Chicago
Communications LLC

Wireless Communication
SURVIVAL GUIDE

A User-Friendly Guide to an Effective Communication Strategy

Why Wireless Communication is More Important Than Ever

Pick an industry - any industry - and you would be hard-pressed to find an organization who isn't looking to improve their communications. From education to healthcare, manufacturing to hospitality, it seems everyone is striving to become more efficient through better communication. But why?

The reason is simple: **effective communication breeds efficiency**. In some cases, having great wireless technology can help improve student safety during an emergency by streamlining communication. In other cases, effective communication can reduce downtime in the manufacturing industry or even provide better experiences to customers or patients.

Whatever your challenge is, there is often a communications solution designed for meeting your need. Here are some of the most common challenges in various industries that can be aided by wireless communication:

INDUSTRY	CHALLENGES
Education	Student safety, emergency preparedness, student and bus tracking
Healthcare	Patient experience, employee/patient safety, efficiency
Manufacturing	Efficiency, downtime
Hospitality	Customer experience, efficiency

This guide will walk you through some of the best solutions available to you, educate you on how they work, and explain how they help you overcome some of your biggest challenges.

Two-Way Radio Communications

When you first think of two-way radios, you may conjure up memories of playing with a set of Walkie Talkies when you were younger and think, *why would I need those?*

The truth is that today's professional radios share very little in common with the toys you played with as a child, outside of the basic principles. These devices are now incredibly innovative, and offer a wide range of benefits that continue to evolve.

For example, many two-way radios come equipped with noise-cancelling technology. This is especially useful for those working in loud environments like factories — they radio focuses in on your voice and blocks out the noise and clutter around you, allowing the person you are communicating with to hear you clearly.

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HOW DO THEY WORK?

Using a two-way is quite simple: you pick up your radio from the docking station, turn it on, change to the channel you want to use, and simply hold down the Push-to-Talk (PTT) button when you are ready to speak (just release the PTT button when you are done speaking).

While these devices are simple to use, the technology behind them is a little more complex - but still good to understand.

Radio communication is based on **radio frequency**. Radio frequency is a measurement of how fast or slow a radio wave carries its signal. Since these waves travel at the speed of light, the measurement documents the height of the vibration, called oscillation.

So in order for devices to receive these radio waves, they must be involved in a circuit that includes **antennas and tuners**. Radios use these pieces to receive the radio waves (the message) and transmit its own waves back, creating a line of communication.

WHAT ARE THE BENEFITS?

Regardless of your organization or industry, two-way radios offer a wide range of benefits. This is especially true for those organizations who rely on smartphones for their communication needs.

Here is great list of some of the best benefits two-way radios offer (these are also reasons why radios are better than smartphones).

1) **Long-lasting battery life** ensuring your radios are live and ready all day

2) **Secure, stable networks** that allow you to communicate without the threat of other people listening in

3) **High quality calls and coverage** means no more dropped calls or issues in dead zones

4) **Noise-cancelling technology** delivers a crisp, clear message to all users, regardless of the noisy environment

5) **Durable, rugged design** that can be used indoors, outdoors, in bad weather, or even be dropped - and still work like new

6) **Practical, simple user interface** that is simple to teach and use

7) **Wide range of communication capabilities** including 1-to-1 and 1-to-many communication

8) **Equipped and reliable for emergency situations** and easy to use in the event that something happens

9) **Ever-growing list of third-party application integrations** means your radios can be customized to your exact needs

10) **They save you money** by cutting out recurring monthly fees - you can just buy your radios!

WHAT INDUSTRY SHOULD USE TWO-WAY RADIOS?

Perhaps the best thing about two-way radios is that they are not industry-specific. This means that any organization that is looking to become more efficient, save costs, or be more prepared in the case of an emergency can look to radio solutions.

Here's how some major industries may benefit from using two-way radios:

EDUCATION

- Improve student safety by better communicating with school faculty

- Bus fleet tracking and reporting using GPS technology built right into the radios

- Rapid response during emergencies: Be instantly connected to authorities through a single push of a button on the radios

MANUFACTURING

- Eliminate downtime by improving coordination of work teams on the plant floor to increase production volume, improve production line uptime and prevent line stoppages

- Allows maintenance to respond to all plant maintenance issues at maximum efficiency; this means fewer maintenance workers required to keep the plant running.

- Enables manufacturers to operate safely, minimize risk and respond to emergencies quickly and effectively through GPS software and emergency alerts

HEALTHCARE

- Provide patients with a better experience through improved response time from staff

- Improve staff and patient safety through critical voice communication

- Increase productivity of nurses, clinicians and doctors

HOSPITALITY

- Deliver a better customer experience through improved response times

- Improve efficiency by keeping track of room checks, supplies, and facilities

- Assure safety throughout the property and immediately respond to emergencies. Ensure security with instant and discreet communications

Learn more about two-way radios.

Bi-Directional Amplifiers

For those experiencing a communication issue in their building, you know how frustrating poor coverage can be. When you need to send data or have a voice call with a key member of your team, but one of you enters a dead zone, coverage can be interrupted or even lost, causing time and, perhaps, safety issues.

Sometimes, you don't even need to be in a basement or dead zone for this to occur — the signal within your building is simply weaker than it should be, meaning you lose a call to static or can't connect your wireless device when you want to.

The issue here is that the signal you are trying to connect to and use is actually located outside of your building (most commonly found on the rooftop, i.e. antenna). Depending on the size and age of your structure, the signal has a difficult time entering the building and moving throughout. Things like thick walls often deter a rooftop signal.

The solution here is in a device known as a **bi-directional amplifier (BDA)**.

A BDA can be thought of as a signal booster for your indoor communications.

WHAT IS A BI-DIRECTIONAL AMPLIFIER?

A bi-directional amplifier can be thought of as a signal booster for your indoor communications. It is a innovative solution that works to bring wireless signals from outside of your building in, and then amplify and redistribute those signals throughout the building. This provides significantly improved signal strength and more reliable coverage when the signal source is obstructed.

Due to their complexity, bi-directional amplifiers require expert attention, including involvement in the engineering, design, analysis and installation of the system.

HOW DO THEY WORK?

In simple terms, bi-directional amplifiers pick up a signal from a source outside of the building (I.e. the antenna on the roof) that doesn't have a large enough presence within your building to reliably communicate over.

The BDA takes in that signal, amplifies and distributes it throughout the building, and allows those areas that are typically dead zones to receive quality signals. This means that that data, voice calling, and other important pieces of information can be shared regardless of physical location within the building.

In order to work effectively, bi-directional amplifiers need to be strategically placed in the building. This often calls for an expert to analyze the structure you are in and determine what location will provide the best, most amplified signal throughout.

WHAT ARE SOME OF THE BENEFITS?

The most clear benefit of a BDA solution is the improved signal within the structure you operate in - but, here are some of the other core benefits of bi-directional amplifiers:

- Improve cellular and two-way radio communications within your buildings
- Ensure dependable communication coverage for first responders
- Enhance your business's productivity
- Increase value to tenants through enhanced mobile coverage
- Address all cellular carriers within a single building

One of the best things about BDAs is the fact that the benefits they offer directly rely on the use case. For example, those in a manufacturing plant will be using the BDA for different reasons than a campus or hospital would, but the solution would still find ways to help solve their signal and communication issues.

DOES MY INDUSTRY USE BDAS?

If you are experiencing communication issues, the short answer is "yes." This is because when communication is lost or simply slows down, so does the efficiency of your business or organization.

When a plant worker or school administrator enters a dead zone, those relying on that communication are now left in the dark, and in some cases, that can cause logistical nightmares or even safety issues.

HERE ARE SOME OF THE MOST COMMON INDUSTRIES FOR BI-DIRECTIONAL AMPLIFIERS:

- Hospitals
- Manufacturing Plants
- Campuses for Schools, Universities
- Shopping Centers and Malls
- Airports
- Convention Centers, Stadiums, and Arenas

Learn more about bi-directional amplifiers.

Wireless Networks

When businesses, communities, or organizations begin looking into improving their connectivity and communication, one of the first solutions they turn to is wireless networking, and for good reason.

Wireless networking is essentially when a computer-based network uses wireless data connections for connecting network nodes. It is an effective alternative to traditional wired networks and carries multiple benefits, including:

- Resolving connectivity issues where fiber or copper cannot go

- Eliminating recurring fees charged by phone companies

- Giving you easy access to critical information at the point of work

- Providing reliable network connections that minimize downtime and improve productivity

- Extending your secure network to a wider area of coverage

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WHAT IS WIRELESS NETWORKING?

Wireless networking is essentially using a digital method for data transfer over the air. In order to do this, a wireless solution creates a Wide Area Network (WAN). A WAN is used to cover large areas, such as distance between neighboring communities (cities, towns, villages, etc.). It then provides connections between businesses (like branch offices) or acts as a public internet system.

The core benefit of using an innovative wireless solution is typically cost-savings (you eliminate month-to-month payments to the phone company), but the benefit of having a fast, reliable network for all of your devices cannot be overlooked. We live and work in a world that runs on connectivity and communication, and a wireless network is a key piece in ensuring we having the capabilities we need.

HOW DOES IT WORK?

Wireless networks are typically installed in one of the following ways:

- **Point to Point Microwave –** Transporting data from point A to point B

- **Point to Multipoint Microwave –** Transporting data from point A to points B, C, and D on the other end at the same time

- **Meshing Networks –** Creates a WAN that acts as a giant wireless switch that has the ability to self-heal

- **WiFi –** Creates both indoor and outdoor hotspots that act as the end of a point of a wireless network typically tying a user to a device

WHAT PROBLEMS DOES WIRELESS NETWORKING SOLVE? (BENEFITS)

The very nature of being wireless solves many of the issues associated with traditional wired connections. For example, your average wired infrastructure requires extensive labor or civil work to connect point A to point B, not only in initial setup but also in maintenance.

Implementing an innovative wireless solution negates that work, as wireless networks are easier to build and maintain.

Not only does a traditional solution require more time and attention, but having a wired system is costly because you need to pay a monthly bill in order to keep those connections working, as the lines are leased. Compare that to a wireless network that is paid for at setup, and then owned. The only ongoing costs are really the maintenance needed to ensure the network is up to date with the most current technology.

WHO CAN TAKE ADVANTAGE OF WIRELESS NETWORKING?

One of the best things about wireless networking is that it offers a solution for nearly every industry and use case. Here are some of the most common:

- **Towns and villages** looking to connect buildings or integrate parks

- **Colleges and universities** looking to connect campus buildings and provide campus-wide connectivity

- **Manufacturers** who want to be able to effectively connect and communicate between buildings

- **Healthcare organizations** that need to be able to communicate on a reliable network between buildings or campuses

- **Hospitality** vendors who are seeking to deliver a better experience to their customers

Learn more about wireless networks.

Next Steps

And there you have it — your complete wireless communication survival guide. If you'd like to learn more about any of these technologies and how they can benefit your organization, contact Chicago Communications today to set up a free consultation!

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LIVE DEMO
See Why Customers
are Switching

GET A FREE DEMO