Communications & Information Gathering during the coming Uncertainty

Introduction

I have widened the scope of this document to include both *communications* ("The exchange of thoughts, messages, or information, as by speech, signals, writing, or behaviour") and the gathering of *information* (where material is simply being acquired by one party rather than exchanged and discussed between two or more). Think perhaps video conferencing vs. watching a documentary.

I am assuming here that we are considering these topics primarily for two reasons:

a) Coping with the possibility of a grid-down situation in which many popular services may no longer be available.
b) Eluding the spying eyes of an increasingly authoritarian government.

Disclaimer

I am in no way an expert or even a hobbyist with regard to the topics which follow. I am writing from a limited degree of experience – not expertise. This list, compiled on 3 June 2022, remains a work in progress.

Anon.

Face-to-face

Pros

- **Back to basics.** Does not rely on any sophisticated technology or power source.
- **Fairly secure.** For the super paranoid, to reduce the likelihood of being overheard, conversations might be conducted outdoors in a relatively noisy, but secluded, environment.

Cons

- **Distance**. We may not have the luxury of living close to the person we wish to contact. Travel in a more dystopian society may a) be restricted and/or b) even be dangerous.
- **Surveillance**. Especially if we are meeting with a group of people, our movements may be observed and even reported by neighbours.

Cellphones

My comments here are based solely on Android. Unfortunately, due to solvency issues (I'm usually not) I have no experience with iPhones.

Pros

- **Quick & easy**. As most of us carry our phones wherever we go, it is generally easy to quickly reach people.
- **Apps**. A wide variety of free, advertiser-supported, apps are available.
- **Portable**. Convenient to carry.

Cons

- **Cell tower outages.** As happened during the prolonged flooding in Whangarei in 2007 (I was there), once backup batteries in cell towers are exhausted during a blackout, cellular communication basically ceases to exist. I am vaguely aware of the alternative possibilities of local mesh networking but, due to the probability that few people will realistically be able to implement one in a grid-down situation, am not delving into the subject here. For those interested, information can be found on this website.
- **Batteries**. Cellphone batteries need to be regularly recharged. A compact inexpensive power-pack, or even just a cigarette lighter adapter for your vehicle, may easily overcome this drawback.
- **Device breakdown**. As with any device, there is always the possibility of a phone being dropped or the battery dying (batteries in many modern phones are glued in and not intended to be easily replaced).
- **Security** is often a big issue. Cellphones can fall victim to malicious software. Passwords may be intercepted, especially when using public networks. Many of the larger anti-virus companies, such as Avast, AVG & Kaspersky offer free security apps for phones. Loss or theft of a phone and all your data (secure or otherwise) can be a major inconvenience. Regular backups and good password protections may help.
- **Surveillance**. Using some popular email apps, such as Gmail, can be about as secure as writing messages on the back of a postcard. Alternative apps, such as Proton email and Telegram messenger, with higher levels of encryption, tend to be more secure. Some apps can become intrusive by requesting more permissions (e.g. reading your contacts list) than are essential to the app. Though there may be issues such as reduced speed and cost, using

a virtual private network (VPN) on your phone can make your activities harder to track. A general introduction to VPNs can be found here. Do remember that, via GPS (satellite) or triangulation (involving 3 or more cell towers) your location can often be tracked.

For more on the astonishing capabilities of modern surveillance I recommend watching some of the many YouTube interviews with Edward Snowden.

Computers

Pros

- **Large screen**. It is generally easier, and more pleasant, to read a larger screen than a tiny smartphone screen.
- **Video conferencing**: Computers may, therefore, be more practical for Zoom & Skype-type calls where multiple participants are involved.
- **Spacious keyboard**: It is much more convenient to type on a real keyboard, with the option of also using an external mouse.
- **Accessories**: While certainly not essential to have in times such as this, they generally provide for nice-to-have options such as external (surround sound?) speakers, multiple screens, projector connections, TV connections (via HDMI) etc.
- **Storage**: They have much more storage space than a smartphone. This can be useful for retaining large items such as downloaded videos.
- **Operating systems:** A wider choice of operating systems (e.g. Windows, macOS, Linux) is available. For instance, I am presently running Linux Mint on an old MacBook (much faster & probably more secure).
- **Software**: A considerable choice of software – mostly commercial, shareware or open source.
- **Accessibility**: It is often easier to replace defective parts than with a smartphone (my favourite laptop is a 9 year old Lenovo Thinkpad T430, which seems to have been built with easy component replacement & upgrading in mind).

Cons

- **Security, surveillance & theft:** Many of the concerns already listed for smartphones apply here, especially those related to security, surveillance and theft.
- **Bulky**: Not as portable as a smartphone.

- **Visibility**: A laptop or desktop computer is more difficult to conceal than a phone (should the need ever arise).
- **Overheating**: Computers can overheat, especially if one or more internal ventilation fans are blocked or stop working.
- **Space**: They require more space to set up.
- **Cost**: Frequently more expensive than a smart phone.
- **Texts & phone**: Generally unable to receive text or phone calls (but, Proton email can easily be accessed in a browser and Telegram messenger offers a desktop version).

Email

While really a sub-category of *Computers* or *Cellphones*, the continued popularity of email warrants a special mention.

Pros

- **Inexpensive**. They cost virtually nothing to send, even to multiple recipients.
- **Flexible**: It is easy to embed graphics, request reply receipts, attach files, format text and send group messages via CC or BCC.
- **Instant**: At most, they should only take a few minutes to deliver. However, this advantage may be lost if the recipient does not regularly check his/her messages.
- **Printable**: It is easy to print hard copies of messages where required.
- **Offline**: If using an email client (such as Ms Outlook or Thunderbird - as opposed to a browser-based application such as Gmail) messages can be browsed while offline. Yes, it is possible to download Gmail messages to your computer but, according to Google, you will still need to have desktop email client installed to open the downloaded EML files.

Cons

- **Recipient**: As mentioned, a speedy exchange requires the recipient to check their messages regularly.
- **Security**: Security concerns can be many (e.g. contracting malicious software, phishing, clicking on bogus links or carefully disguised attachments).
- **Spam**: There is also the possibility of important messages being lost in spam folders, or even deleted by your provider's filtering systems.

- **Privacy**: Confidentiality – or lack of it – may be another issue, depending on the degree of encryption used. We need only consider the many recent 'leaked emails' from a number of high profile figures to reflect on the security of basic emails.

NB: It is important to remember that, even though you may be using a more secure email service, such as Proton mail, if you are sending a confidential message to a recipient who is using a less protected service such as Gmail, your message will no longer be confidential. In Google's defence, however, Gmail does offer a confidential mode – but, how many people use it, or are even aware that it exists?

Deep Web & Dark Web

What are they?

- The internet is basically made up of three layers: the surface web, the deep web, and the dark web.
- **Surface Web**: if you can Google it directly (or preferably Duck Duck Go it) it's on the surface web.
- **Deep Web**: The content of the deep web is massive, with at least 500 – 5000 times as much data as the surface web. In fact, 99% of the Internet is on the deep web. Material on the deep web generally cannot be found directly via a search engine and requires authentication to access. An example of deep web material might be my bank account details (such as they are) or your medical records.
- **Dark Web**: The dark web refers to any number of self-contained, encrypted overlay networks that live on top of the internet, inaccessible save for special tools and protocols (such as the TOR browser). The dark web is used both for good (e.g. dissidents, journalists, whistle-blowers and advocates for freedom of speech) and for bad (e.g. sales of illegal drugs, stolen credit cards, weapons, fake passports, hitmen & hitwomen for hire). Sales from endangered animal species alone on the dark web, for instance, has been estimated at $20 billion per year!

Dark Web Pros & Cons

- Having never used the dark web, I regret I cannot comment.

- One word of warning, however: “Visiting the dark web is definitely hazardous and all due security precautions should be taken.”

Social Media

Again, I have very little personal experience of using the most popular applications, such as Facebook, Twitter or Instagram.

Pros

- I’m sure there must be some. Let me think.
- **Universality**: Many of the links to some of the more rational information concerning our present situation assume the viewer has at least a Facebook account.
- **Current events**: Social media can provide an effective way of keeping up with various current events. Unfortunately, you may be broadcasting details of your activities and interests to more than just your ‘friends’.
- **Uncensored alternatives**: Fortunately, there are alternatives such as the Rumble and Bitchute video sites which do not heavily censor. The problem is that many people who may benefit from information that is still permitted on these alternative platforms may not be aware of their existence.

Cons

- **Collusion**: My understanding is that there is considerable collusion between most of the social media networks and the ‘powers that be’, as seen by the recent ramping up of censorship.
- **Monitoring**: I believe social media posts are regularly monitored, both by the providers and the authorities.
- **Personal details**: Posting details of upcoming protests and personal movements to social media does not, therefore, seem like a very good idea.
- **Forever**: People have reported difficulties in removing their profiles from social media.
- **Dangers**: An article outlining the dangers of social media can be found here.

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Television

Local Newspapers

Pros

- **Local focus**: Can be sources of local information that is not obtainable elsewhere.
- **Accessibility**: Readily accessible.

Cons

- **Not free**: Hawke's Bay Today seems to hide most online articles behind a paywall.
- **Ownership**: Now generally owned by large monopolistic corporations, often overseas-based.
- **Paid propagandists**: Possibly due partly to very generous government financial handouts, they generally appear to tow the 'party line'.

AM/FM Radio Receiver

Pros

- **Accessibility**. Most of us already have one.
- **Price**. Cheap.
- **Power**. Many can run on batteries.
- **Portable**. Pocket-sized versions are available.

Cons

- **Censorship**. Few, if any, local radio stations seem to offer alternatives to the official 'party line'.
- **News**. Many of the commercial stations have little or no news information.
- **Local news**. Can be difficult to find.

NB: A potentially useful listing of Hawke's Bay radio stations can be found here. May be worth printing out?

Shortwave Radio Receiver

Pros

- **Free information**.
- **Global**. Voice of America, BBC World Service etc.
- **Power**. Again, many shortwave radios can be run on battery power.
- **Portable**. Many are. Some aren't.

Cons

- **In decline.** Unfortunately, due no doubt to the prevalence of a fast internet, shortwave services have for a long time been in decline. According to an article on Newswatch, "All of the world's largest international broadcasters, based in the United States, France, Germany, England and the Netherlands, are cutting back on shortwave".
- **Aerials.** Unfortunately, reliably receiving those stations that remain may require the construction of an external antenna. Information on that topic can be found here.
- **Band spread.** On less expensive radios, with a needle-type frequency indicator, the range of displayed frequencies may be compressed into a single row. Due to the proximity of many stations, this can make fine tuning difficult. A digital frequency indicator and, even better, the ability to program a number of stations into memory, can help overcome this problem.
- **Frequency drift**. I believe some newer (and more expensive) shortwave receivers may have technology to help overcome this problem, which is simply a station fading after a period of time and needing to be re-tuned. As well as the quality of the radio, other factors which may be influential include sunspots and time of day (night-time reception is generally better).

Scanner Radio Receiver

Pros

- **Power**. The hand-held versions are battery powered.
- **Portable**. While more expensive desktop versions are available, most are similar in shape to the illustrated 'walkie talkie'.
- **Local information.** They can easily be programmed to automatically monitor local emergency frequencies - such as ambulance, police, fire and civil defence – which can be found online. Therefore, often a useful guide to happenings around the neighbourhood, long before they are reported in the local media (if ever).
- **License**. No license required.
- **Available**. Frequently advertised on Trade Me.

Cons

- **One-way**. Receivers only. You cannot use these to contact emergency services.
- **Small antenna**. The small built-in antennas do limit the range, but are apparently quite adequate to receive signals from local services. In fact, due to the use of repeaters, services from other districts can often also be heard.
- **Cost**. New Uniden Bearcat portable scanners are currently advertised on Trade Me for between $230 and $290.

AM/FM CB Radio Transceiver

Pros

- **Inexpensive**. Especially second -hand.
- **Two-way.** Allows two-way communication.
- **No license required**.
- **Portable**. Come in at least three variations: hand-held ('walkie talkie'), vehicle-mounted, base station.
- **Power**. Can generally be powered from 12 volts DC (e.g. car battery).
- **Range**. Depends very much on terrain. Perhaps 3 kilometres dependably. A CB radio with single sideband can generally transmit further, sometimes by skipping the signal off the earth's ionosphere.

Cons

- **Low usage**. My own observation, after installing an AM CB set in a vehicle many years ago, was that there was hardly ever anyone at the other end. Presumably usage of these units has been superseded by UHF CBs (see below).
- **Privacy**. As with all but encrypted two-way radios, other people can easily monitor your conversations.

UHF CB Radio Transceiver

Pros

- **Clarity**. Reception tends to be much clearer than that of an AM CB.
- **Price**: Sets of two UHF radios can be inexpensive (around $100 new on Trade Me, with a 2 watt power output).
- **Two-way.** Allows two-way communication.

- **No license required**.
- **Portable**. Again, these come in three variations: hand-held, vehicle-mounted, base station.
- **Power**. Can generally be powered from 12 volts DC (e.g. car battery).
- **Range**. Usually specified as 'line of sight'. Perhaps up to around 3km. Hand-held UHF transceivers vary from 0.5W transmission power up to 5W (more expensive). This power difference will considerably affect their range.
- **More traffic**. There is more likelihood of other local people using UHF radios than AM CB.

Cons

- **Price**: For a higher powered hand-held or base station this can be considerable (e.g. a 5W GME UHF with accessories from Jaycar sells for $369, and their GME 5W UHF Ultimate Pack retails for $699).

NB: Initially I purchased a hand-held 5W UHF hand-held transceiver with a scanning function. Even in the middle of Hastings I rarely heard any other users. I then upgraded to a base station (really an under-dash vehicle model connected to a 12 volt DC power supply) with an external aerial. Huge difference! Lots of traffic!

Observation: Standard radio protocol on UHF CB may be a thing of the past. I also discovered that this spectrum was inhabited by many unsupervised young children and that even the adults did not generally observe any of the conventional radio 'niceties'.

VHF Marine Radio Transceiver

Pros

- **Clarity**. Clear reception.
- **Price**: A new VHF marine radio can be had from Trade Me for around $150.
- **Two-way.** Allows two-way communication.
- **Portable**. Generally hand-held.
- **Range**. Again, usually specified as 'line of sight'. However, at sea there are few hills & tall buildings to get in the way, so this can be considerable. One nautical site summaries the difference a well located antenna can make, "a 25-watt marine radio will have a maximum range of 111 km between two antennas mounted on tall ships. That same radio will only have about 9 km between two antennas mounted on small boats at sea level."

Cons

- **Regulation**. According to Maritime New Zealand's Fact Sheet, you are required to obtain a Maritime VHF Radio Operator Certificate.
- **Legal**: Although I was unable to find online confirmation, I believe it is illegal to use a VHF marine radio for land-based communication.

Amateur Radio Transceiver

Pros

- **Versatile**: Sometimes described as the Swiss Army Knife of communications, due to the fact that it is able to transmit over long distances using many different frequencies.

Cons

- **Expensive**: Unless you opt for a hand-held unit, a new desktop transceiver may cost in the region of $500 - $1000 (or more). Then there is the cost of buying and erecting an outdoor antenna.
- **Legal**: Even the purchase of an amateur radio transceiver, let alone the use of one, requires proof that you hold a relevant license.
- **Learning curve**: Can apparently be steep.

If, however, you are interested in becoming a licensed amateur I am assured there are operators who are willing to help. A good place to start may be the New Zealand Association of Radio Transmitters.

Conclusion

As with so many areas of prepping, before buying any new communications equipment – especially radios – perhaps we should firstly consider our likely **purpose**? It is one thing to set yourself up to be able to communicate with someone in the same town: entirely another to have a conversation with a friend in Australia.

Do you want to interact with others or simply listen?

What type of information do you wish to impart? If you merely wish to exchange pleasantries and check the welfare of a friend, you may not care who else may be listening in. On the other hand, if

you are covertly organising your next demonstration, a high degree of security and encryption may be essential to avoid tipping your hand.

If you are planning to cope with a possible prolonged grid-down situation, power sources and services will also be a consideration. It is one thing to set yourself up with Proton mail and Duck Duck Go's search facilities, but entirely another if the internet is also out of action.