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This portfolio features professional writing created for clients across multiple industries. The articles include published work and have been rewritten to reflect updated style, structure, and current skill level.

The final two articles are included as samples demonstrating the effective use of AI tools for research, drafting, and content development within a professional writing process.

Selected Non-AI Articles:

1. MRI Quenching 101 and How You Can Avoid It
2. Investigating The Societal Benefit Of Urban Infilling
3. CRM Strategy: Keeping Your Contained Data Clean
4. An Introduction to Enterprise Architecture and Modern Business
5. CCPA Compliance Checklist: Your Roadmap to Success

Selected AI-Assisted Articles:

6. USP <795>, <797>, <800>-Compliant 503A Compounding Pharmacy
7. Top 11 Cisco Meraki Switches And Why They're The Best Choice

Written and published for MXR Imaging via SMB Advisors. Rewritten for portfolio presentation.

MRI Quenching 101 and How You Can Avoid It

Magnetic Resonance Imaging (MRI) machines have become a commonplace diagnostic tool in medical facilities around the world. In the U.S. alone, there are roughly 13,000 MRI systems performing more than 40 million MRI scans every year. There is a good reason for this: not only are they incredibly effective at diagnosing neurological, musculoskeletal, and cardiovascular conditions, but they are also safer than other types of diagnostic imaging equipment that produce radiation, such as X-rays and CT scans.

However, that doesn't mean that MRI machines are without issues. One of the biggest challenges of owning and operating an MRI system comes in the form of quenches, which can cause equipment damage and significant downtime. If proper safety protocols aren't followed, a quench can also pose a serious safety risk.

What is MRI Quenching?

An MRI system uses superconducting magnets to generate powerful magnetic fields, enabling high-resolution imaging. However, to remain superconductive, the MRI machine's magnet coils must remain at –4 kelvin (–452 °Fahrenheit) to prevent a loss of superconductivity. This allows a current to circulate indefinitely without generating heat.

To maintain this temperature, the magnets are housed inside a sealed vessel called the cryostat. Inside the cryostat, they are bathed in liquid helium, which allows the magnetic field to stay on at all times.

If the coil's temperature goes above the threshold, the magnet will stop being superconducting and will begin resisting the electrical current. The current passing through this increased resistance will generate heat, which, in turn, will cause the liquid helium to suddenly boil off, resulting in the loss of the magnetic field. This is what's known as a "quench."

How Does MRI Quenching Happen?

There are two ways that a quench can occur. The first is due to a disruption or problem with the MRI machine's magnet system. The second is when the emergency Magnet Stop button is activated to deliberately trigger a quench.

If an MRI system quenches on its own, it's due to the failure of one of its components. Because the magnets must be kept near absolute zero, any failure involving the MRI's cooling system — such as the chiller, compressor, cold head, or cryogenic lines — can lead to the evaporation of

excess helium. If the helium levels drop too low, a quench will occur. Once an accidental quench occurs, the system must be carefully inspected to diagnose the exact problem.

A deliberate quench can only occur when the Magnet Stop button is activated. This should only be done if the MRI machine is being decommissioned or in the event of an emergency. For example, if a fire breaks out in the MRI room, then a deliberate quench should be triggered. There are a few reasons for this:

- Emergency equipment made of ferrous metal, such as fire extinguishers and oxygen tanks, can be magnetized and turned into dangerous projectiles.
- Firefighters and paramedics who need to enter the room may not be MRI-safe, which could prevent them from responding promptly to the situation.
- The magnetic field may make it difficult to remove the patient in an emergency situation, for instance, if they are pinned by equipment or trapped in the machine's bore.

Is MRI Quenching Dangerous?

Although quenching can be intentionally triggered to prevent a situation from becoming more dangerous, it can also pose a safety risk in its own right. Because of this, the room should always be cleared before a quench is activated. That said, the following are a few potential risks associated with an MRI quench.

Hearing Damage

The execution of a quench results in an incredibly loud bang. This sound is loud enough to rupture the eardrums of anyone within close proximity of the machine. This can put patients and staff at further risk in an emergency, such as a fire, because they may not be able to hear warnings or instructions to help them escape danger.

Asphyxiation & Cold Exposure

When a quench occurs, helium gas will be rapidly expelled from the MRI machine. Although helium gas is non-toxic and non-flammable, it will displace the oxygen in the room, causing asphyxiation. Because helium is so cold, exposure to helium gas can also lead to hypothermia.

Because exposure to helium gas can be life-threatening, all MRI rooms should be equipped with emergency ventilation systems to safely route any expelled gas outdoors. If the room doesn't have proper ventilation — or its ventilation system fails — the gas can build up near the ceiling and then gradually descend.

Air Pressure Hazards

When helium converts to a gas, it expands by hundreds of times its original volume. As a result, when a room is filled with helium gas, the air pressure can rise quickly. Such rapid pressure buildup can cause panels and fixtures to become dislodged or airborne.

It can also make the doors leading out of the MRI room difficult to open, preventing anyone who's inside from escaping to safety. However, most modern MRI rooms are designed so the door can be easily opened regardless of changes in air pressure.

MRI Equipment Damage

Although the first concern should be the safety of any patients or staff inside the MRI room, a quench can also cause costly damage to the machine. The following are several ways an MRI system can be damaged during a quench:

- **Magnet Coil Damage**: The exposure to sudden heat during a quench can warp or crack the magnetic coils.

- **Mechanical Damage**: When the magnetic field collapses, it can create imbalanced electromagnetic forces that twist or compress the coils and support structures, potentially shifting or deforming components and causing permanent structural damage.

- **Cryostat Damage**: Because helium expands rapidly as it transitions to gas, it can stress the cryostat, leading to leaks or ruptures in the vessel.

- **Electronic Component Damage Or Failure**: Abnormal voltages, current fluctuations, and thermal shock caused by a quench can damage power supplies, sensors, and cryocoolers – or cause them to fail completely.

How to Prevent MRI Quenching and Its Dangerous Effects

An unplanned quench can not only be incredibly dangerous but also expensive. If an MRI machine sustains significant damage, it may require extensive repairs or even replacement. Additionally, whether it requires repair or replacement, it could be out of commission for a lengthy period of time. Any kind of downtime can be costly.

Not to mention, once a quench occurs, a substantial amount of helium will likely have boiled off and been expelled. This means that the MRI's helium levels will need to be refilled – and liquid helium does not come cheap. Due to the potential safety risks and possible expense of an MRI quench, the best course of action is prevention. The following are a few steps to take to prevent accidental quenching in the first place:

MRI Safety Protocols to Minimize Quench Risk

Besides designing the MRI room to minimize safety risks following a quench, several safety protocols should be followed to prevent one. For example, there should be no ferrous objects in the MRI room at any time since the MRI's magnets are powerful enough to turn them into dangerous projectiles.

Before anyone enters an MRI room, whether it's staff or patients, they should be screened for any ferrous materials. Any ferrous jewelry or items on their person must be removed. People should also be questioned about any ferrous metals implanted in their bodies. Patients often forget that they have such implants until they are asked about them.

Finally, some clothing is manufactured with metal components. As such, patients should change into MRI-safe clothing before entering.

Routine Maintenance to Avoid Quenches

Although some manufacturers recommend getting preventative maintenance every six months, it's highly recommended that you have your MRI system inspected by a professional every three months. Doing so will ensure that all of the machine's components are working correctly and that helium levels are sufficient. Damaged components could fail, leading to a potential quench.

Additionally, the room's HVAC system should be periodically checked to ensure that the emergency ventilation system is working properly.

Safe MRI Operation Requires Expert Training and Support

MRI systems are complex machines. A quench, whether planned or unplanned, can not only cause expensive damage but also pose a potential safety risk to anyone in the MRI room. As a result, only highly-trained personnel should operate or be near your MRI system. It's also essential to maintain your MRI by scheduling routine preventative maintenance checks.

At MXR Imaging, we offer comprehensive installation, preventative maintenance, warranty support, and technical training services to help your facility maintain a safe and effective MRI machine.

Written and published for RedT Homes via SMB Advisors. Rewritten for portfolio presentation.

Investigating the Societal Benefit of Urban Infilling

Modern cities such as Denver, CO, face many challenges when it comes to building new urban residential and commercial structures within government-regulated zones. These challenges often involve finding ways for a city to save money, protect the environment, and reduce resource use, all while revitalizing existing communities or creating new ones.

One solution that has been gaining popularity in Denver over the years is infill development.

What Is Urban Infilling?

The term "urban" refers to a city or area that is neither rural nor suburban. Urban infill development is becoming increasingly more common as professionals seek to live closer to Denver's business centers. It serves as an alternative to greenfield development, which focuses on building on undeveloped land.

Instead, infill development involves building new infrastructure to "fill in" vacant land within fully developed urban zones, creating easy-to-navigate, compact, mixed-use urban centers with built-in residential and commercial systems.

The main advantage of urban infilling is that vacant land is already served by existing infrastructure. New buildings can connect to roads, water, sewer, electricity, and other city services without requiring additional construction.

Denver has many vacant parcels within various regulatory zones that can benefit from infill development. However, the process of urban infilling depends on zoning regulations.

Zoning Districts in Denver

Zoning refers to the regulatory system that dictates how parcels of land can be used. For example, what structures can be built on vacant land, how tall buildings may be, and how dense they can be. Most cities have similar zoning districts, although they do differ slightly from one city to the next. These are the zoning districts in Denver:

- **Residential Zone Districts**: These zones are designated for residential buildings, from suburban homes to high-density multi-unit housing and mixed residential–office developments.

- **Business Zone Districts**: These zones permit a range of commercial, office, retail, and mixed-use activities.

- **Hospital Zone Districts**: These zones are designated areas intended to support and concentrate healthcare institutions and facilities.

- **Industrial Zone Districts**: These zones are designated employment areas that accommodate light, general, and heavy industrial uses.

- **Main Street Zone Districts**: These zones are designated for pedestrian-oriented, mixed-use corridors near transit. These districts allow commercial, retail, office, and limited residential uses

- **Mixed Use Zone Districts**: These zones allow a combination of residential, commercial, office, and limited industrial uses within the same area.

- **Open Space Zone Districts**: These zones preserve land for parks, recreation, agriculture, natural habitats, airports, and other public or semi-public uses.

Developers in Denver must understand the city's zoning regulations and districts before planning new construction, as this knowledge is crucial both for obtaining necessary permits and for maximizing the benefits of infill development.

6 Key Benefits of Urban Infill Development

There are many options for real estate development. As previously mentioned, greenfield development focuses on building on undeveloped land. Developers can also invest in suburban expansion by building outside the city's core, or brownfield redevelopment, which involves rebuilding on previously developed land that may be contaminated or underutilized.

All types of development offer benefits; however, certain societal and community benefits are specific to urban infill development. They include the following:

1. Revitalize a Struggling Neighborhood

The principal purpose of infill development is to breathe new life into an existing community and generate new interest, investment, and economic activity by making the neighborhood more attractive. Revitalizing a neighborhood through infill development often attracts new residents, making the area more livable and productive while also increasing property values.

2. Provide a Boost to the Local Economy

Urban areas tend to be more compact than rural and suburban areas. As a result, commercial areas are often close to residential areas — and in some cases, they are integrated. This is one reason why population growth in urban areas tends to attract new businesses. It also allows the local economy to benefit from infill development.

Constructing residential buildings near businesses increases their customer base. Not to mention, vacant lots often negatively affect the property values of nearby homeowners. Infill development can help increase these property values by utilizing vacant land.

Communities and businesses also benefit from brownfield infill development, which involves cleaning up and repurposing previously contaminated or underused land. These projects improve environmental safety and living conditions, making the land suitable for new commercial or residential development. Brownfield cleanup can also boost property values, attract investment, and sometimes qualify developers for government incentives.

3. Contribute to City's Finances

Local businesses benefit from infill development when new residential buildings bring in more residents who become active local customers. Since urban infill development encourages more spending within city limits, it directly improves the city's finances. Compact city centers also help reduce urban sprawl and promote land conservation, while reinvesting in and improving neighborhoods.

Additionally, the cost of maintaining abandoned or underused properties is substantial. The city is responsible for any costs associated with general maintenance, sidewalk upkeep, and increased policing due to vandalism, arson, and other crimes. Such properties also reduce property values in the surrounding area and shrink the local tax base.

Investing in infill development can help mitigate these issues, thereby saving the city millions of dollars in maintenance and enforcement costs while generating new tax revenue and improving community safety.

4. Promote Better Infrastructure

Infill development within urban zones can directly support improvements to existing infrastructure, whether through increased tax revenue that drives more city investment or through private business contributions.

When a neighborhood's infrastructure is improved, it attracts more business, increases property values, and strengthens the local economy for everyone.

The following infrastructure improvements are often funded by increased tax revenue from infill development or prompted by the practical needs of higher-density construction and population growth:

- **Repairs to Damaged Properties**: Infill projects often replace or renovate neglected buildings on vacant lots, improving neighborhood safety and making the area attractive for new residents and businesses.

- **Upgraded Streets**: Roads are repaired or upgraded to accommodate the increased traffic from new residents and commercial activity resulting from infill development.

- **Additional Roadways**: New roads may be constructed to connect recently developed parcels, improving access and circulation for growing neighborhoods.

- **Upgraded Sewage Systems**: Due to the influx of residents and businesses, the city is more likely to upgrade sewage and drainage systems to address the higher demand.

- **Improved Public Transportation Systems**: Population growth can lead to the improvement of public transit systems, reducing traffic congestion and supporting sustainable mobility.

- **Remediated Buildings**: Contaminated or unsafe structures are cleaned and redeveloped as part of infill projects. This leads to safer, more usable spaces for residential, commercial, or mixed-use purposes.

5. Create More Jobs Within the Community

Building commercial structures generates more jobs for the community. Building residential structures increases the population and improves nearby property values, thereby attracting more businesses that provide more jobs.

Essentially, infill development supports job creation within the community, regardless of the type of structure built. Not to mention, infill development projects will create jobs, as workers will be required to demolish, develop, and build in underdeveloped areas.

6. Have a Positive Environmental Impact

Construction is rarely associated with positive environmental outcomes, but infill development is an exception. Concentrating growth within existing urban areas can deliver the following environmental benefits:

- **Reduce Commute Distances**: By placing housing closer to local businesses and jobs, infill development reduces commute distances. This decreases car and bus travel, lowering greenhouse gas emissions.

- **Encourage Compact Urban Growth**: Development occurs within established city limits, preserving rural areas, such as farmland and natural areas, as well as historic sites.

- **Minimize Resource Waste**: Infill development makes full use of existing water, electricity, and septic systems, thereby reducing waste.

Urban Infilling Can Have a Positive Impact on the Community

Urban infill development optimizes and revitalizes existing neighborhoods without creating an entirely new metropolitan area. It attracts more residents closer to local businesses in urban centers, helping to preserve rural and agricultural spaces.

Although these projects require up-front investment, urban infilling provides long-term benefits and growth opportunities for both residents and businesses.

Written and published for Paradox Marketing. Rewritten for portfolio presentation.

CRM Strategy: Keeping Your Contained Data Clean

Keeping Your Data Clean for Your CRM Strategy

The data your company collects is one of your organization's most valuable assets. It forms the backbone of your customer relationship management (CRM) strategy. When properly leveraged, your data can provide actionable insights that can help improve every aspect of your business, helping it run more efficiently and effectively.

What you may not realize is that the data you've gathered isn't always accurate. In fact, data can become outdated over time. It's estimated that 20 to 30 percent of collected data goes bad every year. Additionally, up to 25 percent of all databases contain errors that result in inaccurate metrics. This means that over half of your data could be inaccurate!

Fortunately, there's an easy solution to this issue: regularly cleaning your data.

Why It's Important to Keep Your Data Clean

Before diving into the process of cleaning your data, it's important to understand why maintaining a clean database matters. Here are some key reasons to prioritize clean data:

- **Ensure Data Accuracy**: Over time, data naturally becomes less accurate. A lead's contact information, preferences, or status could change after a few years. Cleaning your data helps remove outdated, inaccurate, and duplicate records, keeping your CRM's information reliable and up-to-date.

- **Maintain Your Reputation**: If your data isn't accurate, it can become difficult to communicate with your leads. If your customer preferences and interaction histories are incorrect, it can lead to misdirected emails, duplicate messages, and irrelevant content reaching your customers, eroding trust and hurting your reputation.

- **Provide Accurate Analysis**: Analyzing inaccurate data results in misleading insights. Duplicate or outdated records can inflate your pipeline and make revenue forecasts appear stronger than they are. This may cause leadership to implement strategies based on overstated projections, leading to misallocated resources.

- **Accelerate Your Lead Conversion**: Accurate data helps your sales team improve conversions by identifying qualified leads and engaging them more effectively.

- **Improve Customer Satisfaction**: Reliable data allows your team to use accurate customer histories. As a result, they don't have to ask customers to repeat information they've already provided. This enables more personalized and relevant engagement, creating a better experience.

- **Improve Forecasting Capabilities**: Accurate data helps your team identify trends and forecast the success of marketing and sales strategies more reliably. The clearer your data, the better your insights into potential opportunities will be.

- **Improve Email Marketing Deliverability**: When your data is accurate, you can segment your audience more effectively and create content that resonates with their needs, increasing the success of your email marketing campaigns.

Steps Toward Maintaining a Clean CRM

Now that you understand why cleaning your data is so important to your organization's success, the following are the steps you should take to begin the data cleaning process:

Use Your CRM's Built-In Deduplicator

Odds are your company uses more than one channel to generate leads and engage customers. As such, there's always going to be a chance that you're collecting duplicate information, meaning you may have more than one profile of the same customer in your database.

Most top-of-the-line CRMs, such as HubSpot CRM and Salesforce, include built-in deduplication tools that can scan your database for duplicate records, which can then be merged or removed.

Use Email Validation Tools

Some users submit fake email addresses, others have inactive accounts, and some may simply ignore your emails. These issues can cause deliverability problems and skew your analytics. By validating your email list and removing invalid addresses, you ensure your campaigns reach real, engaged recipients.

Email validation tools (also known as email verification tools) help keep your email list current, providing accurate data that supports reliable marketing metrics and insights.

Follow a Set of Rules for Lists, Tags, and Fields

Be sure to establish consistent naming conventions for your lists, tags, and fields. Doing so will prevent duplicate or miscategorized data. When data from all of your sources is clearly labeled and organized, your CRM will remain accurate, searchable, and easy to manage.

Routinely Purge of Clear Out Inactive or Useless Contacts

Removing outdated contacts from your CRM is just as important as removing inactive email addresses from your email list. You may have leads who turned out to be dead ends, customers who have switched brands, or customers who no longer need your products or services.

Periodically purge contacts like these so your marketing and sales personnel don't waste time on them and your analytics aren't affected by their inactivity.

Run Frequent Re-Engagement Campaigns to Keep Lists Warm

The last thing you want to do is to accidentally remove contacts that still have value. Running a re-engagement campaign before you purge your contacts lets you see whether they're still engaged with your brand, keeping your database clean without losing potential opportunities.

Specify "Fallbacks" for Any Field Which May Be Used for Personalization

If you have multiple channels to engage leads, you'll eventually end up with multiple sources for the same data. For example, you may have the name of a contact from both a chat conversation and a form they filled out. Because of this, you should define a fallback strategy that determines which source to prioritize to ensure the most accurate, up-to-date information.

Fallbacks can be either time-based (using the most recent data) or source-based (prioritizing the most reliable sources). By setting fallbacks for each field, you maintain consistency and improve the effectiveness of your personalized communications.

Use Unique Identifier Fields to Avoid Duplications

While removing duplicates is crucial, preventing them from happening in the first place makes database management much easier. When multiple lead sources and users interact with your CRM, duplication can occur quickly. To avoid duplicates, assign a "unique" field—such as an email address—for each record. Doing so ensures the system recognizes it as a single entity, avoiding duplicate contacts.

For example, you could designate a lead's email address as the unique identifier. This ensures the CRM cannot create a second record with the same email.

Make Sure Data Entry Expectations Are Clear

Finally, everyone responsible for data entry in your organization should understand the importance of keeping your data clean. Train your team for entering data accurately and avoiding duplication. Individual data entry mistakes can be easily eliminated by simply communicating your expectations.

Clean and Accurate Data Is the Foundation for Growth

Your CRM data can be an incredibly valuable asset for nurturing leads and engaging customers, but its value depends on its accuracy. Inaccurate data is not only useless, it can also harm your marketing, sales, and customer service efforts.

Taking the extra effort to clean your data and prevent errors or duplications, also called data hygiene, is critical. Accurate, up-to-date data helps you spot problems and opportunities across your business processes. It prevents poor decisions that waste time and resources, improves forecasting and planning, and strengthens your ability to engage with leads and customers.

Written and published for CIO Source via SMB Advisors. Rewritten for portfolio presentation.

An Introduction to Enterprise Architecture and Modern Business

The Basics of Enterprise Architecture and Its Contributions to Modern Business

Enterprise architecture (EA) is a framework that provides a high-level view of how a company's business capabilities, information, and technology work together. Think of it as a blueprint for strategically defining and optimizing your organization's operations. A well-designed EA can help you identify the most effective ways to achieve your company's current and future goals.

The Components of Enterprise Architecture

Since an effective EA is meant to provide a comprehensive view of your company, it should encompass all components of your organization. A true enterprise architecture typically consists of five elements:

1. **Business Architecture**: Defines your business capabilities and functions, including finance, manufacturing, marketing, and sales, and shows how they relate to one another.

2. **Process Architecture**: Outlines your business process streams and value streams, such as Prospect-to-Customer, Order-to-Cash, Manufacturing-to-Distribution, and Request-to-Service.

3. **Information/Data Architecture**: Identifies and classifies the data important to your company, how it is structured, how it is related, and how it will be maintained. This includes customer data, product data, and other types of information stored in documents, spreadsheets, databases, images, and more.

4. **Application Architecture**: Describes the systems and applications needed to support your business capabilities and value streams. It also explains how these systems interact with your processes and standards and helps you plan application roadmaps, including when new applications may be needed or when existing ones should be upgraded, replaced, or retired.

5. **Technical Architecture**: Defines the underlying technical infrastructure, including hardware, operating systems, networking solutions, and software components.

Together, these components provide a framework for understanding your organization and its operations, helping you identify strategies that support your company's goals.

The Origins of Enterprise Architecture

Although modern EA focuses on the use of technology across an organization, the process itself dates back to the 1960s, long before companies became as dependent on technology as they are today. The term "enterprise architecture" comes from a series of documents written by Professor Dewey Walker on Business Systems Planning. One of his students, John Zachman, helped organize Walker's documents into the format we now recognize as EA. Zachman published the framework in 1987 in the *IBM Systems Journal*.

During the 1980s, the use of business technology grew rapidly, particularly as computer systems became more common in the workplace. Zachman's EA framework responded to the need for companies to adopt long-term strategies to manage technological growth. While the framework initially focused only on information technology (IT), modern enterprise architecture applies the same principles to align the entire business with both technological development and broader digital transformation.

Primary Focus And Goals of Enterprise Architecture

EA can seem incredibly broad, but its main goal is to improve the efficiency, relevance, and reliability of your business information, ultimately supporting better long-term decision-making. This involves using your organization's business requirements to evaluate processes that may need to change, manage those changes effectively, develop more efficient business procedures, and facilitate communication across the organization.

Organizational Structure Designing

Enterprise architecture planning (EAP) can help you design your organization's structure by identifying workflows, procedures, systems, and overall structures, and determining whether they need realignment to support current business goals. If realignment is necessary, plans can then be made to implement the required changes.

Business Processes Standardization

Enterprise architecture also allows you to evaluate all of your business processes and standardize them based on their effectiveness and efficiency. Standardizing processes establishes clear rules for employees to follow. Implementing standardized processes can:

- Increase clarity and reduce ambiguity for employees.
- Boost productivity by ensuring everyone knows which processes to follow.
- Enhance quality by defining and optimizing processes for efficiency and effectiveness.
- Improve the overall customer experience.

Project Portfolio Management

Project portfolio management is a process that lets you analyze the potential return of proposed projects while providing a big-picture view of past, current, and upcoming initiatives. EA can improve the effectiveness of project portfolio management by fostering collaboration and communication among stakeholders. This makes it easier to identify dependencies necessary to achieve business goals during project planning.

EA also supports project portfolio management by highlighting the strategic application portfolio and guiding investment and prioritization decisions.

Engineering Design Process Requirements

Defining, documenting, and maintaining requirements in your engineering design process is crucial for the success of software and systems development. EA can help define these requirements more quickly and accurately.

System Development

When developing and testing new systems, EA helps streamline system designs and ensures the most efficient allocation of resources.

IT Management

EA can improve IT management by increasing IT value, reducing complexity, and helping manage risk. This is achieved by lowering system implementation and operational costs, consolidating data and applications to simplify IT environments and improve interoperability, and minimizing the risks caused by system failures or data breaches.

The Benefits of Enterprise Architecture

EA helps increase the efficiency and effectiveness of your business processes by providing a comprehensive view of how technology is used and integrated across your organization. Your business can gain several specific benefits from EA:

Meet Business Objectives Faster

EAP can improve business processes and data management in multiple ways, such as by enabling integration agility, eliminating redundancies, implementing automation, introducing modularity, and standardizing processes. These improvements boost your organization’s efficiency, agility, and ability to make informed decisions quickly, helping you achieve business objectives faster.

Reduce Risk and Regain Control Over Portfolio

EAP provides a clearer overall view of your application portfolio, giving you greater control over the systems you use and what they are designed to achieve. It also helps you select new applications more effectively by aligning them with your strategic objectives and enterprise architecture. This ensures you avoid investing in unnecessary applications that may not add value—or that could hinder your business processes.

Remove Unnecessary Duplications in Application Portfolio

Redundant applications can exist across different parts of an organization. EAP allows you to inventory all applications in use, identify overlaps, and decide which systems to keep. By removing unnecessary duplicates, you can reduce costs, streamline processes, and improve overall organizational efficiency.

Enterprise Architecture Planning Methodologies

Because EA is a high-level framework designed to address your entire organization, it's helpful to use different methodologies that focus on specific needs and business units. Many methodologies are in practice today, but here are a few of the most commonly used for EAP:

The Open Group Architectural Framework (TOGAF)

TOGAF is arguably the most popular EA framework, with Open Group claiming that 80 percent of the world's leading enterprises have adopted it. It provides a standardized approach to enterprise architecture, including a common vocabulary, recommended tools and software, suggested standards, compliance methods, and guidance for defining best practices.

The Zachman Framework

Named after John Zachman, this framework helps standardize and define your organization's IT architecture components and outputs through six architectural focal points and six primary stakeholders. The Zachman framework is often described as a taxonomy (the practice of classification) by the Computing Technology Industry Association (CTIA), one of the top trade associations in the IT industry.

Federal Enterprise Architecture Framework (FEAF)

In 1996, the Clinger-Cohen Act was passed, establishing mandates to improve how federal agencies acquire, use, and dispose of technology. In response, the Federal Enterprise Architecture Framework (FEAF) was introduced. While specifically designed for federal agencies to support the shared development of common processes and information, it can also be adapted by private companies for their own use.

Department of Defense Architecture Framework (DoDAF)

DoDAF was developed for the U.S. Department of Defense (DoD) to help managers make better decisions at all levels by organizing and sharing information effectively across the department. Because it was designed for the DoD, DoDAF is geared toward large systems and addresses complex interoperability and integration challenges.

Gartner

When Gartner acquired The Meta Group in 1995, it introduced best practices for EAP that were later integrated into its broader consulting services. While these practices do not form a single framework, CompTIA recognizes Gartner's methodology as a practical way to align EA with business outcomes.

Hybrid / Custom Approach

Every EA framework is different. They serve different purposes, have different scopes, are based on different principles, are supported by different approaches, and have different structures.

You may find that no single framework is capable of meeting your specific needs. If this is the case, consider a custom or hybrid approach. This involves selecting components from multiple frameworks, combining them to build your architecture, customizing the framework for your needs, and defining guiding principles for your practices.

Your Enterprise Architecture Reflects Your Entire Business Architecture

Modern businesses need to remain flexible when adopting and implementing new technologies across their organization. They also need to ensure that these technologies are used efficiently and effectively, in alignment with business goals. Achieving this requires a clear view of your organization's structure and how its information, business processes, and technology work together. This is why enterprise architecture planning is so important.

A well-designed enterprise architecture can help lower costs, streamline processes, enhance outcomes, and support a sustainable business.

Written and published for BrainSpire via SMB Advisors. Rewritten for portfolio presentation.

CCPA Compliance Checklist: Your Roadmap to Success

Arguably the biggest advantage of online marketing is the ability to truly understand your audience. Whether it's through your website, social media, or other digital channels, your interactions with leads and customers generate valuable data. When analyzed properly, that data helps you refine messaging, personalize outreach, and improve overall performance.

However, this advantage has also raised ethical and legal questions regarding consumer data privacy. California was one of the first states to address these concerns when it enacted the California Consumer Privacy Act (CCPA). The law was later expanded and strengthened by the California Privacy Rights Act (CPRA).

Businesses that fail to comply with the CCPA may face regulatory enforcement, civil penalties, and private lawsuits. With this in mind, we've put together a checklist to help you achieve and maintain compliance while conducting business in California.

What is the California Consumer Privacy Act (CCPA)?

CCPA was passed in 2018 after California residents petitioned for legal measures to protect their online privacy. The law was passed on January 1, 2020, requiring greater transparency from businesses that collect personal information from California residents.

Under the CCPA, businesses must inform consumers whether they are collecting, using, sharing, or selling personal data. They must also fulfill consumer requests to:

- Know what personal data is being collected
- Know how their personal data is being used
- Access their personal data
- Stop selling their personal data
- Stop collecting their personal data
- Delete all of their personal data

The California Privacy Rights Act (CPRA)

The CCPA was amended the same year it was enacted, with the intention that consumer protections would continue to grow over time. As part of this effort, the CPRA was passed in 2020 and went into effect in 2023.

One of the original limitations of the CCPA was that it treated all personal data the same, even though some types of data carry higher risks. To address this, the CPRA created a new

category called sensitive personal information (SPI). This type of data is considered sensitive because it could expose consumers to identity theft or other harm. Examples of SPI include:

- The consumer's precise location
- Government IDs (such as Social Security numbers)
- Financial account information
- Racial or ethnic origin
- Religious beliefs
- Genetic or biometric data
- Private communications

The CPRA also expanded consumer rights under the CCPA, including the ability to:

- Prevent personal data from being shared
- Limit the use and disclosure of sensitive personal information
- Access personal information collected beyond 12 months

Does the CCPA Apply to You?

The first thing to understand is that the CCPA is a state law, not a federal one. While other states have their own privacy regulations, the CCPA specifically applies to personal information collected from California residents. If your business does not collect data from Californians, the law does not apply. However, if you do collect data from California residents, you are legally required to comply with the CCPA, even if your organization is located outside of the state.

It's also important to note that not every business is required to comply. There are specific criteria that determine whether a company falls under the scope of the law. If your company does not meet those thresholds, you are not legally obligated to follow the CCPA. Below is a checklist to determine whether your business is exempt from the CCPA or not:

1. Determine if Your Business Is Covered

There are three main criteria that determine whether a business must comply with the CCPA. Meeting any one of the following criteria means your company is legally required to achieve and maintain compliance.

- ❏ ***Does your annual gross revenue amount to $25 million?***

Any company that earns $25 million or more in profit per year must comply with the CCPA. If your revenue is currently just below this threshold, it's a good idea to start preparing for compliance, as you may soon meet the requirement.

- ❏ ***Do you receive or share personal information for 50,000 or more consumers, households, or devices?***

If your business collects personal information for 50,000 or more consumers, households, or devices, you must comply, whether you're selling or sharing that data or not.

- ❏ ***Is half of your annual revenue sourced from selling consumer data?***

If your company earns 50% or more of its annual revenue from selling personal information, you must comply, even if you don't meet the other revenue or data thresholds.

2. Identify if Your Business Is Exempt

In addition to companies that do not meet any of the three criteria established by the CCPA's guidelines, there are a few other exemptions in which you won't need to comply with the CCPA's regulations. These exemptions include the following:

- **Data Collected Outside of California**: If the user was outside of California at the time the data was collected, then the CCPA's regulations do not protect that user.

- **Transactional Data Needs**: Personal information necessary to fulfill a contract, complete a transaction, or maintain an ongoing business relationship does not have to be deleted immediately. For example, if a California customer purchases a product with a five-year warranty, their data cannot be deleted until the warranty period ends. However, one-time transactions are not covered by this exemption.

- **Employee Information:** Anyone who is employed or contracted by your company cannot request that you delete their personal data. However, they do have the right to access any personal information that you've collected from them.

- **Research on Behalf of Public Interest** - If you are collecting personal information for public or peer-reviewed scientific, statistical, or historical research, you do not have to delete that information even upon request. However, this depends on whether the research serves the public interest and whether deleting the data would hinder or prevent the study.

- **The Expected Internal Uses**: Personal data used solely for internal purposes, such as analyzing website traffic, may not need to be deleted, as long as the use aligns with reasonable consumer expectations.

- **Legal Compliance**: If a government agency requests personal information under laws like the California Electronic Communications Privacy Act (CalECPA), you do not have to delete it, even if a verified request is submitted. Regulatory investigations or court proceedings can also take priority over CCPA deletion requests.

- **Security Uses:** Certain personal data can be exempt from deletion if you're using it to maintain server logs or to detect and prevent cybersecurity or on-site security incidents.

Is Your Business Compliant?

Once you've determined whether your business meets one of the three CCPA criteria, the next step is to see if your company is actually compliant. There are three key components:

1. **Transparency**: Be clear about what personal data you collect, how you use it, and whether it's shared or sold.

2. **Consumer Requests**: Provide an easy way for consumers to access their data, request deletion, or opt out of the sale or sharing of their information.

3. **Ability to Fulfill Requests**: Make sure your data is organized and accessible, and that employees are trained to handle consumer privacy requests properly.

The following steps will help you determine whether your business is currently CCPA compliant and guide you on what to do if it isn't.

1. Take Stock of Your Data

- ❏ ***Do you have your data of California consumers mapped or inventoried?***

Many businesses collect personal data from various sources, but it's common for that data to be poorly organized. When data isn't well-structured, it can be difficult to trace all the information you have about a single consumer, making it harder to fulfill privacy requests.

Data mapping helps you take proper stock of your data. It makes it easier to track personal information and respond to access or deletion requests efficiently.

2. Update Your Policies and Notices

Although the CCPA doesn't require you to get consent to collect data—except for users aged 16 or younger—it does require transparency. You must clearly communicate whether you're collecting personal information and how it will be used.

To stay transparent and compliant, make sure you update the following website policies and notices:

Update Your Privacy Policies

- ❏ ***Have you updated your company's privacy policy and notices and incorporated them into all your procedures?***

Your privacy policy should clearly explain what information you collect and why. For instance, whether you're collecting data to improve your website experience or to share with third parties,

you need to disclose it. Any time you change what data you collect or how you use it, update your policy to reflect those changes.

Your privacy policy should also be easy to find. A good practice is to provide a notice linking to it as soon as visitors arrive on your website.

Review and Strengthen Security Policies

- ❏ ***Can you assure your consumers of confidentiality and integrity?***

It's important to reassure users that the data you collect is secure and that their privacy will be respected. Without this assurance, users may be more likely to request deletion of their information. To build trust, post a clear and easy-to-understand security policy on your website.

Standardize Third-Party Agreements

- ❏ ***Are your agreements with third-party entities standardized and breach-proof?***

If you sell or share personal information with third parties, you need to ensure your agreements with them are clear and enforceable. They should specify what types of personal information are being shared and how the third party is allowed to use it. For example, you may not want them to resell the data without your permission.

3. Set Accessibility Procedures in Place

- ❏ ***Can you execute access or deletion requests accurately and seamlessly?***
- ❏ ***Can you respond to consumers promptly?***
- ❏ ***Can you correctly determine the requesting consumer's eligibility?***
- ❏ ***Can you evaluate which exceptions are available to your company in all instances?***

You're not only required to fulfill data privacy requests, but you must also make it easy for consumers to submit them. Provide a web form and a phone number so users can contact you directly. In addition to mapping all the personal information you've collected, remember to train your employees to handle requests correctly. Keep in mind that you have 45 days to respond once a request is received.

Before fulfilling a request, you must verify that the personal information belongs to the person making the request. If the request is for deletion, make sure the data isn't exempt under the CCPA.

Enable a Verification Process

- ***Can consumers verify their identities?***

Ensure that only the rightful owner can request access to their personal information. Without verification, you risk fraud or identity theft. To prevent this, implement a process that authenticates data privacy requests. There are many verification options available, including email confirmation, multiple-choice security questions, or verification using personal information.

4. Create an Opt-Out Button or Link

- ***Does your site allow consumers to opt out of sharing their information through a button or link?***

If your business sells or shares consumer information, you must provide an opt-out option. A clear button or link makes it easy for consumers to request that you stop selling or sharing their personal data.

5. Establish Consent Procedures for Minors

- ***Do you have a method in place for obtaining consent from the parents of children aged 13 or younger?***

- ***Do you have a method in place for obtaining consent from minors aged 13 to 16?***

As mentioned earlier, you don't need consent to collect data from users over the age of 16. However, for users aged 13 to 16, you must obtain their permission. Users under 13 need consent from a parent or guardian.

Plan Your CCPA Compliance Step by Step

The CCPA sets extensive rules for data transparency and use, and achieving compliance may seem challenging. However, with a systematic approach, it becomes much more manageable.

Start by understanding what the CCPA requires. Then, use the compliance checklist above to guide your actions step by step. Following this approach will not only help you achieve CCPA compliance but also maintain it over time.

Written and published for MediVera Compounding Pharmacy via Paradox Marketing.

USP <795>, <797>, <800>-Compliant 503A Compounding Pharmacy

When it comes to personalized medication solutions, diligence, regulatory compliance, and adherence to established protocols are essential. MediVera is a 503A compounding pharmacy that prepares individualized prescriptions in alignment with USP <795>, <797>, and <800> guidelines.

These USP standards set critical expectations for compounded medication practices: USP <795> for non-sterile preparations, USP <797> for sterile compounding, and USP <800> for the safe handling of hazardous medications. Together, they help safeguard both patients and pharmacy personnel through documented processes.

This guide explores the responsibilities of a 503A compounding pharmacy, the role of USP <795>, <797>, and <800> compliance, and how MediVera maintains a consistent, protocol-driven approach to pharmacist-directed compounding.

What Are 503A Compounding Pharmacies?

503A compounding pharmacies are licensed facilities that prepare compounded medications based on individual prescriptions written by a licensed healthcare provider. Unlike manufacturers or commercial pharmacies that produce mass-distributed medications, 503A pharmacies compound each formulation to meet the specific directions of the prescriber.

This approach allows for pharmacist-prepared formulations that may support patient needs such as allergy-friendly ingredients, modified dosage forms, or alternative delivery routes—when FDA-approved options are unavailable or inappropriate, as determined by the provider.

- **Key differences between 503A and 503B pharmacies**

While both types of facilities are involved in compounding, their regulatory frameworks differ:

Aspect	**503A Pharmacies**	**503B Pharmacies**
Purpose	Focus on individual prescriptions.	Produce medications in bulk for healthcare facilities.
Regulatory oversight	Governed by state boards of pharmacy and the FDA.	Regulated primarily by the FDA as outsourcing facilities.

Customization	Patient-specific formulations only.	Standardized batches for hospitals or clinics.
Sterility requirements	Follow USP <795> , <797> , and <800> standards for compounding.	Comply with cGMP (current Good Manufacturing Practices).

503A pharmacies—including MediVera—are authorized to prepare compounded medications on a patient-by-patient basis, in accordance with a licensed provider's prescription. In contrast, 503B outsourcing facilities are permitted to produce compounded medications in bulk for use in healthcare settings under specific federal oversight.

While both serve important roles, they are structured to fulfill distinct regulatory and clinical responsibilities within the broader healthcare system.

Understanding USP <795>, <797>, <800> Standards In 503A Compounding Pharmacies

USP <795>, <797>, and <800> standards provide the foundational framework for how 503A compounding pharmacies prepare medications. Developed by the United States Pharmacopeia (USP), these guidelines help establish protocols for handling, preparing, and dispensing compounded medications in a way that aligns with regulatory expectations and professional practice.

For 503A pharmacies such as MediVera, adherence to these USP standards is integral to maintaining internal consistency, pharmacist-directed protocols, and documentation procedures. The following sections examine how each of these standards informs MediVera's compounding process and commitment to protocol-driven preparation.

USP <795> Non-Sterile Compounding

USP <795> outlines the foundational protocols for preparing non-sterile compounded medications such as creams, ointments, capsules, and oral solutions. These standards help 503A compounding pharmacies establish procedures that support pharmacist-directed preparation and appropriate handling of customized formulations.

For pharmacies like MediVera, adherence to USP <795> supports:

- **Contamination Control**: Following detailed protocols helps reduce the risk of microbial contamination or ingredient degradation during compounding.

- **Ingredient Management**: USP <795> provides guidance for sourcing, labeling, and storing ingredients that meet acceptable purity criteria.

- **Process Accuracy**: The standard promotes consistent measurement, mixing, and documentation practices that help ensure compounded formulations reflect the prescriber's written order.

USP <797> Sterile Compounding

USP <797> provides detailed guidelines for compounding sterile medications such as injectables, intravenous solutions, and ophthalmic preparations. These standards focus on establishing controlled processes that help limit contamination and promote consistency in sterile compounding environments.

For 503A pharmacies like MediVera, compliance with USP <797> supports:

- **Controlled Environments**: Use of cleanrooms, laminar airflow hoods, and proper gowning techniques, as required by USP <797>, helps reduce the potential for microbial or particulate contamination.

- **Standardized Aseptic Technique**: USP <797> outlines validated protocols for aseptic preparation, equipment cleaning, and ingredient sterilization.

- **Documentation and Testing**: Guidelines include requirements for ongoing sterility testing, environmental monitoring, and record keeping to promote process consistency.

USP <800> Handling Hazardous Drugs In Healthcare Settings

USP <800> provides detailed protocols for managing hazardous drugs to reduce occupational exposure risk and support environmental safeguards in healthcare settings. These guidelines cover all stages of handling—receiving, storing, compounding, transporting, administering, and disposing—and are implemented in 503A compounding pharmacies such as MediVera.

Compliance with USP <800> involves the following documented practices:

- **Personnel Training and Responsibility**: USP <800> assigns handling responsibilities to designated personnel. Training and role-specific procedures help promote a workplace culture focused on exposure control.

- **Engineering Controls**: Negative-pressure rooms, biological safety cabinets, and other containment devices are utilized to limit the spread of hazardous particulates and vapors during the compounding process.

- **Decontamination and Cleaning**: USP <800> outlines requirements for deactivating, decontaminating, and cleaning equipment and surfaces that come into contact with

hazardous substances, including standardized spill response and disposal protocols.

- **Documentation and Monitoring**: Record keeping is essential for demonstrating compliance with USP <800> and helps maintain adherence to workplace safety protocols throughout the drug-handling process.

Benefits Of USP Compliance For Medication Quality and Regulatory Conformance

USP <795>, <797>, and <800> provide foundational guidance for compounding practices, helping pharmacies like MediVera implement standardized procedures that promote consistency, environmental control, and regulatory alignment. These guidelines support the safe preparation, handling, and documentation of non-sterile, sterile, and hazardous compounded medications under a prescriber's order.

By operating in accordance with USP standards, 503A compounding pharmacies demonstrate their adherence to accepted professional protocols in compounding. This structured approach helps ensure that preparations are made in a controlled environment with attention to process validation and traceability.

The following section outlines how USP compliance informs daily pharmacy operations, from facility setup and personnel training to ingredient management and recordkeeping.

Custom Medications

503A compounding pharmacies are authorized to prepare medications based on a licensed provider's prescription for an individual patient. This allows pharmacists to create customized preparations when commercially available products may not be suitable due to dosage, formulation, or ingredient considerations.

Examples of customization include:

- **Adjusted Dosage Forms**: A prescriber may request a specific strength or format, such as capsules, creams, or liquids, when a commercial equivalent is unavailable or inappropriate for the patient.

- **Flavor Modifications**: Certain compounded preparations may include flavoring to accommodate prescriber requests for pediatric or geriatric patients who have difficulty swallowing or tolerating unflavored medications.

- **Multi-Ingredient Formulations**: Prescribers may request that multiple active pharmaceutical ingredients (APIs) be combined into a single preparation for convenience, provided it is clinically justified and within the scope of compounding regulations.

Broadened Treatment Possibilities

503A compounding pharmacies prepare medications based on a licensed provider's prescription for an individual patient. This allows pharmacists to compound medications in formats or ingredient combinations that may not be commercially available, when appropriate.

Examples include:

- **Exclusion of Specific Ingredients**: Compounded preparations may be prescribed without certain excipients such as dyes, preservatives, or fillers for patients with ingredient sensitivities.

- **Adjusted Strengths**: When a specific dosage is unavailable in a manufactured form, prescribers may request customized strengths to align with clinical judgment.

- **Alternative Administration Forms**: Compounded medications may be prepared as topical creams, liquid suspensions, troches, or other delivery methods based on patient preference or prescriber direction.

- **Formulation Flexibility**: In certain cases, prescribers may require a specific combination of active pharmaceutical ingredients (APIs) in one dosage form to support therapy that is not commercially available.

Patient-Focused Care

503A compounding pharmacies operate under a model that allows for medication preparation based on a licensed healthcare provider's prescription for an individual patient. This model supports customized pharmaceutical formulations in cases where commercially available medications may be unsuitable due to ingredient tolerability, dosage needs, or delivery method preferences.

Examples of prescriber-directed customization include:

- **Formulation Adjustments**: Healthcare providers may request alterations in strength, dosage form, or excipient profile to accommodate patient-specific considerations.

- **Prescriber Collaboration**: MediVera works directly with providers to prepare compounded medications that align with the prescriber's clinical plan and the individual needs they have identified.

- **Options for Delivery and Administration**: Based on the prescription, medications may be compounded as liquid suspensions, creams, troches, or other forms to help support provider-directed therapy goals.

- **Process Quality**: MediVera compounds medications in accordance with applicable USP standards and PCAB-accredited protocols that include documentation, testing, and process validation.

Ease Of Access And Convenience

MediVera supports prescriber-directed care by offering services that simplify access to compounded medications. These services are designed to accommodate individual needs and help healthcare providers deliver timely, customized therapy when commercially available options are not suitable.

MediVera offers:

- **Collaborative Prescription Fulfillment**: The pharmacy works with licensed healthcare providers to prepare and dispense individualized prescriptions as efficiently as possible, following applicable compounding protocols.

- **Multi-State Licensing**: MediVera maintains licensure in multiple states, allowing it to dispense compounded medications to patients across a broader geographic area, where permitted.

- **Delivery Services**: Patients may receive their prescribed compounded medications via mail through secure shipping options that align with applicable pharmacy regulations.

- **Pharmacist Support**: Licensed pharmacists are available to assist with prescription-related questions and provide counseling as required under applicable laws and pharmacy best practices.

Partnership With Healthcare Professionals

MediVera collaborates with licensed healthcare professionals—including physicians, nurse practitioners, and physician assistants—to support prescriber-directed therapy through compounded medications prepared for individual patients.

The pharmacy provides:

- **Prescription-Based Customization**: MediVera prepares compounded medications according to the specific instructions of licensed providers, including adjustments to dosage strength, excipient profile, or delivery format when requested.

- **Pharmacist Consultation**: MediVera pharmacists are available to assist providers with compounding considerations, including compatibility of ingredients and available dosage forms.

- **Streamlined Communication**: Providers can submit prescriptions and communicate with the pharmacy through established channels designed to support timely and accurate fulfillment.

- **Aligned Professional Standards**: MediVera compounds medications in accordance with USP <795>, <797>, and <800> standards and is PCAB-accredited, reflecting its commitment to supporting safe, prescriber-directed therapy.

Adherence To Regulatory Standards

503A compounding pharmacies, such as MediVera, operate under a framework of federal and state regulations, with oversight from state boards of pharmacy. MediVera also follows nationally recognized compounding standards to support protocol-driven medication preparation for individual patients based on a licensed prescriber's order.

- **503A Regulatory Compliance**: MediVera complies with applicable 503A pharmacy requirements, including preparing compounded medications solely pursuant to individual prescriptions and not for office use or mass distribution.

- **USP <795>, <797>, and <800> Alignment:** MediVera compounds medications in accordance with USP <795> (non-sterile compounding), USP <797> (sterile compounding), and USP <800> (handling hazardous drugs). These standards help guide facility design, environmental controls, compounding procedures, and documentation.

- **Commitment to Standards-Based Practice**: MediVera's internal processes include ingredient verification, in-house validation protocols, and pharmacist-directed oversight—all conducted under PCAB-accredited quality systems.

Why You Should Trust A USP-Compliant Compounding Facilities

USP-compliant compounding pharmacies follow nationally recognized standards that help guide how medications are prepared for individual patients. Facilities like MediVera adhere to USP <795>, <797>, and <800>, which outline best practices for non-sterile, sterile, and hazardous drug compounding. This approach reflects a strong commitment to procedural consistency and regulatory alignment.

Here are several reasons why healthcare providers and patients may seek out a USP-compliant compounding facility:

- **Structured Quality Protocols**: USP standards define how ingredients are sourced, stored, and handled. These protocols help support consistency and integrity throughout the compounding process.

- **Process Controls That Support Safety**: USP <795>, <797>, and <800> include procedures for environmental control, equipment cleaning, and contamination reduction—contributing to a well-managed compounding environment.

- **Prescriber-Directed Customization**: USP compliance supports pharmacist preparation of dosage forms, delivery formats, or excipient profiles based on prescriber direction when commercial options are unavailable or inappropriate.

- **Regulatory Alignment**: USP-compliant pharmacies demonstrate a commitment to meeting widely accepted professional standards and applicable federal and state guidelines.

- **Protocol-Driven Preparation**: Following USP guidelines helps ensure that compounded medications are consistently prepared under validated internal procedures.

How MediVera Ensures USP Compliance In Compounding

MediVera follows established standards and protocols designed to support quality and regulatory alignment in its compounding practices. By adhering to USP <795>, <797>, and <800>, MediVera helps ensure that all medications are prepared in a controlled, pharmacist-directed environment based on individual prescriptions.

Here's how MediVera supports USP compliance throughout its operations:

- **Verified Ingredient Sourcing**: MediVera uses pharmaceutical-grade ingredients from FDA-registered suppliers. Each lot undergoes documentation review and verification for identity and potency prior to use in compounding.

- **USP-Aligned Facilities and Equipment**: The pharmacy operates in a controlled environment with dedicated spaces for sterile, non-sterile, and hazardous drug compounding. These include cleanrooms, laminar airflow hoods, and negative-pressure containment areas in accordance with USP <795>, <797>, and <800> protocols.

- **Environmental Monitoring**: Routine monitoring of air quality, surface contamination, and pressure differentials is conducted to meet internal validation protocols and USP environmental control expectations.

- **Quality Control Checks**: Every compounded preparation undergoes pharmacist-directed review and, where appropriate, additional testing for potency and sterility. These procedures help support consistency and documentation before a product is dispensed.

- **Detailed Documentation**: Comprehensive batch records and ingredient logs are maintained for every compounded preparation. This traceability supports audit readiness

and regulatory compliance.

- **Ongoing Staff Training**: MediVera's pharmacists and technicians complete regular training on compounding best practices, including safe handling procedures as outlined in USP <800>.

Through these internal standards and processes, MediVera aligns with USP guidelines and maintains its commitment to supporting prescriber-directed care with pharmacist-prepared compounded medications.

Not Every Compounding Pharmacy Delivers The Same Quality

Not all compounding pharmacies follow the same protocols or align with nationally recognized compounding standards. MediVera maintains documented procedures and facility design practices that reflect its adherence to established pharmacy guidelines and voluntary third-party quality benchmarks.

Here's how MediVera aligns with current professional expectations in compounding:

- **USP <795>, <797>, and <800> Compliance**: MediVera compounds medications in accordance with USP guidance for non-sterile, sterile, and hazardous drug preparations. These protocols outline environmental controls, ingredient handling, and record keeping requirements.

- **PCAB Accreditation**: MediVera holds accreditation from the Pharmacy Compounding Accreditation Board (PCAB), which involves voluntary compliance with additional quality and procedural standards in both sterile and non-sterile compounding.

- **Facility Design and Environmental Control**: MediVera's facility includes clean rooms, containment devices, and environmental monitoring practices aligned with USP protocols to reduce contamination risk during the compounding process.

- **Documentation and Process Transparency**: Each compounded preparation is supported by batch records, ingredient sourcing verification, and pharmacist oversight. These processes support accountability and traceability throughout fulfillment.

MediVera's compounding practices reflect its alignment with USP standards and PCAB expectations, supporting provider-directed therapies when a commercially available medication is not appropriate for a specific patient.

Written and published for Hummingbird Networks via Paradox Marketing.

Top 11 Cisco Meraki Switches And Why They’re The Best Choice

Selecting the right network switch is a critical decision for any business. A reliable and efficient switch supports uninterrupted connectivity, enhances productivity, and ensures your network can handle the demands of modern applications. Cisco Meraki switches are recognized for their cloud-managed solutions, offering a seamless combination of simplicity, scalability, and robust security.

For business owners, the right switches are more than just tools—they are the backbone of a network capable of supporting growth, reducing downtime, and providing control and visibility. Cisco Meraki switches are engineered to meet these needs, delivering high performance while simplifying network management through an intuitive cloud dashboard.

Cisco Meraki Full Stack Solutions Redefine Network Management

Cisco Meraki is renowned not only for its high-performance products but also for its comprehensive "Full Stack" solutions that streamline network management. The Meraki Full Stack encompasses switches, wireless access points, security appliances, and more, all integrated within a single, cloud-managed platform. This approach delivers unmatched simplicity, enabling businesses to manage their entire network infrastructure from one intuitive dashboard.

The Full Stack provides seamless compatibility between devices, reducing the complexities often associated with multi-vendor environments. With features like automated updates, centralized management, and advanced analytics, businesses can optimize network performance while minimizing time spent on maintenance and troubleshooting.

The Meraki Full Stack is a game-changer for business owners, providing a unified system that enhances operational efficiency and scalability. Whether supporting a growing workforce, securing sensitive data, or managing a multi-location network, Cisco Meraki's Full Stack delivers the tools needed to simplify and redefine network management.

Must-Know Features And Specifications

Cisco Meraki switches are designed to provide businesses with dependable, scalable, and user-friendly networking solutions. Built with enterprise-grade performance in mind, these switches deliver the reliability and functionality needed to support critical operations across work networks. From seamless scalability to energy-efficient designs, Meraki switches are packed with features that address the unique challenges of managing modern business environments.

The following are some of the key features and specifications that make Cisco Meraki switches an excellent choice for work networks, ensuring secure, efficient, and scalable connectivity:

Reliable, Enterprise-Grade Hardware

Cisco Meraki switches are built with enterprise-grade components to ensure consistent performance, minimal downtime, and durability in demanding business environments. These switches are designed to support high-volume data transfers and critical operations, providing the reliability and resilience businesses need.

Effortless Scaling With Zero-Touch And Cloud Management

Cisco Meraki switches simplify network expansion with zero-touch provisioning and intuitive cloud-based management. Businesses can deploy and configure switches remotely through the Meraki Dashboard, which eliminates the need for on-site technical expertise.

Integrated Tools For Network Reliability

Cisco Meraki switches come equipped with advanced tools designed to enhance network reliability. Features like Layer 7 application visibility, real-time analytics, and automated alerts help businesses monitor performance, troubleshoot issues quickly, and maintain a stable network.

Energy-Efficient, Quiet Design

Cisco Meraki switches are engineered for efficiency, featuring low power consumption that reduces energy costs while maintaining top performance. Their quiet operation makes them ideal for office environments, minimizing noise distractions without compromising functionality.

Flexible Stacking And Advanced Ethernet Capabilities

Cisco Meraki switches offer flexible stacking options, allowing multiple switches to function as a unified system for greater bandwidth and streamlined management. Advanced Ethernet capabilities, including support for high-speed uplinks and Power over Ethernet (PoE), enable seamless connectivity for devices like access points, cameras, and phones.

Seamless Compatibility And Secure Access

Cisco Meraki switches integrate effortlessly with existing network components, ensuring smooth compatibility across a wide variety of different devices and platforms. Built-in security features, such as network segmentation and role-based access controls, safeguard sensitive data and protect against unauthorized access.

What To Consider When Selecting The Right Switches

Every business has unique networking requirements, and choosing the right Cisco Meraki switches starts with understanding your specific needs. With various options available, Meraki switches can be customized to suit organizations of all sizes and industries—but finding the ideal fit requires aligning the features and capabilities of the switches with your organizational goals.

The following are the key factors to consider when selecting Cisco Meraki switches for your business network:

Network Size

Your network size is a crucial factor when choosing Cisco Meraki switches. Smaller businesses may require fewer ports and basic features, while larger networks often need switches with higher port density, advanced capabilities, and stacking options to support multiple devices and heavy data traffic.

Security Features

Robust security is vital for protecting your network and sensitive business data. Cisco Meraki switches come with advanced security features such as role-based access control, network segmentation, and integration with Meraki's cloud-managed security tools.

These capabilities help prevent unauthorized access, mitigate threats, and ensure compliance with industry standards.

Desired Level Of Control

The level of control you need over your network plays a significant role in selecting the right switch. Cisco Meraki switches provide cloud-based management through the Meraki dashboard, offering centralized visibility and control that simplifies monitoring and configuration.

For businesses seeking hands-off management, features like zero-touch provisioning are ideal. If you require more granular control, advanced settings and detailed analytics can help you optimize network performance.

Scalability Options

Scalability is critical for businesses anticipating growth or changes in network demands. Cisco Meraki switches are designed to grow with your business, offering flexible stacking options and seamless integration of additional devices.

Whether you're expanding to multiple locations or increasing connected devices, these switches provide the scalability needed to accommodate evolving requirements without overhauling your infrastructure.

Budget And Cost-Effectiveness

When choosing network switches, it is essential to balance performance with affordability. Cisco Meraki switches offer a range of options to suit different budgets, from basic models for smaller businesses to feature-rich options for bigger, more complex networks.

The cloud-managed platform reduces operational costs by simplifying network management and minimizing the need for on-site IT resources.

Our Top 11 Picks For Cisco Meraki Switches

Cisco Meraki offers a diverse lineup of switches, each tailored to meet the needs of different business sizes and network requirements. Whether you're looking for a compact switch for a small office or a high-capacity model to support a large, enterprise-grade network, Meraki has you covered. These switches combine powerful features like cloud management, advanced security, and scalability, making them an ideal choice for businesses aiming to simplify and future-proof their networks.

Below is a list of our top 11 Cisco Meraki switch series to help you find the right solution for your business needs.

1. MS120 Series

The Cisco Meraki MS120 Series is a family of cloud-managed Layer 2 access switches designed to provide reliable and straightforward network connectivity for small to medium-sized businesses and branch offices. These switches combine essential networking features with Meraki's user-friendly cloud management platform, enabling effortless configuration and monitoring.

Key Features:

- **Cloud management:** The Meraki Dashboard provides centralized, remote management, enabling quick configuration, real-time monitoring, and seamless troubleshooting.
- **PoE options**: PoE and PoE+ models are available, supplying power to connected devices such as IP phones, cameras, and wireless access points, reducing the need for separate power sources.
- **Scalability**: Virtual stacking allows the management of thousands of ports across multiple locations through a single interface, simplifying network expansion.
- **Energy-efficient design**: Fanless models offer silent operation, making them an excellent choice for noise-sensitive environments like offices.

2. MS125 Series

The Cisco Meraki MS125 Series provides cloud-managed Layer 2 access switches for high-performance networking in branch and campus environments. With 10G SFP+ uplinks and various port configurations, the MS125 Series offers enhanced scalability and connectivity for organizations looking to expand their network infrastructure.

Key Features:

- **Cloud management**: Manage your network through the Meraki Dashboard, allowing for seamless configuration, monitoring, and troubleshooting from anywhere.
- **10G SFP+ uplinks**: High-speed uplinks ensure smooth data transmission and support for bandwidth-intensive applications.
- **PoE and PoE+ support:** Select models deliver power to connected devices like IP phones, cameras, and wireless access points, simplifying deployment by reducing the need for additional power sources.
- **Virtual stacking**: Enables the management of thousands of ports from a single interface, simplifying operations across distributed locations.
- **Energy-efficient design**: Certain models feature fanless operation, ensuring quiet performance for office environments.

3. MS130 Series

The Cisco Meraki MS130 Series offers cloud-managed Layer 2 access switches, ideal for branch and campus deployments. With ten different models, the MS130 Series provides numerous options designed to meet diverse networking needs.

Key Features:

- **Cloud management**: Manage your network remotely through the intuitive Meraki Dashboard, simplifying configuration and monitoring.
- **High-speed connectivity**: Support for 10/100/1000 Mbps RJ45 and 2.5GbE RJ45 interfaces caters to various bandwidth requirements, ensuring reliable and high-speed connectivity across the network.
- **Robust security**: Features like IPv4/6 ACL support and 802.1X authentication enforce stringent access control policies, safeguarding network integrity.

- **Granular control**: Support for 802.1Q VLAN tagging and DHCP snooping allows for precise network segmentation and policy enforcement, optimizing performance and security.

- **PoE capabilities**: With support for 802.3bt PoE technology, each port can deliver up to 30W of power, facilitating the deployment of PoE-enabled devices without additional power sources.

4. MS210 Series

The Cisco Meraki MS210 Series offers cloud-managed Layer 2 stackable switches with basic Layer 3 routing capabilities, making them ideal for branch and campus deployments. With five different models, the MS210 Series provides various options designed to meet diverse networking needs.

Key Features:

- **Cloud management**: Manage your network remotely through the intuitive Meraki dashboard, simplifying configuration and monitoring.

- **Stacking capabilities**: Two dedicated stacking ports provide 80 Gbps of stacking bandwidth, allowing for seamless scalability and simplified management of multiple switches.

- **PoE options**: Select models offer PoE/PoE+ support, enabling power delivery to connected devices like IP phones and cameras.

- **Layer 3 routing**: Basic Layer 3 routing features, including static routing, enhance network performance and flexibility.

- **Energy-efficient design**: Fanless operation in certain models ensures silent performance, suitable for office environments.

5. MS225 Series

The Cisco Meraki MS225 Series provides cloud-managed Layer 2 access switches, ideal for branch locations requiring reliable performance and scalability. With stacking capabilities and 10G SFP+ uplinks on every model, the MS225 Series ensures high performance and flexibility. This series of switches also supports an optional, rack-mountable remote power supply unit (Cisco RPS-2300) for power redundancy requirements.

Key Features:

- **Cloud management**: Manage your network remotely through the intuitive Meraki Dashboard, simplifying configuration and monitoring.

- **Stacking capabilities**: Two dedicated stacking ports provide 80 Gbps of stacking bandwidth, allowing for seamless scalability and simplified management of multiple switches.

- **10G SFP+ uplinks**: High-speed uplinks ensure future-proofing for demanding small branch and office environments.

- **PoE options**: Select models offer PoE/PoE+ support, enabling power delivery to connected devices like IP phones and cameras.

- **Energy-efficient design**: Fanless operation in certain models ensures silent performance, suitable for office environments.

6. MS250 Series

The Cisco Meraki MS250 Series delivers reliable access switching, ideal for branch and small campus deployments. With stacking capabilities and 10G SFP+ uplinks on every model, the MS250 Series ensures redundancy and performance. This family also supports redundant, field-replaceable power supplies for mission-critical networks.

Key Features:

- **Cloud management**: Manage your network remotely through the intuitive Meraki dashboard, simplifying configuration and monitoring.

- **Stacking capabilities**: Two dedicated stacking ports provide 80 Gbps of stacking bandwidth, allowing for seamless scalability and simplified management of multiple switches.

- **10G SFP+ uplinks**: High-speed uplinks ensure future-proofing for demanding small branch and office environments.

- **PoE options**: Select models offer PoE/PoE+ support, enabling power delivery to connected devices like IP phones and cameras.

- **Redundant power supplies**: Supports redundant, field-replaceable power supplies for mission-critical networks.

7. MS355 Series

The Cisco Meraki MS355 Series is a line of multi-gigabit switches designed to meet the increasing bandwidth demands of modern networks, particularly with the advent of the 802.11ax

wireless standard. These switches are ideal for environments with substantial wireless deployments, such as universities, hospitals, and large public complexes.

Key Features:

- **Multi-gigabit ports**: Each model in the MS355 Series includes multiple mGig RJ45 ports capable of negotiating speeds up to 10 Gbps, ensuring high-speed connectivity for next-generation access points and devices.

- **High bandwidth stacking**: Equipped with dedicated 100G hardware stacking ports, the MS355 Series supports stacking bandwidths of up to 400 Gbps, facilitating seamless scalability and simplified management of multiple switches.

- **Layer 3 switching**: Offers comprehensive Layer 3 features, including OSPF routing, DHCP server capabilities, and multicast routing (PIM-SM), enhancing network performance and flexibility.

- **Power over Ethernet (PoE)**: Supports UPoE with a power budget of up to 740W, enabling power delivery to a wide range of connected devices such as IP phones, cameras, and wireless access points.

- **Redundant power supplies and fans**: Features hot-swappable power supplies and fans, ensuring continuous operation and minimizing downtime in mission-critical environments.

8. MS390 Series

The Cisco Meraki MS390 Series combines the simplicity of Meraki's cloud management with advanced hardware capabilities, making it ideal for demanding enterprise environments. Designed to support high-bandwidth applications and the deployment of high-speed 802.11ax (Wi-Fi 6) access points, the MS390 Series offers multigigabit ports, 480 Gbps stacking, and modular 10/40G uplinks.

Key Features:

- **Adaptive policy**: Utilizes over-the-wire tagging to segment traffic into security groups, delivering scalable security and simplifying policy management.

- **StackPower technology**: Allows power pooling and distribution across MS390 switches using StackPower cables, providing resilient power distribution in a ring topology supporting up to four switches.

- **High-performance stacking**: Supports physical stacking of up to eight switches with 480 Gbps of stacking bandwidth, ensuring faster convergence and simplified management.

- **Modular uplinks**: Offers flexibility with modular 10G and 40G uplink options, accommodating various network architectures and future growth.

- **Advanced security features**: Includes NetFlow version 10 (IPFIX) and Encrypted Traffic Analytics, enhancing network visibility and security.

9. MS410 Series

The Cisco Meraki MS410 Series extends cloud management to the aggregation layer, offering 1/10G fiber aggregation switches tailored for medium-sized networks. Designed to seamlessly integrate with access layer switches, the MS410 Series combines ease of management with enterprise-class performance and flexibility.

Key Features:

- **Cloud management**: Managed via the Cisco Meraki Dashboard, providing centralized control and visibility over the network.

- **High-performance stacking**: Equipped with dual dedicated 40G hardware stacking ports, delivering up to 160 Gbps stacking bandwidth to support small and medium-sized enterprise environments.

- **Layer 3 switching**: Supports Layer 3 routing, including OSPF, enhancing network performance and flexibility.

- **Hot-swappable components**: Features hot-swappable power supplies and fans, ensuring continuous operation and minimizing downtime.

- **Scalability**: Available in two port densities—16 or 32 x 1G SFP ports—both including 10Gb SFP+ ports, accommodating various network sizes and requirements.

10. MS425 Series

The Cisco Meraki MS425 Series extends cloud management across the aggregation layer for medium-sized networks with 10/40G fiber aggregation switches. Built from the ground up to be easy to manage without compromising power and flexibility, the MS425 Series is ideal for enterprise-class environments.

Key Features:

- **Cloud management**: Managed via the Cisco Meraki Dashboard, providing centralized control and visibility over the network.

- **High-performance stacking**: Equipped with two 40G QSFP+ uplink/stacking ports, capable of providing up to 160 Gbps stacking bandwidth to support campus environments.

- **Layer 3 switching**: Supports Layer 3 routing, including OSPF, enhancing network performance and flexibility.

- **Hot-swappable components**: Features hot-swappable power supplies and fans, ensuring continuous operation and minimizing downtime.

- **Scalability**: Available in two port densities—16 or 32 x 10G SFP+ ports—both including 2 x 40G QSFP+ uplink/stacking ports, accommodating various network sizes and requirements.

11. MS450 Series

The Cisco Meraki MS450 Series is designed to meet the needs of high-bandwidth, multi-gigabit switching, making it ideal for large-scale enterprise environments. With 12 × 40G fiber ports (QSFP+) and 2 × 100G fiber uplink ports (QSFP28), the MS450 Series ensures robust connectivity and performance. It integrates seamlessly with the MS355 Series, providing a comprehensive solution for demanding network infrastructures.

Key Features:

- **Cloud management**: Managed via the Cisco Meraki Dashboard, offering centralized control and visibility over the network.

- **High-performance stacking**: Equipped with two dedicated stack ports, providing up to 400 Gbps of stacking bandwidth, facilitating seamless scalability and simplified management of multiple switches.

- **Layer 3 switching**: Supports comprehensive Layer 3 features, including OSPF routing, enhancing network performance and flexibility.

- **Hot-swappable components**: Features hot-swappable power supplies and fans, ensuring continuous operation and minimizing downtime in mission-critical environments.

- **Advanced security**: Includes features like 802.1X authentication, Dynamic ARP Inspection, and DHCP snooping, providing robust security measures to protect the network.

H2: How To Get The Most Out Of Your Meraki Device

Purchasing a Cisco Meraki switch is a step toward building a powerful, reliable, and easily managed network. However, maximizing its value requires strategic use of its features and capabilities. With the right approach, Meraki switches can go beyond providing connectivity to enhance operational efficiency, improve security, and support future growth.

Utilize Analytics And Insights

Cisco Meraki switches provide powerful analytics and insights through the Meraki Dashboard, offering real-time visibility into your network's performance and usage. These tools allow you to monitor traffic patterns, identify bottlenecks, and optimize bandwidth allocation to ensure efficient operations.

Layer 7 application visibility enables detailed analysis of the applications and services consuming network resources, helping you make informed decisions to enhance productivity and security.

Integration With Other Cisco Products

Cisco Meraki switches seamlessly integrate with other Cisco products, creating a unified and cohesive networking ecosystem. By combining Meraki switches with Cisco security appliances, wireless access points, and collaboration tools, businesses can streamline network management and enhance overall performance.

Features like shared analytics and centralized management through the Meraki Dashboard enable cross-product visibility and coordination, simplifying troubleshooting and optimization. This integration ensures a secure, scalable, and efficient network that supports the demands of modern businesses.

Leverage Expert IT Services And Deployment Experience

Maximizing the value of your Cisco Meraki switches often requires the expertise of IT professionals who understand the complexities of network design and implementation. Expert IT services can ensure seamless deployment, optimal configuration, and integration with your existing infrastructure. Leveraging deployment experience minimizes downtime and avoids common pitfalls, enabling your network to perform at its best from day one.

Partnering with a trusted provider like Hummingbird Networks ensures your Meraki devices are set up to support your business needs efficiently and effectively while providing ongoing support to adapt to future growth and challenges.

H2: Simplify Or Scale Your Network – Hummingbird Has The Right Switch

Choosing the right Cisco Meraki switch is essential for building a reliable, scalable, and easy-to-manage network that meets your business's unique needs. Whether you're looking to streamline operations with cloud management, enhance security, or prepare for future growth, Meraki switches provide the features and flexibility to support your goals.

At Hummingbird Networks, we're committed to helping you find the perfect switch for your network. With expert guidance, competitive pricing, and ongoing support, we make it easy to simplify or scale your network infrastructure. Contact us today to learn more about Cisco Meraki switches and how we can help you unlock their full potential for your business.