SMART BUILD

Custom solutions with Composable Architecture

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Imagine building software that aligns seamlessly with your business strategy. Welcome to the world of Composable Architecture, or as we like to call it, Smart Build. This innovative approach transforms software development, offering exceptional flexibility, scalability, and reduced time to market.

So, what makes Composable Architecture the preferred choice for organizations today? How can it help you stay ahead of the competition? In this e-book, we'll demystify Composable Architecture and explore why we believe it's shaping the future of software development.

It's intriguing that, despite the rapid changes in the tech landscape, many organizations still feel compelled to create everything from scratch, overlooking the benefits of speed and adaptability. While some companies think their digital products must be built entirely in-house, a significant shift toward Composable Architecture, which we term Smart Build, is taking place. Just as carpenters once spent weeks crafting entire kitchens, companies like Ikea now offer ready-made solutions that save both time and money.

This doesn't mean you should abandon custom software; it's about making informed, strategic choices. In this e-book, we'll guide you on how to navigate this evolution and embrace the principles of Smart Build.

At icapps, we're dedicated to delivering customized digital solutions. Over the last couple of years, there has been an important shift in the digital landscape: organizations tied to traditional architectures face hurdles in maintaining complex systems, limiting their ability to provide real value to end users. The time and resources spent on maintaining these legacy systems often outweigh the benefits, limiting innovation and adaptability.

In a world that demands flexibility and personalized experiences, speed is the true game-changer. Composable Architecture, or as we like to call it, Smart Build, offers a smarter way forward. By breaking software into modular pieces, we're able to develop solutions rapidly, freeing up time and resources that can then be invested into delivering an optimal customer experience. Imagine components like login or payment functionalities that integrate seamlessly into any application, significantly reducing deployment time and complexity.

Sander

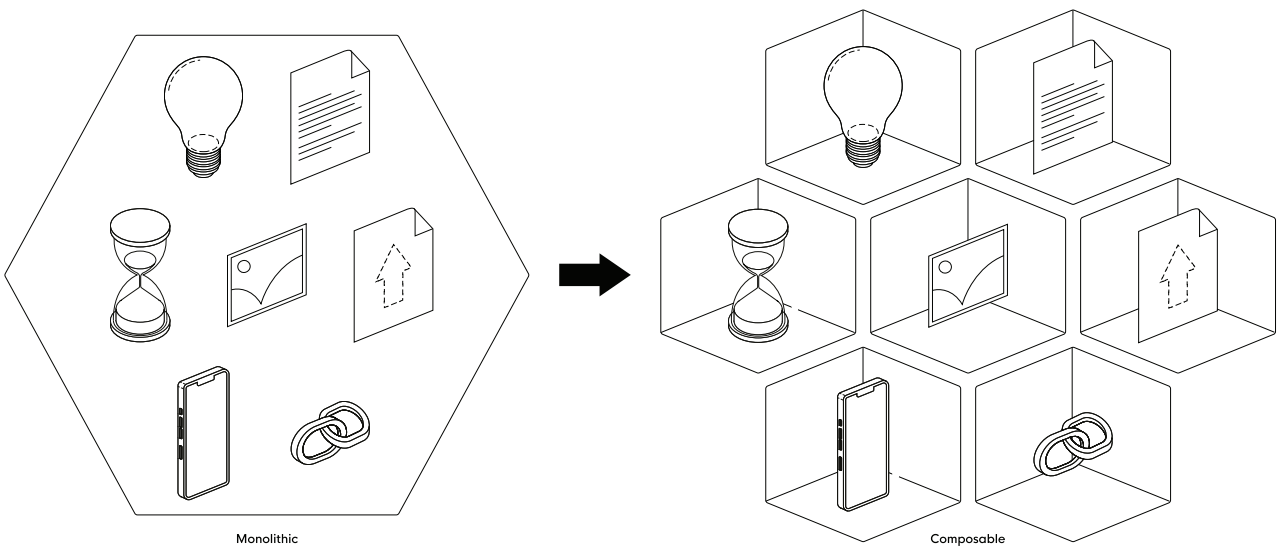
Head of Technology at icapps

Defining Smart Build

Think of Composable Architecture as a system built from a collection of smaller, independent components.

Each of these components can either be custom-built or sourced from external solutions. On top of that, there are essential, frequently used components and foundational elements we pull straight off the icapps shelf, ready to go. They are put together to form a cohesive whole. The key to this architecture is that these individual pieces follow specific standards, making them easy to reuse, swap, or upgrade without affecting the entire system.

Unlike traditional monolithic architectures, where all code is tightly interwoven, Composable Architecture allows flexibility and modularity. Updates or changes to one component won't disrupt the entire system, significantly reducing the risk of downtime or extended development cycles.



Monolithic

Composable

Smart Build vs. Traditional and Microservices Architectures

While both monolithic and microservices architectures have their place, Composable Architecture addresses some of their limitations.

In **monolithic architectures**, the code is tightly integrated, making it difficult and time-consuming to make changes. When updates are needed, they must be applied to the entire system, leading to increased downtime and resource usage. By contrast, the modular nature of Composable Architecture allows for quicker updates and better resource allocation.

Microservices and Composable Architecture both build applications from smaller, independent parts, but they work in different ways. Each service is completely separate in a microservices setup, with its own database, hosting, and service-level agreement (SLA). This adds complexity because it requires clear boundaries and careful communication between each service.

Composable Architecture takes a simpler approach. It uses package-building capabilities and small, modular packages designed to work together toward a shared goal within the application. This plug-and-play style makes Composable Architecture easier to manage, especially for projects that don't need the full complexity of microservices.

What makes Smart Build unique?

This chapter will explore the key principles that set Composable Architecture apart, showcasing how its unique features could empower organizations to streamline their development processes and effortlessly achieve their objectives.

Key principles of Smart Build

To fully understand the advantages of Composable Architecture, it's important to break down its three core principles: **modularity**, **reusability**, and **loose coupling**.

Modularity

In Composable Architecture, each component has its responsibilities and can exist independently. This means you can add, remove, or modify components without overhauling the entire system. This modular design ensures that your platform evolves alongside your business without extensive overhauls. It makes it easy to manage your roadmap and grow your product from Version X to Version X+1, allowing you to add as much as you need to your existing architecture.

Reusability

One of the most significant benefits is the reuse of components across multiple projects. For example, a login form may look different in your tablet, or mobile or web app, but its core functionality remains the same. This saves development time and resources by eliminating the need to build the same component repeatedly.

Loose coupling

Components in a composable system are designed to operate independently of each other, reducing dependency between them. This setup allows for faster updates and fewer complications when modifying one part of the system. However, it's essential to remember that loose coupling isn't a shortcut. Thorough analysis is still crucial to ensure each component interacts smoothly and effectively with the others. Without a careful plan, independent parts may struggle to deliver a cohesive system.

Now that we've covered the main principles of Composable Architecture: modularity, reusability, and loose coupling, let's explore the practical benefits they bring. This approach allows businesses to be more flexible and build exactly what they need without starting from scratch. We'll start by looking at the design flexibility of Composable Architecture and how it helps companies create solutions that can grow and change as they do.

Flexibility in design

One of the most extensive standout features of Composable Architecture is its flexibility. It allows businesses to assemble components that precisely fit their needs. Traditional monolithic systems often require teams to work within rigid frameworks, making it difficult to adapt to specific requirements or scale over time. With Composable Architecture, however, teams can customize without starting from scratch, selecting and assembling only the necessary modules, saving both time and resources.

Scalability with ease

Scaling is another significant advantage that makes Composable Architecture unique. Unlike traditional systems, which can struggle under increased load or complexity, a composable approach allows you to scale your platform as your needs grow. When your digital product experiences a surge in traffic or data volume, modular upgrades can be implemented without impacting the entire system, ensuring reliable performance.

For example, you can start with a minimal setup to test its core offerings. As your user base expands, additional analytics, user management, or payment processing modules can be introduced, scaling at your own pace.

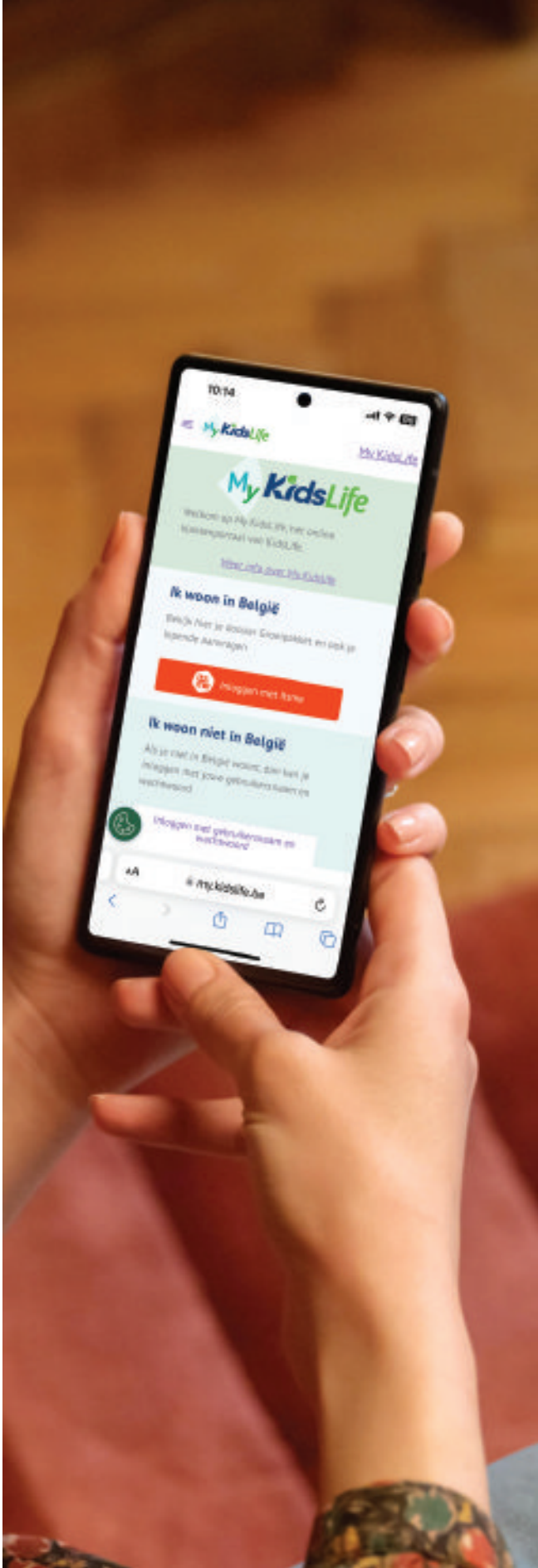
Speed without compromising quality

Accelerating development with on-the-shelf components

Speed is a crucial differentiator in competitive markets. With pre-built, on-the-shelf components, Composable Architecture significantly reduces development times, allowing your team to accelerate development without sacrificing quality. By eliminating the need to build every feature from scratch, bottlenecks are minimized, and speed-to-market is greatly increased.
Composable Architecture enables businesses to deliver new features, updates, or entirely new products faster than ever. For instance, a financial services company that wants to introduce a mobile banking solution can quickly assemble pre-designed modules for authentication, transaction tracking, and notifications, significantly cutting down the project timeline.

Balancing customization and speed

While composability emphasizes speed and flexibility, balancing customization and efficiency is essential. Over-customizing can lead to unnecessary complexity, which might negate the benefits of a modular setup. A smart approach focuses on sticking to essential needs, customizing only those components that add substantial value to your platform while keeping other modules standard.
In practice, this means that while you may customize the core user experience to stand out in a crowded market, standardized modules for backend operations like inventory or customer support could save you significant time.

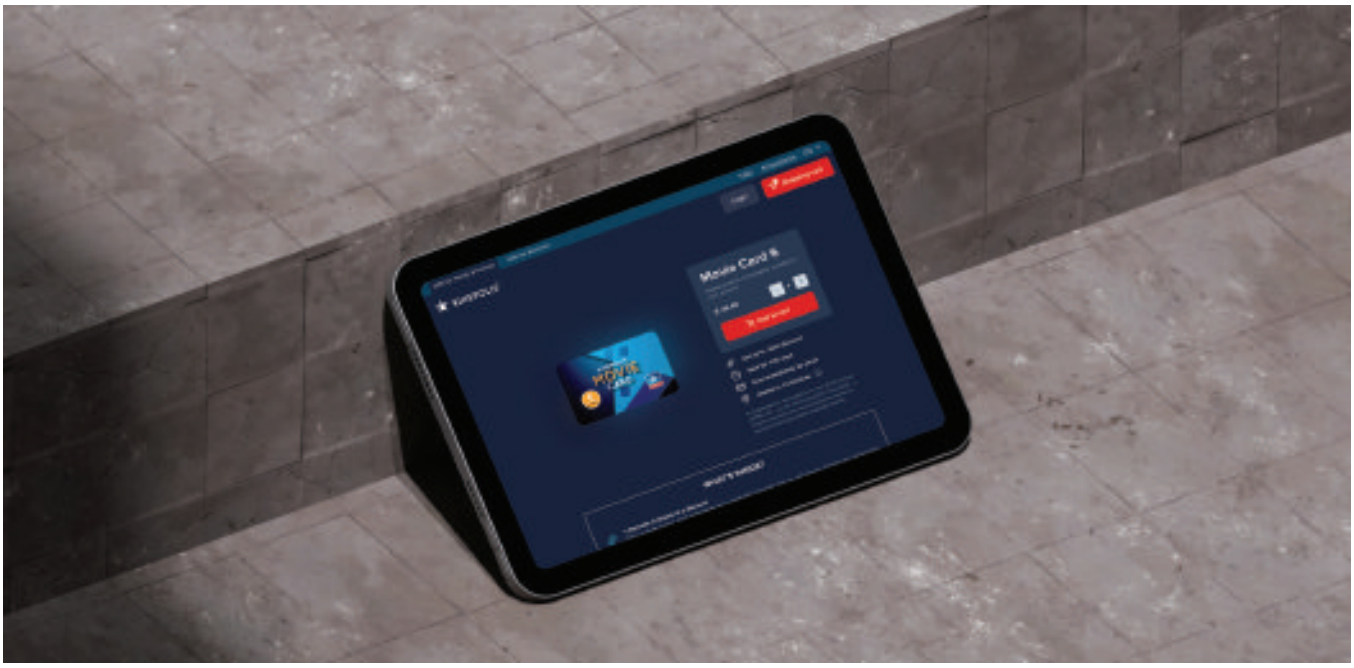


Scaling up: Managing complexity and growth

Scale at your own pace

Another major advantage is scalability. As your project grows, you can plug in new features or upgrade existing ones with minimal disruption. Each component operates independently, making it easy to add functionality simply by snapping in a new module. Plus, these parts can be seamlessly connected, ensuring they work together cohesively. With a partner like icapps, you can be confident that each piece will fit perfectly into the bigger picture.

Consider an e-commerce platform that sees seasonal spikes in traffic. By scaling individual components, such as search functionality or order processing, the business can meet demand efficiently without compromising performance across the entire site.



A sustainable approach

Managing maintenance and vendor lock-in

Composable Architecture's modular design also offers a sustainable approach to maintenance. Because modules operate independently, you can update or replace individual components without disrupting the entire system. This separation helps you manage maintenance efficiently and avoid the costly downtimes often associated with traditional systems.

Additionally, using open standards and modular components can reduce dependency on a single vendor, reducing vendor lock-in risks. If a component underperforms or a better alternative arises, it can be swapped out, protecting your platform's long-term viability.

From MVP to enterprise scale

Composable Architecture supports growth from Minimum Viable Product (MVP) to mature enterprise systems. This adaptability especially benefits companies that want to test ideas quickly. Once the MVP proves viable, additional modules can be added to support more complex functionalities, giving you a clear path from prototype to enterprise-scale solution.
For example, a startup might launch a basic application that targets a specific user base. As it gains traction, additional modules, such as user management, analytics, or payment gateways, can be seamlessly integrated, allowing the platform to scale with business success.

icapps as partner

Strong expertise in custom development and complex, tailored solutions

Finding the right partner can be the defining factor between a project that meets expectations and truly excels. That's why we want to be more than just your service provider; we can be your trusted partner, guiding you every step of the way.

Our "Smart Build" approach, rooted in the principles of modular architecture, is designed to support and evolve with your business. With deep experience in crafting tailored digital solutions, we carefully select modular components that speed up delivery, provide flexibility, and improve quality and maintainability.

Using our years of expertise, we've developed our Modular Application Platform, a framework that captures all these benefits while remaining committed to delivering a custom, personalized solution essential for a unique customer experience.

This modular approach means our applications can evolve seamlessly over time, allowing for the addition of new functionalities, integrations, and scaling capabilities as your business grows. Built to last and designed to adapt, our solutions ensure your business stays agile and resilient in an ever-evolving digital landscape.

A team of experts

icapps is powered by a team of specialists, each bringing unique skills and expertise. Our strategists work with you to set clear digital goals that align with your business needs.

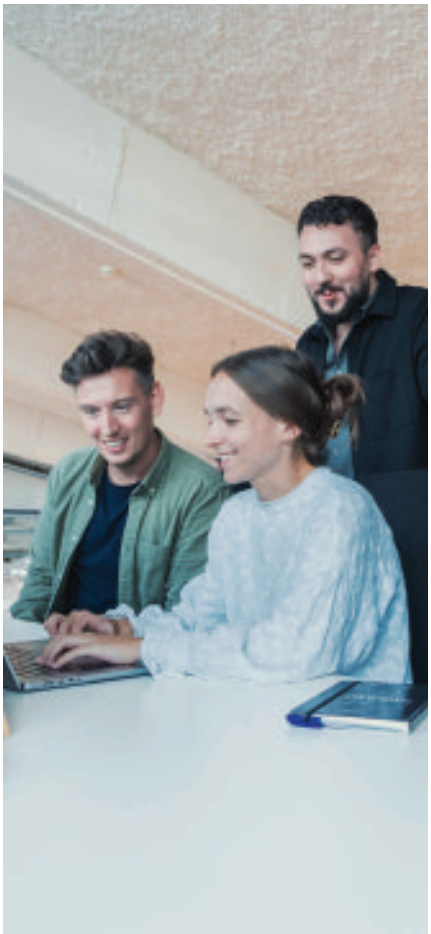
Our UX/UI designers and developers are at the heart of our operations and bring these strategies to life. With their deep technical knowledge and years of experience, they are skilled at handling complex, customized solutions that meet the specific needs of your business.

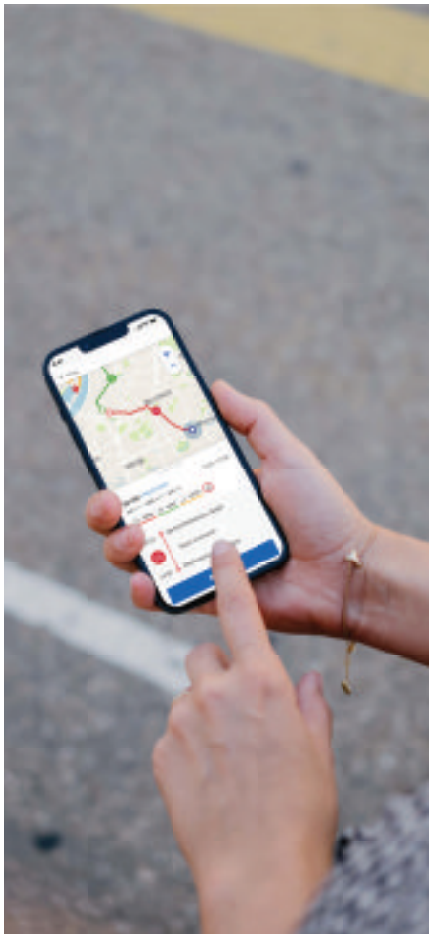
Custom Development and Modular Solutions

icapps excels in custom development, where every project is tailored to fit the unique requirements of our clients. Our strength lies in our ability to deliver complex, customized solutions that can be scaled up or down as needed. Whether you are going for a large-scale project or a smaller, more focused initiative, our wide range of modular components, combined with our ability to create complex custom components,ensures that we can start and evolve your project seamlessly.

Digital strategy and phased implementation

Our technical expertise is complemented by a strong digital strategy that guides the entire lifecycle of your project. We aim to extend projects in phases, allowing for continuous improvement and adaptation to changing needs. This approach ensures that your digital solutions remain relevant and effective over time.





Your choice, in a package

We understand that every business has unique needs when it comes to building digital platforms. To help you find the perfect balance between flexibility, scalability, and customization, we offer three packages designed to cater to different levels of complexity and business objectives.

Full Modular

Package

Hybrid

Package

Full Custom

Package

Full Modular Package

Pre-built components

A Full Modular Package offers a fast and efficient solution for businesses looking to hit the ground running. This package is ideal for organizations prioritizing speed-to-market and simplicity without needing heavy customization. With a wide range of pre-built components, you can assemble your platform like building blocks, choosing the modules that best suit your needs.

Benefits

+ Fast development times

+ Reduced complexity

+ Immediate access to essential features

The Full Modular Package enables you to create a fully functional platform with minimal upfront effort, perfect for testing new ideas or quickly entering the market.

Hybrid Package

Flexible, scalable solutions

If you need a balance between flexibility and speed, a Hybrid Package is designed with scalability in mind. This package offers the perfect combination of pre-built components and customizable modules. It's an ideal solution for businesses that require some level of personalization but still want to leverage the efficiency of Composable Architecture.

Benefits

+ Scalable architecture that grows with your business

+ Customization where it matters

+ Faster implementation than a fully custom build

+ Modular upgrades as needed

The Hybrid Package provides the best of both worlds: speedy development through standard components and flexibility to adapt key areas of your platform as your business grows. Whether you need a personalized user experience or specific third-party integrations, this package allows you to scale up seamlessly.

Full Custom Package

Customizable, large-scale architecture

The Full Custom Package delivers a bespoke solution designed from the ground up for enterprises with complex requirements. This package is perfect for businesses that need extensive customization, whether it's to manage large-scale operations or to create a digital platform that is completely unique to their brand and workflows. Every component in this package is tailored to fit your exact specifications.

Benefits

+ Full control over every aspect of the platform

+ Tailored integrations with proprietary systems

+ Scalable infrastructure for enterprise-level operations

+ Long-term sustainability with customized upgrades and maintenance

Conclusion

Why we believe Composable Architecture is leading the future of software development

Composable Architecture is changing the way businesses build software, providing more agility, scalability, and resilience in their digital platforms.

Instead of relying on rigid, monolithic systems, composable solutions break down complex architectures into smaller, flexible components. This approach enables development teams to respond quickly to market changes, use the best tools available, and create smooth user experiences, all while reducing long-term maintenance costs and technical debt.

But Composable Architecture is not just about technical details; it also requires a shift in mindset that we call "Composable Thinking." In traditional systems, we often focus on fixed services, which can limit flexibility. Composable Thinking encourages us to design systems that are adaptable and modular. By embracing this way of thinking, businesses can innovate more freely, experiment, and improve their digital systems. This shift allows organizations to build solutions that can easily be adjusted or replaced as needed to meet changing market demands.

For companies that value flexibility and innovation, composable solutions are shaping the future of software development and changing how we approach digital transformation and value creation in today's world.

How to assemble your digital platform like an IKEA Kitchen

A catalog of choices

Choosing the right components for your digital product is like browsing an IKEA catalog.

Picture yourself strolling through the aisles of IKEA. The smell of Swedish meatballs flowsthrough the air as you browse through an endless sea of sleek, modular furniture. Now, imagine that instead of couches and coffee tables, you're browsing a catalog of digital components for your next digital product.

IKEA revolutionized home furnishing with its mix-and-match approach, companies like Firmax have taken the concept a step further in the kitchen space. They've mastered the art of using IKEA's solid foundation while adding their own flair with custom fronts, unique colors, and materials. This is precisely the mindset we need when building our digital products.

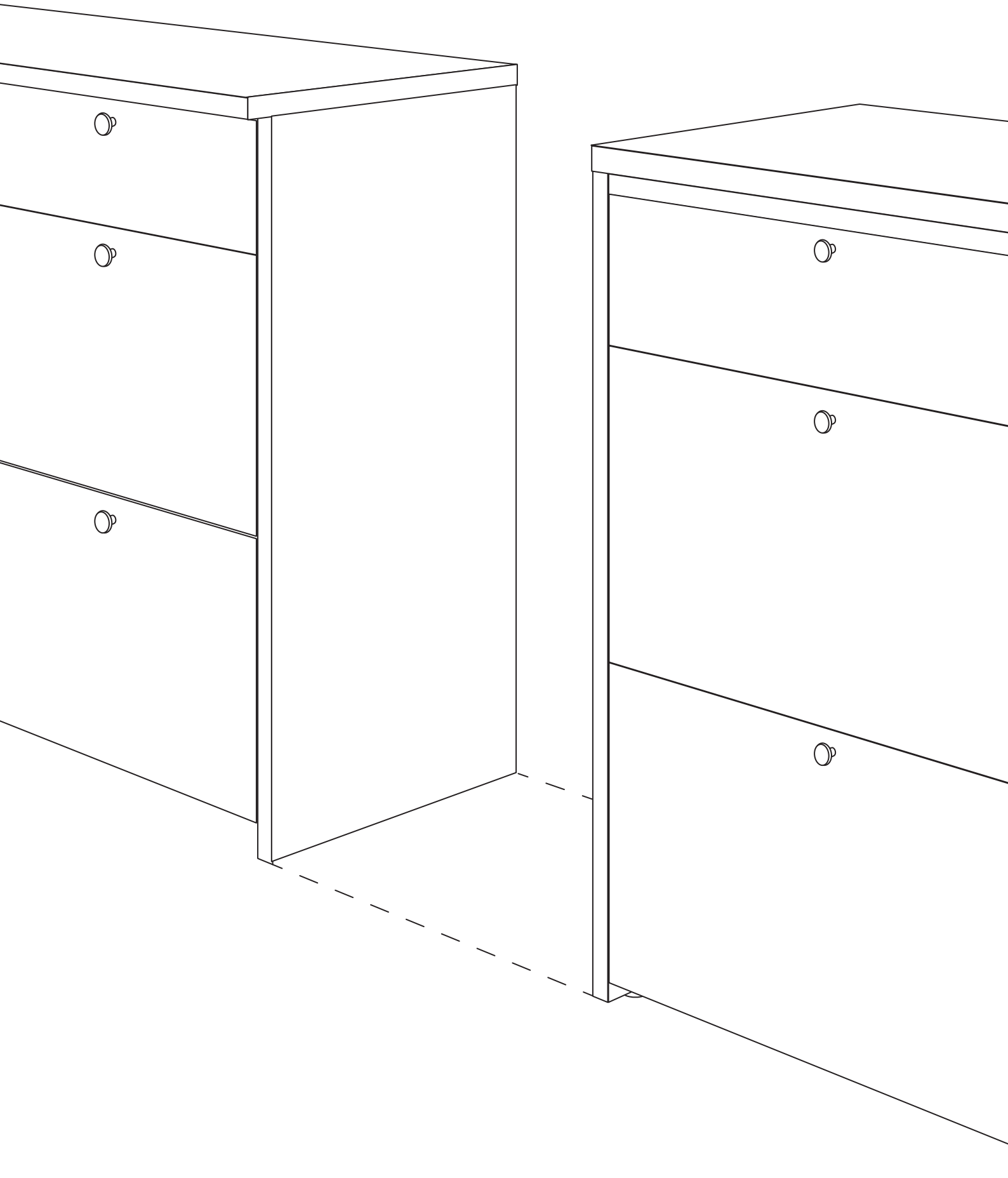
Let's start with the basics, the IKEA closet of the digital world, if you will. Every great platform needs a sturdy framework, just like those famous BILLY bookcases. Your digital 'cupboard slides' might be your server infrastructure, while the 'hinges' could represent your API connections. The 'fronts'? Well, that's your user interface, the part everyone sees and interacts with.

Now, here's where it gets exciting. Do you go for the fast / pre-built / budget solution – the digital equivalent of grabbing a LACK side table and calling it a day? Or do you opt for a custom-built approach, because you need something truly unique? The choice, dear reader, is yours to make.

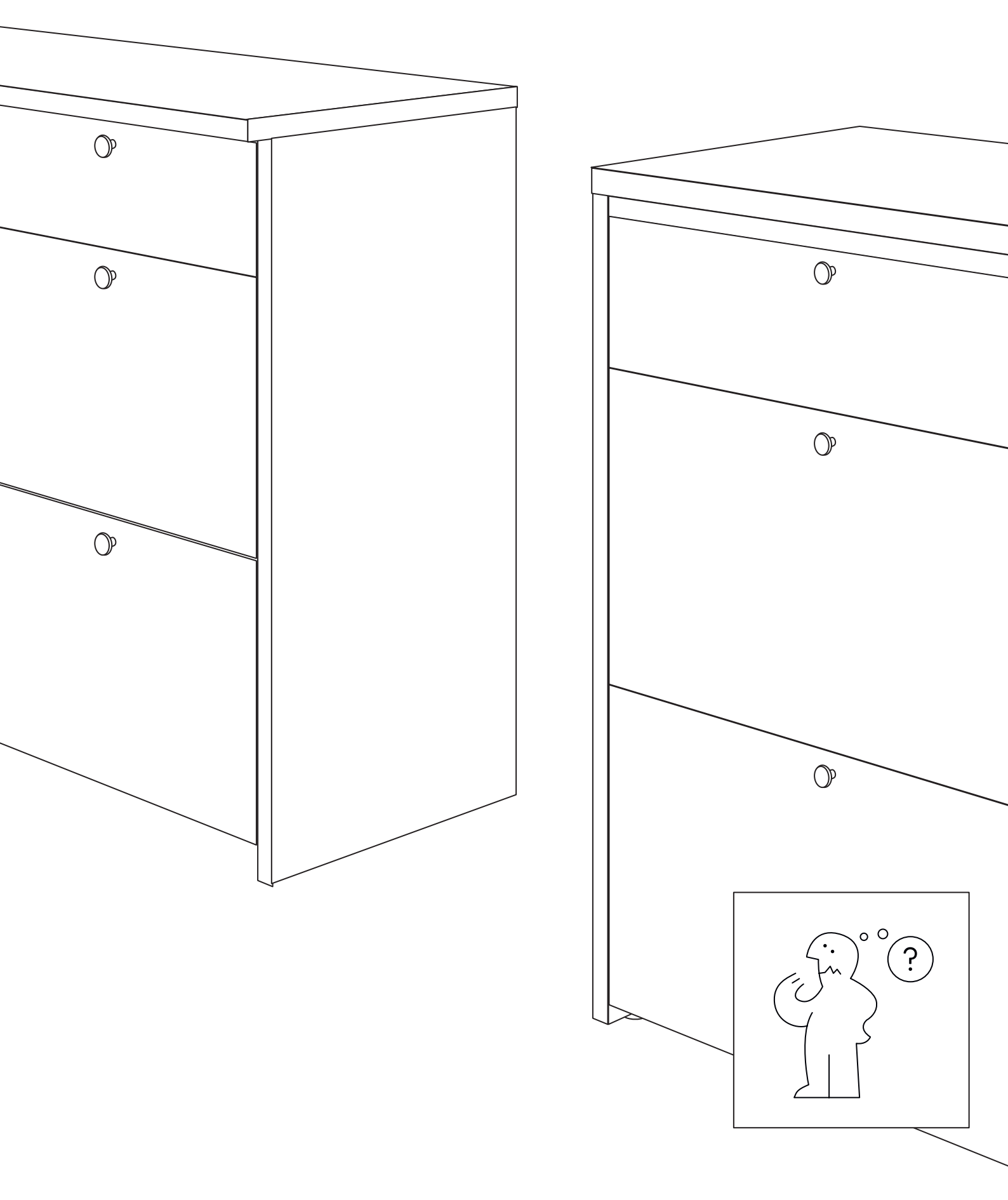
Pre-built vs. custom-built: What's right for you?

We've prepared a handy checklist to help you navigate this IKEA-esque maze of options.

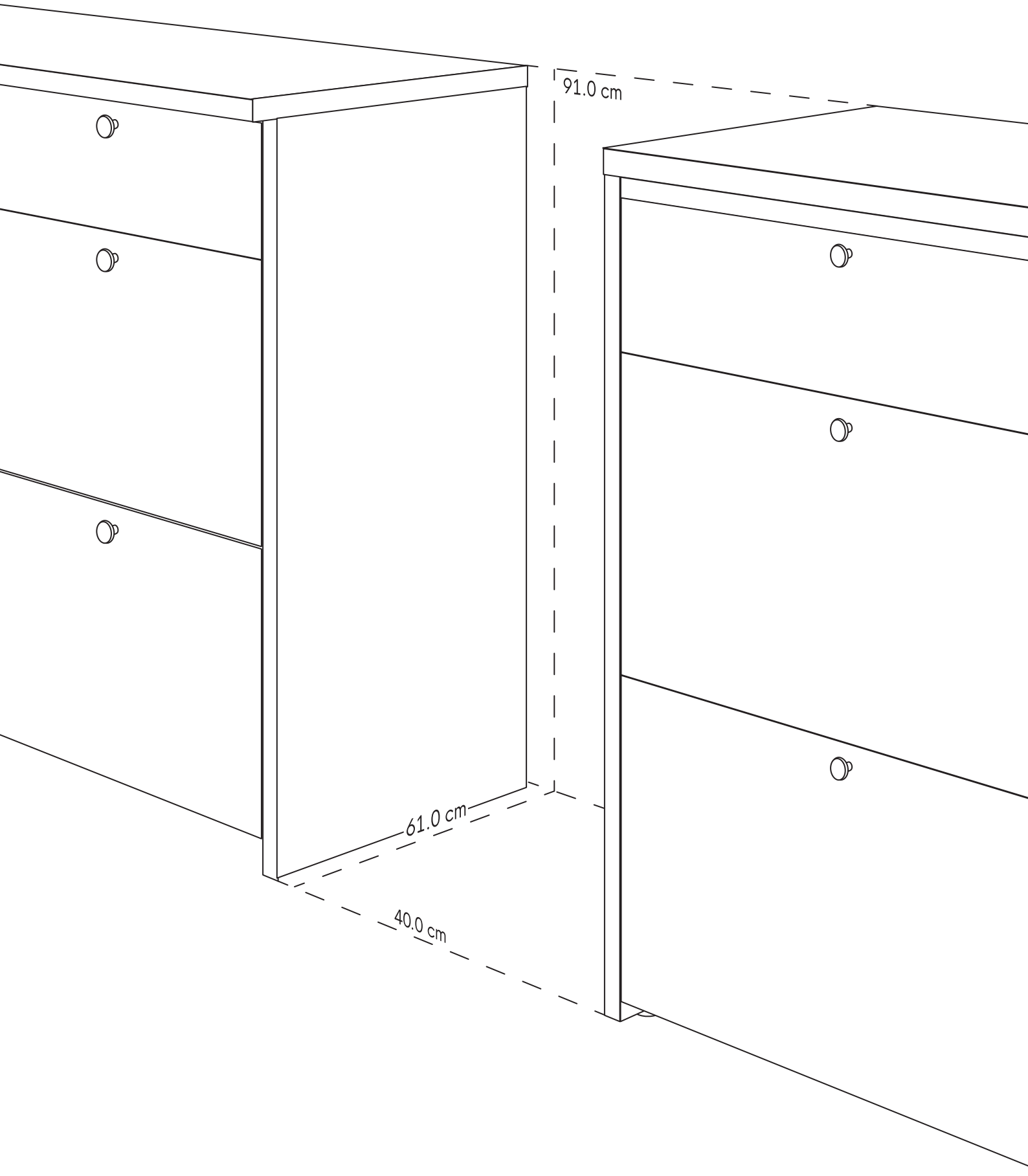
Define your to-be solution



Decide on pre-built vs. custom elements



Fit it in your current digital ecosystem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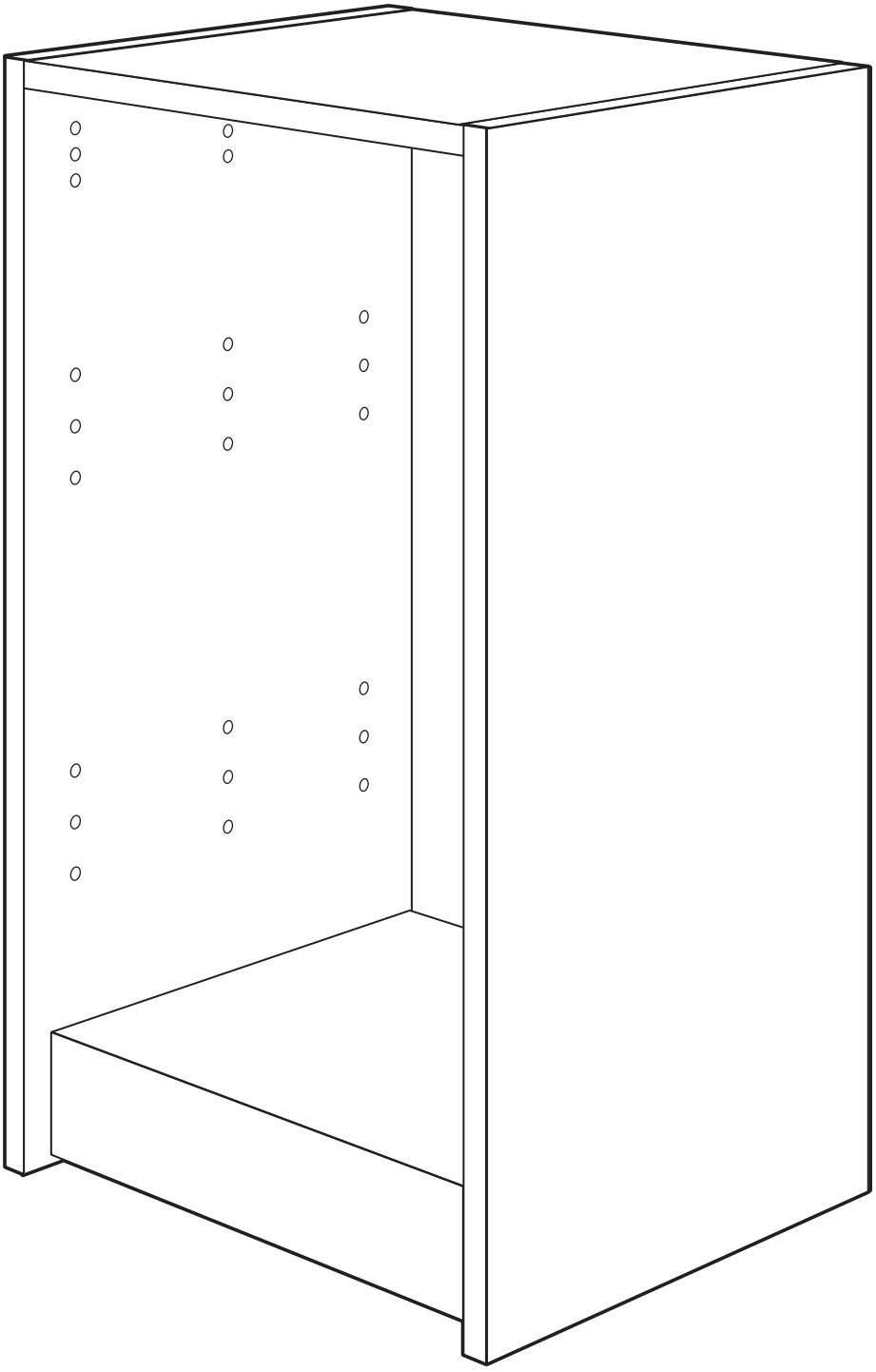
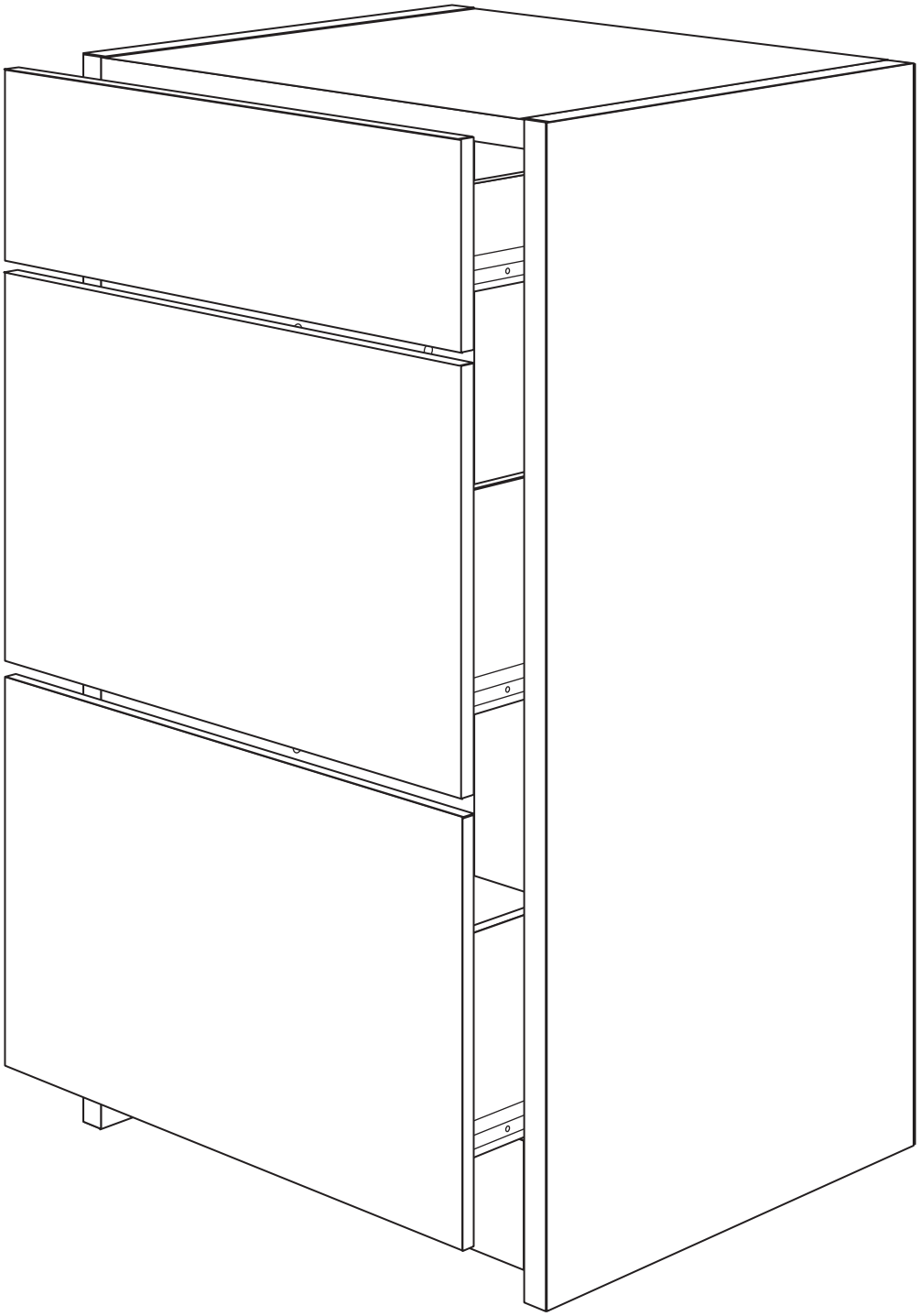
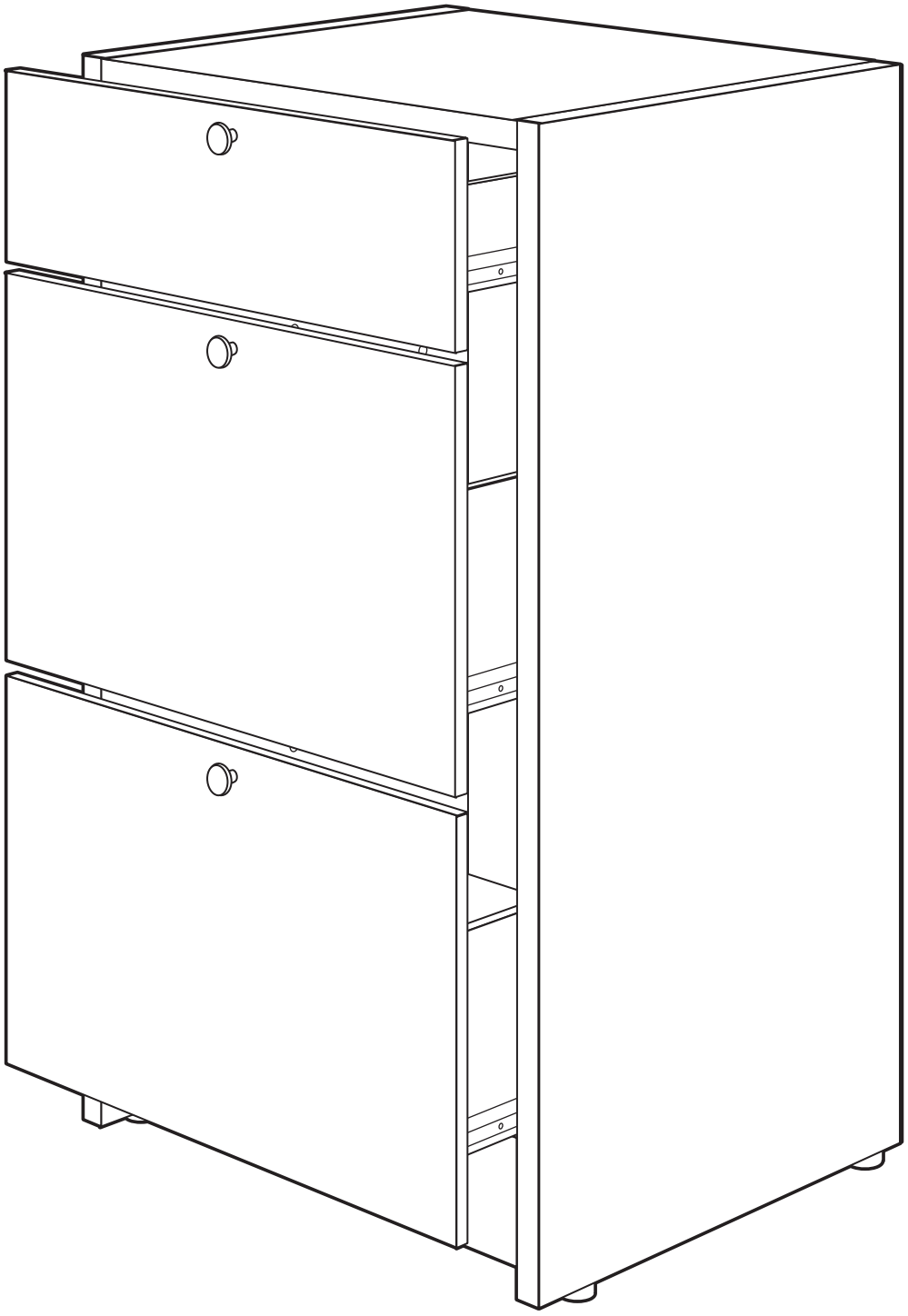
Define your base structure



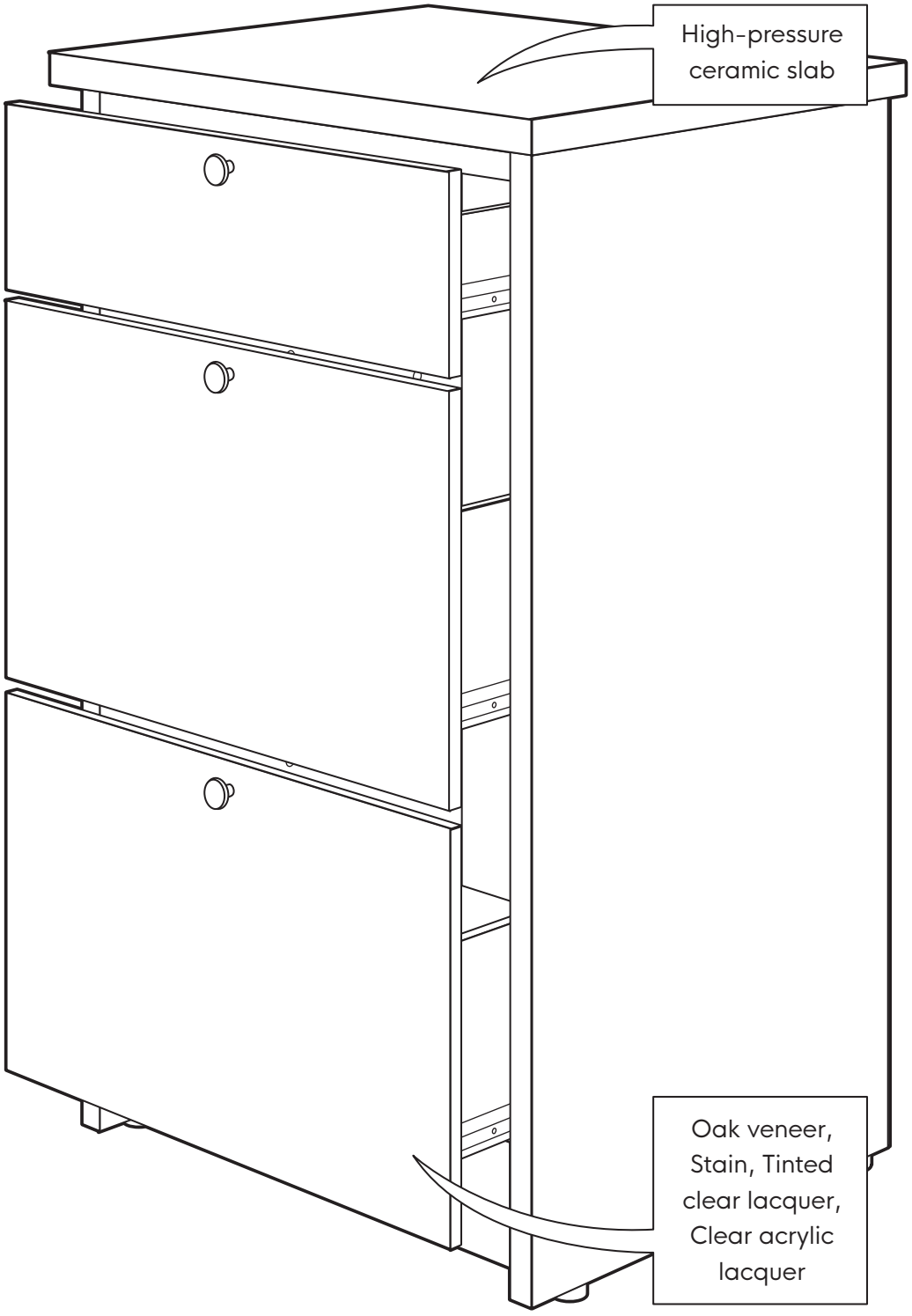
Choose your core functionalities



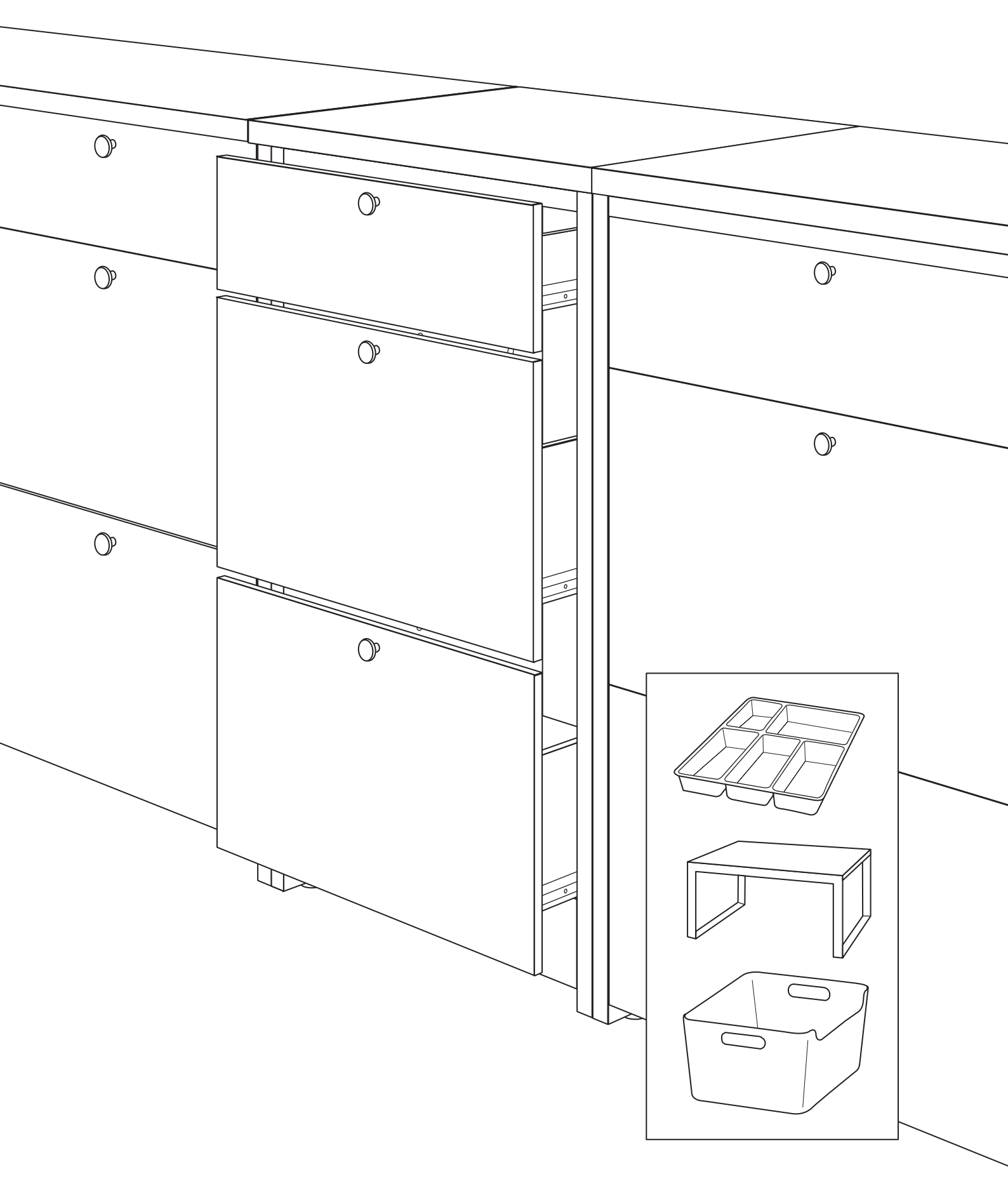
Design your user interface



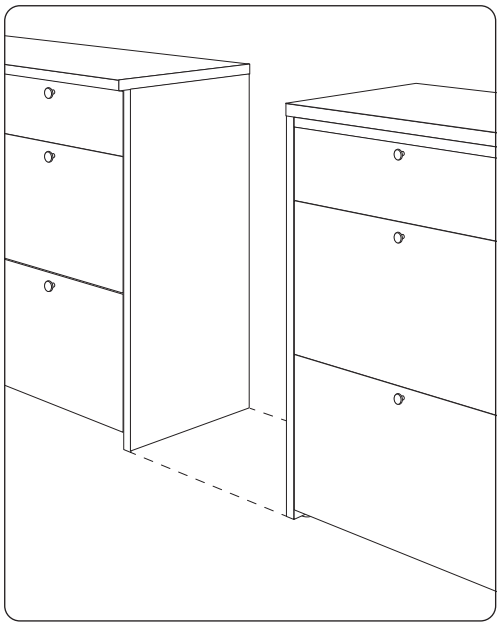
Select your custom color scheme and branding

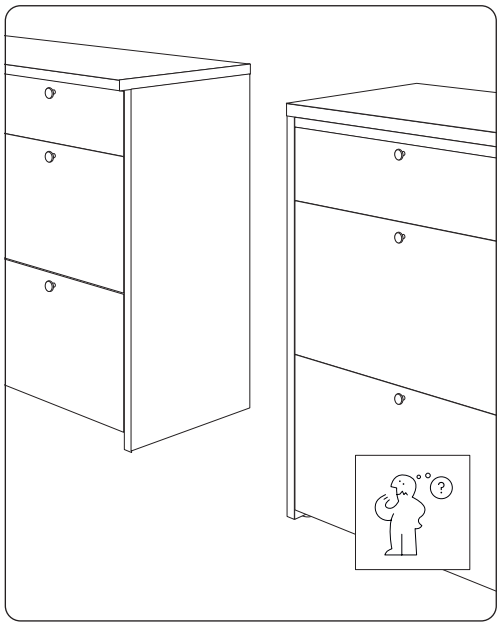

High-pressure ceramic slab
Oak veneer, Stain, Tinted clear lacquer, Clear acrylic lacquer

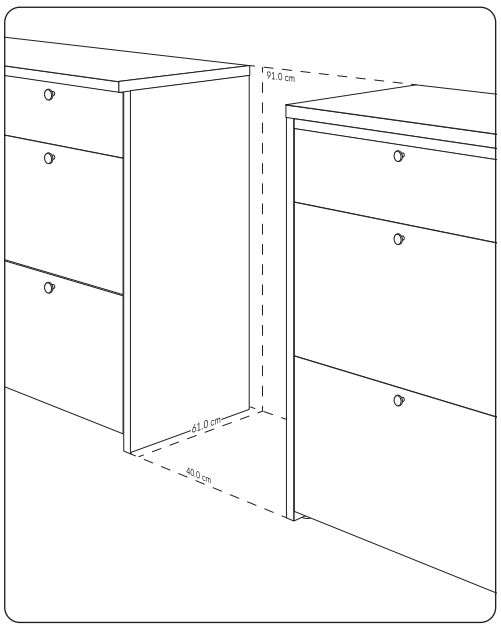
Define your future extensions

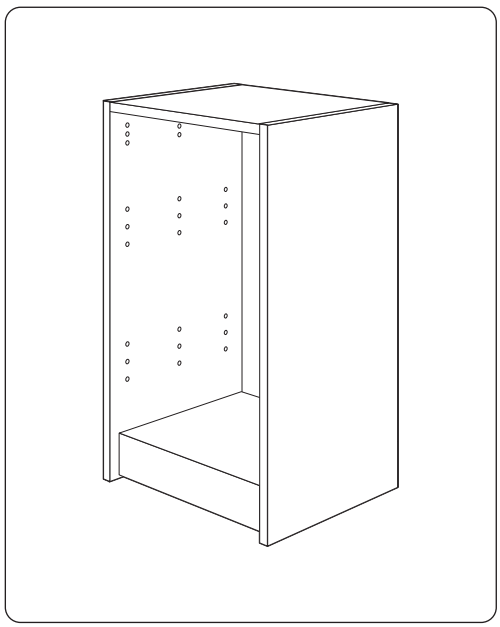


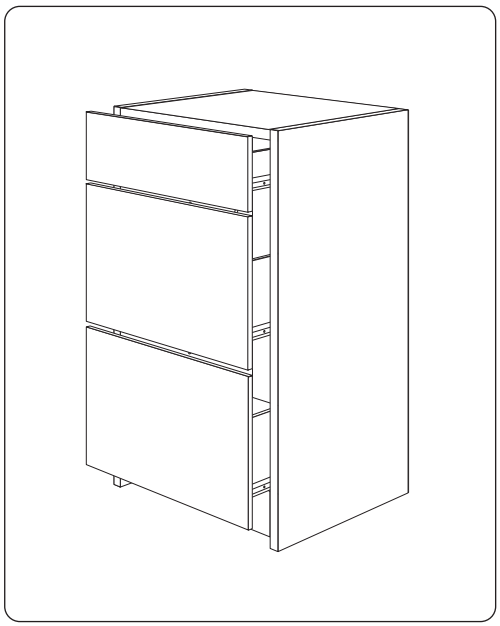
Just like in IKEA, it's easy to get lost in the possibilities. With this guide, you'll be assembling your digital product faster than you can say **"FJÄLLBO"**!

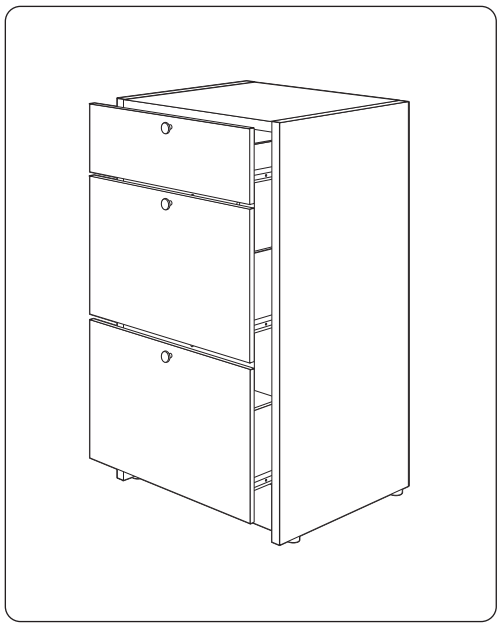


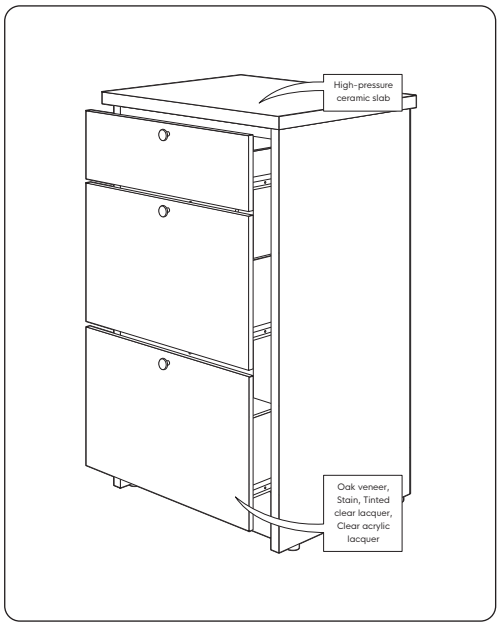


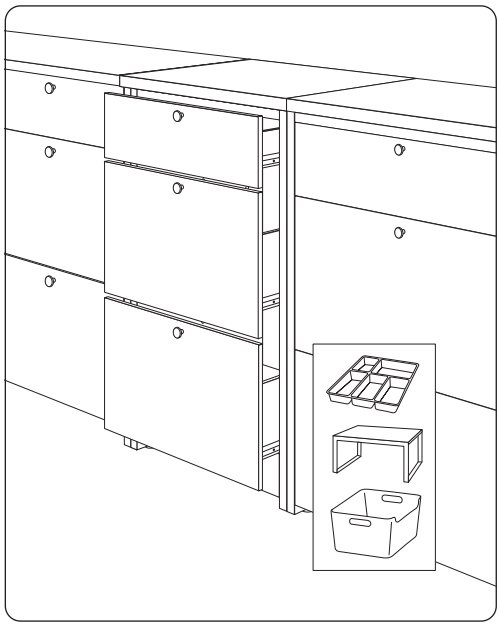












Let's get started!

How to decide if your component should be

Custom-Built or Sourced

Does this component provide a competitive advantage?

Can this component help achieve a shorter go-to-market (GTM) time?

Does it automate workflows and processes?

Is this component highly personalized to your needs?

Is this component a supporting service, such as notifications or payments?

Does the component require complex integrations (e.g., with legacy systems)?

Does the component require a strong security focus, like authentication or identity management?

Is it an editorial component, such as a CMS?

Does this component need to reflect complex business logic?

Does the component involve data storage and analysis capabilities?

Who is icapps?

icapps goes for the all inclusive digital experience, with a focus on long-term vision. Are you looking for technology enthusiasts, who think alongside you, turn your ideas into working applications and care about their partnership? We've got you covered. With our expertise in mobile, TV and web applications, we build top-notch solutions that reach your users' wishes and needs. We strive to be your "all-in-one" partner in crime, ready to guide you through your digital journey.

We Think - Build - Care for customers like:

Let's create the future of your business together.

Get in touch

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/CAPPS

THINK / BUILD / CARE