing two four-minute television reports in that language. If those reports can be placed on a television newscast with a larger audience, even if only once or twice a week, that may be as effective as an international broadcaster can hope to be. As for the reports that do not get placed, they can be available as streamed video on the international broadcaster's Web site, to be viewed by the much smaller audiences that make the effort to view them.

If a target country is open enough to allow FM or television rebroadcasting, then it will also likely permit foreign governments to place advertisements in its influential newspapers. If a government has a point it wishes to get across to the people of the target country, especially to elites, who are the most influential citizens of a target country, a concisely-written, well-designed newspaper ad might be the best way to do this. Such ads appear occasionally in the New York Times or Washington Post. This is the purview of what is known as "public diplomacy" rather than the news-centered activity of international broadcasting.

The most evident downside of rebroadcasting is that closed societies, i.e. the ones most in need of the comprehensive and objective news provided by international broadcasting, tend not to permit foreign broadcasts to be relayed via their domestic stations. And in many countries that do allow rebroadcasting, the plug is pulled when a government decides to crack down on dissent, or during a coup or insurrection, i.e. when international broadcasting is most needed. Rebroadcasting is analogous to an aggressive-growth mutual fund: it provides the largest return, but with a great deal of volatility.

The Internet

Back in the 1960s or 1970s, if one lived in Australia and wanted to get the news from, say, Romania, even if it was government-controlled news, the most suitable medium was shortwave. The signal could be difficult to hear in Australia, but at least it was in English and audible on equipment available to average consumers.

Now for a person in Australia to get news in English from Romania, the World Wide Web is the most convenient medium. One could go to the Web site of Radio Romania International (www.rri.ro) and get the news by waiting for the English broadcast to be heard on the live audio stream. But why bother? It is also possible to go to sites such as mediafax.ro or nineoclock.ro and get news and information about Romania, on demand, in English, as text.

If international broadcasting migrates from shortwave to the Internet, there will likely also be a migration from audio to text. People will prefer to read news than to listen to it, because they can do so much more quickly. With text, the consumer also has more control over what to skim, and what to read, and reread.

The reason that international broadcasting is still mostly audio is that from the 1930s through the 1980s, radio was the only mass medium that could travel long distances and over national boundaries. Books, magazines, and newspapers could be stopped at borders. Television was limited to short range transmission. Now, with satellites and the Internet, text and video, as well as audio, can be sent over long distances and across national boundaries. In terms of efficiency, of bandwidth and of consumption, text with perhaps a few pictures, will be the preferred form of communication.

The Internet may soon become the best medium for most countries to disseminate news and information to audiences in most other countries. To be sure, many people in many countries cannot presently afford personal computers, and do not have connections to the Internet even if they could afford PCs, but this situation seems to be changing rapidly.

The Internet will not work for some target countries, however, because the World Wide Web is interdictable. An entire industry is devoted to manufacturing software that blocks Web sites. Parents use this software to keep their children from accessing certain content. Some dictatorships – where international broadcasts are needed the most -- require internet service providers within their borders to use similar software to keep everybody from accessing certain content.

And, so, the Web sites of VOA, BBC, Radio Free Asia, and other Western news sources are not available in China. I often hear of proxy Web sites, which Chinese Internet users supposedly can visit to get access to forbidden Web sites. But this is not the panacea it is portrayed to be. Chinese listeners to my VOA program, Communications World, in China, most of them technically adept, report that they cannot access VOA or other blocked international broadcasting Web sites.

Some Internet experts are looking for ways to get blocked Web content through to users. Safeweb.com's Triangle Boy software attempts to do this. But at least one other company (8e6 Technologies; www.xstop.com) developed software to undo the unblocking accomplished by Triangle Boy. Another Web site, peacefire.com, is devoted to the art on unblocking Web sites, though the site is actually directed to young people trying to confound Web filters installed by their parents, not to people in China or Saudi Arabia seeking uncensored news.

E-mail is more difficult to block than Web sites. It's also a simple, efficient, low-bandwidth method to disseminate news, even to the least powerful of personal computers, or to PDA's. Government of target countries might try anti-spamming techniques to block this information, while international broadcasters can use the methods that spammers use to overcome anti-spamming efforts.

Students of international broadcasting should keep an eye on this technological tug of war between those who wish to block and those who wish to unblock Web sites. Just as the anchovy harvest off the coast of Peru affects the price of soybeans grown in the Midwest, the development of Internet blocking and unblocking industries affects the future of shortwave.

Satellite

For international radio, Worldspace, the Washington based satellite radio company now serving Africa and Asia, is an interesting new player. I was surprised at the number of Communications World listeners who own Worldspace receivers: in Western Europe, India, and to some extent in Africa. With any new technology, the pump must be primed

by early adopters, and this seems to be happening with Worldspace. These users are impressed with the audio quality of Worldspace, especially compared to shortwave, but most wish for a channel lineup more to their liking.

Whether Worldspace actually achieves enough subscribers to become profitable is still a very open question. If Worldspace does not succeed commercially, friendly international broadcasters might want to form a consortium to keep it going.

International broadcasters should also be aware of regional direct-to-home television satellites, not just for their television capabilities, but because they are also good conduits for radio, or even for “pushed” text. I heard from a growing number of Communications World listeners who have digital satellite television receivers, and if they could figure out the proper settings, they could receive VOA with a perfect signal. These receivers are not portable or usable in cars, but the audience for international broadcasting is often sufficiently motivated that an in-home digital satellite receiver is a satisfactory device.

On the negative side, satellite broadcasting, like the Internet and rebroadcasting, is interdictable. Satellites are susceptible to jamming. This can be accomplished by just a few watts transmitted on the uplink frequency. In recent years, Kurdish and Farsi language television channels on Eutelsat have been subject to interference of dubious parentage. Satellite broadcasting technology might advance to make jamming more difficult.

At the receiving end, satellite dishes are conspicuous. In some countrie, satellite receivers and dishes are banned. In recent years, China and Iran, among other countries, have staged crackdowns on the ownership, sale, and transport of satellite receiving equipment. Even in countries where reception of some satellites is allowed, the position of the dish readily shows authorities that it is pointed to a satellite not authorized for reception.

A more common method of denying access to satellite broadcasts is to apply politico-commercial pressure on the company owning the satellite. This happened in 1994, in the famous case of BBC losing its channel on Star TV, via Asiasat, into China. Rupert Murdoch, owner of Star-TV,

wanted to achieve commercial deals in China, and the removal of BBC was the quid pro quo. BBC was also forced to scrap its Arabic-language television service in 1996 when its Saudi-owned partner, Orbit, objected to the channel's coverage of Saudi domestic affairs. Satellite broadcasting has not made a promising beginning as a conduit of unfettered news into denied areas.

Since September 11th, the Qatar-based Arabic-language television news channel Al Jazeeera has received much attention in the U.S. media. Some in the Middle East receive it through their own satellite dishes, other via cable systems. To be sure, there must be a great deal of "Al Jazeera envy" among Western broadcasting organizations. Nevertheless, BBC and CNN, the two best-known international television news services, have not announced any plans to launch Arabic-language television channels. To succeed, such a service must obtain access to the satellites to which dishes in the region are pointed.

Shortwave

And so with all these new technologies available to international broadcasting, where does this leave shortwave?

The key advantage retained by shortwave is that, of the media available to international broadcasting, only shortwave is afforded by the laws of physics some immunity from interdiction. In 2002, China and Cuba are vigorously jamming foreign shortwave broadcasts, and some other countries do so to a lesser extent. In China, despite jamming, VOA broadcasts in Mandarin and Tibetan usually can be heard on at least one frequency. This is because shortwave signals from afar often deliver a stronger signal than those from nearer transmitters. This immunity works especially well at dawn and dusk.

Even to countries that do not attempt jamming, shortwave gets through if other media are not available. In countries where rebroadcasting is not allowed, where most people do not have access to personal computers, Internet connections, or where medium wave relays across the border are not available. In Afghanistan, during the rule of the Taliban, shortwave was the only way to receive independent news about that rest of the world. The two

opposition radio stations now serving Zimbabwe, Voice of the People and SW (for “shortwave”) Radio Africa, use shortwave from transmitters in other countries, because there is no alternative. Columnist Robert Novak recently reported that the head of the U.S. interests section in Havana has been distributing low cost shortwave radios. This may because Radio Martí medium wave and TV Martí television broadcasts are easier to jam than Radio Martí via shortwave, and satellite receivers and the Internet are generally not available. (*Wired News* reported that Cuba recently instituted a ban on the sale of personal computers.)

Shortwave may no longer be optimal for some target countries. For example, Estonia can be covered by about a half dozen FM transmitters, whereas most of the energy from a shortwave transmission into Estonia would land outside that country. On the other hand, shortwave is still a very good medium for reaching the English-speaking audience for international broadcasting. Speakers of English as a first or second language are spread throughout the world. Among the anglophone audience for international radio would be expatriates and travelers from the United States, Britain, Canada, Australia, and New Zealand, many of them beyond the reach of CNN or an Internet connection. Many English speaking persons can afford the good-quality portable shortwave radios which have greatly improved the reliability and ease of shortwave reception.

The global English shortwave audience was most thoroughly served by BBC World Service. The “world service” concept is to transmit in English for as many hours as possible, on as many frequencies as possible, to as many target areas as possible. Because shortwave signals are often heard outside their nominal target areas, it was, until recently, possible to hear BBC World Service in English anywhere in the world at any time of the day. The BBC’s ability to provide English, by shortwave, to all parts of the world has been confounded by two developments. First, the replacement of its single “world service” by regional streams in English meant that listeners would have to keep track of which stream is on which frequency, and that, during their morning, they would often hear BBC say “good evening,” and vice versa. Second, the elimination, in July 2001, of BBC World Service English frequencies to the United States, Canada, Australia, and New Zealand,

reduced the likelihood of hearing World Service via shortwave anywhere in the world at any time during the day.

Shortwave might receive a boost from Digital Radio Mondial, or DRM, a digital transmission system that would replace the present analogue shortwave broadcasting. DRM promises to eliminate many of the key problems of shortwave reception, including weak signal, fading, and interference. Final testing and early adoption of DRM might be hastened by allowing hobbyist shortwave listeners to act as beta testers. Manufacturers of shortwave receivers, including portable receivers, should begin adding intermediate-frequency (IF) outputs, which can be connected to personal computers. Decoding DRM transmissions could then be accomplished by software, requiring no further hardware other than a sound card. That software could be upgraded as the beta testing progresses.

One disturbing trend in the use of shortwave in international broadcasting is the decreasing availability of radios with shortwave bands in many target countries. Until about ten years ago, radios including at least one shortwave band were common, even in the Soviet Union, because shortwave was used extensively for domestic broadcasting. Now, in many developing and former communist countries, shortwave is used less and less for domestic broadcasting, and FM more and more. Whereas a typical radio in the developing previously had a medium wave and shortwave band, now it is likely to have a medium wave and FM band. Some popular low-cost radios have FM only.

And, so, with rebroadcasting, the Internet, and satellite prohibited, blocked, or controlled, and shortwave radios less available, many countries are poised to accomplish what Stalin could only dream of: the complete interdiction of information from external sources.

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