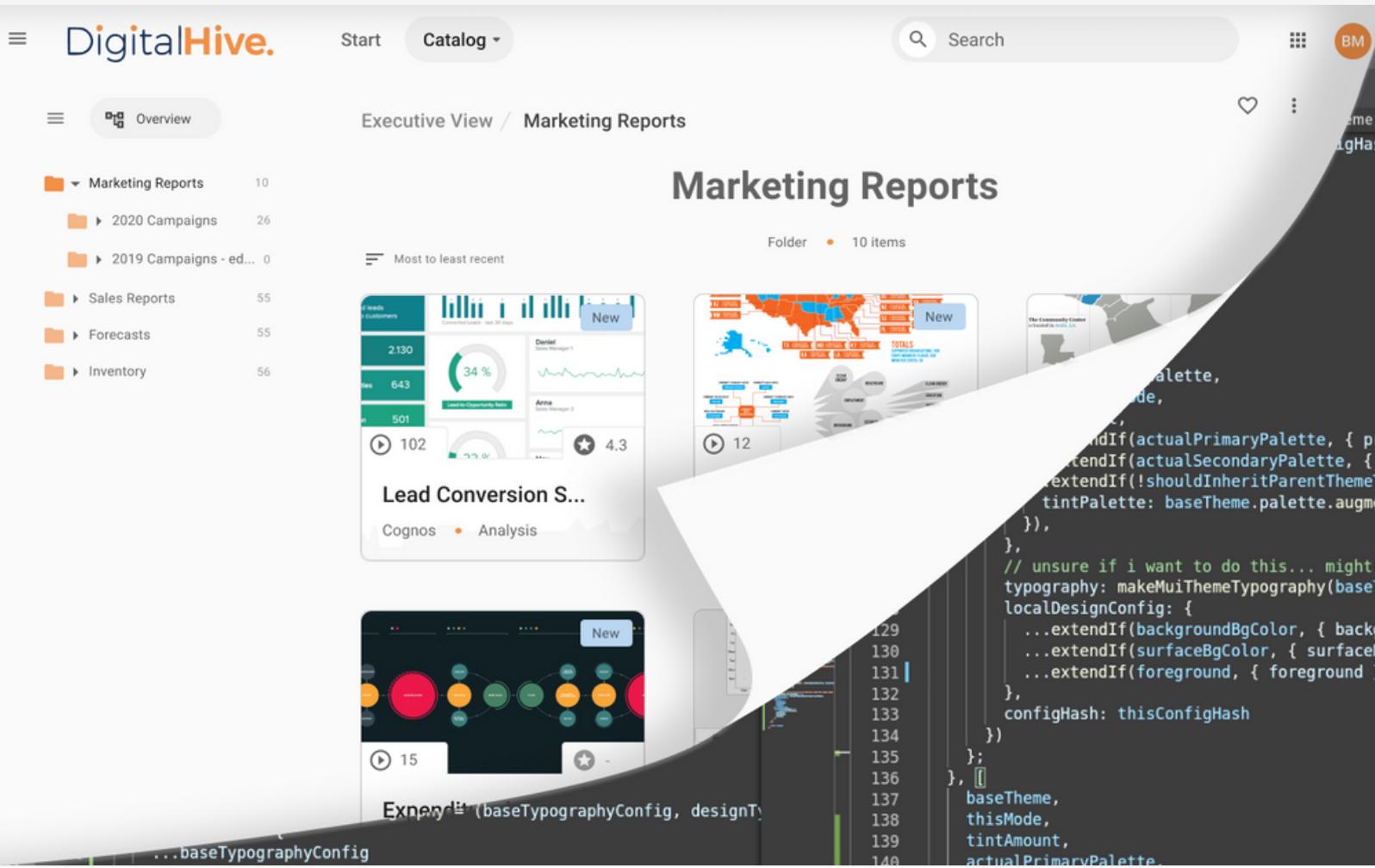


WHITE PAPER

20 Considerations when Building an Enterprise Analytics Portal



TAKING THE LEAP

IN THE BEGINNING

Reading Time: 20 minutes

You may think 20 minutes is a lot of time to give up, but believe us, if you are considering building your own enterprise portal, taking the time could help you save face, a lot of late nights, time, money, and maybe even your job.

Creating an Enterprise Portal do you build, buy or customize?

So want to build your own Enterprise Portal? So did we. Fast forward 8 years, 12 full-time developers, and millions of dollars invested and we've successfully achieved this.

Over those 8 years we've also:

- Redeveloped the product 3 times to keep up with software trends
- Secured 24 technical partnerships with BI vendors
- Recruited and built a diverse skilled executive, business and development team
- Provided customers with a full time support and maintenance team spanning 3 countries
- Successfully won contracts with large enterprise accounts across multiple industries
- Welcomed 100,000+ consumers worldwide.
- Won awards and recognition by leading analyst firms

Like you, we thought this project would be easy.

It's important to explain that we aren't trying to put you off. We're simply trying to educate you - so you don't fall into the same traps that we once did.

Why? Because we speak to organizations all the time that have tried and failed to do this type of project, giving in to defeat after realizing it's **WAY MORE** complicated than they initially thought. Nobody wants to admit to their superior that after spending \$1M over 18 months, nothing has been achieved. This is not how you want to be remembered.



Keeping Pace with a fast-moving Analytics Market

Over the years, your organization has changed, it was inevitable. One of the fastest evolving areas is your Business Intelligence/Analytics landscape. You started with Enterprise Reporting (IBM Cognos, MicroStrategy, SAP Business Objects, etc) which served a purpose, but fell short on agility and the absence of self-service reporting for your users.

The next shift in technology was the emergence of solutions that focused on delivering user self-service to your organization. Solutions like Tableau, Qlik Sense, and Microsoft PowerBI started to dominate the market. According to Gartner, we're now entering a new shift in Analytics technology: Augmented Analytics (ThoughtSpot, Tellius for example).

With all of these technology shifts, where does this leave you?

If your organization is like most others, your users have numerous Analytics technologies at their disposal, each one fitting a specific purpose or use case.

The result?

- Users have multiple logins
- Reporting assets are spread out across different systems
- Users can't find the content they need
- Duplicate assets are created, adding to the IT backlog
- Frustration takes over and faith in your significant Analytics investment is lost
- Data-driven decisions are not being made
- A combination of old and new interfaces - no consistency

"When digital transformation is done right, it's like a caterpillar turning into a butterfly, but when done wrong, all you have is a really fast caterpillar."



SIMPLIFY AND MODERNIZE

A NEW WAY OF THINKING

There needs to be a fundamental change in the way users interact with analytics. Accessing analytics from multiple systems needs to be quick and as simple as using your favorite applications. But with a portfolio of old and new analytics and BI systems, how do you create an experience across them all that's:

FAST



PERSONAL



DISCOVERABLE



SMART



DATA DRIVEN



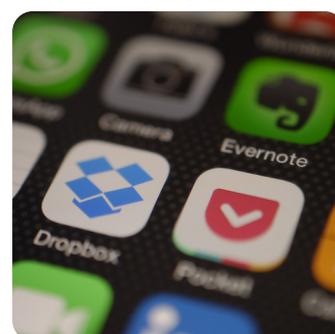
Some of your workforce might not see anything wrong with logging into multiple systems, carrying out the same search inside each individual system hoping that they might find the report they are looking for, or even worse, requesting BI to re-create duplicate reports and dashboards simply because they 'could not find them'. This type of behavior isn't productive for anyone involved, and when you add up the time wasted doing each of these very simple tasks, very quickly it equates to hundreds of thousands of dollars.

Adapt to stay competitive

In the last 12-months we are starting to see businesses adapt and modernize to remain competitive and cope with the increasing demands from a younger generational workforce.

Generation X, Y and Z have all been brought up on technology that is **fast, personalized, super sophisticated**, requires no help to get set up, and gives them what they want EXACTLY at the time they need it.

So with this in mind, can you create a solution that allows users to become fully self-sufficient across all of the systems you have inside your organization?



ON OR OFF TRACK?

MEASURING SUCCESS

What are you trying to achieve?

Before jumping in and starting your own coding project, it's important to consider the implications of a selected approach and is vital to first determine the end goal.

Are you trying to:

- Save money and build this in-house?
- Build yourself as off the shelf software is never flexible enough?
- Is the goal to distinguish the organization with a niche offering?
- Modernize your Analytics?
- Create an external service for customers and/or suppliers?
- Gain you a competitive advantage utilizing a custom solution?
- Generate a new revenue stream?
- Embed analytics into other applications?
- Address a standard business workflow?
- Develop everything in-house so you must have full control?

A decision making crossroad - do you Build, Buy or Customize?

- Do you buy Digital Hive and it's all done for you?
- Do you build and do everything from scratch yourself?
- OR do you customize, by buying Digital Hive and use our API/SDK to customize and make it your own?

This is what we think...

- When there is not a solution out there that does what you need, you would **BUILD** it from scratch.
- When there is a solution out there that does everything (and more) that you need it to do, you would **BUY** it.
- When there is a solution out there that does 80% of what you need it to do, but allows you to do the other 20% yourself, you would **BUY & CUSTOMIZE** utilizing the applications API and SDK layers.



Where do you go from here?

NEXT STEPS

20 CONSIDERATIONS...

We believe that there are 20 factors to consider before you decide to embark on a project of this scale.

Let's begin...

1

CONNECTORS



BUILD:

The connector “builder” (that’s you!) needs to understand the API language for each BI, Analytics & Content Management System. You also have to program everything from security through to execution, ensuring you don’t impact the performance of your underlying systems in the process. This is a large undertaking as every connector is different.

BUY:

Digital Hive is already set up to connect directly to underlying analytics, BI, and content systems in real-time. All you have to do is put in the connector details and you’re up and running.

CUSTOMIZE:

If you have a system and it’s not in our extensive list of pre-built connectors, we have built an API framework so you can easily write your own. If you don’t want to do this yourself, our team will write the connector for you in a matter of weeks.

2



SECURITY

BUILD:

Ok, you're not going to enjoy this part - it will keep you up at night! This is by far the most complex part because each system you connect to could have a different security provider.

You don't want users to be logging in multiple times, so how do you provide users with one login that will give them access to ALL systems at the same time - without compromising security or performance?

BUY:

This is the most important factor. Digital Hive takes care of all the security across systems, ensuring that each user inherits the security that has been set from each underlying system. Not all systems use the same security provider, but we harmonize SSO, 2FA, LDAP, Windows Authentication, SAML, OKTA.

CUSTOMIZE:

If you have a system that does not use our security provider, we have an API framework so you can easily integrate with the security. If you don't want to do this yourself, our team will write the security provider for you.

3



SEARCH ENGINE

BUILD:

If each underlying system has its own search capability and each search API is different, how are you going to ensure that when a user searches for a report, the results are instant, organized, and displayed in the correct order?

BUY:

With Digital Hive users can search across all systems with Google-like speed, eliminating any search repetition normally carried out within individual systems. Our extensive search capabilities have the power to search across many attributes, making it very easy to find what you are looking for.

SEARCH ENGINE CONT.

CUSTOMIZE:

In addition to our search, we have our own metadata catalog that allows you to bring your own report metadata attributes to enhance the context of search.

4

RECOMMENDATION ENGINE



BUILD:

This is the area that's going to differentiate your product from the competition and increase user adoption tenfold. It's the part that everyone will want to get involved in. How do you surface and recommend content straight to users within their own portal experience?

You'll need the most highly skilled and sought-after people, but with a worldwide shortage of data scientists and machine learning experts - especially in the software arena - this is going to be a challenge to get started, let alone maintain. If you have the skills to do this, why reinvent the wheel? Why not buy and customize our algorithms?

BUY:

Think of us as your "Netflix for BI". Composed of advanced machine learning recommendation algorithms, Digital Hive automatically surfaces and recommends reports and information in line with the users role and pre-defined preferences, displaying everything in a dynamic 'swimlane view'. This level of personalization not only helps increase engagement and adoption, it also reduces the need to develop a personal interface for each user in the business.

CUSTOMIZE:

In addition to our in-built recommendation algorithms, we give you the ability to modify and customize machine learning recommendation techniques by utilizing an industry standard ML/AI platform.

5



ZERO CODE INTERFACE

BUILD:

If you've decided to build a portal then your development team will ALWAYS be on the hook for new portals, page creations, minor changes, responding to new requests, bug fixes, etc...the list goes on.

Your development team will not only be looking after this application, but many other applications at the same time - creating a bottleneck for the business.

BUY:

Digital Hive is a codeless platform. Anyone - regardless of skill level or role - in less than an hour, can easily create a portal experience without a single line of code. Simply drag, drop and save the desired assets onto a page...that's it. We've designed it so it's truly self-service and there is no reliance on highly skilled technical individuals. Even better, the development team is no longer the bottleneck for simple modifications, new requests, upgrades or maintenance of the portal.

6



BRANDING AND CUSTOMIZATION

BUILD:

Applying to a brand and a theme is an easy part. Creating an application that gives full autonomy to your BI team, allowing them to build their own branded experiences within seconds, without the reliance on your programmers is the hard part.

But let's take things to the next level...because that's what we like to do. How do you create a dynamic experience and give users the ability to switch between experiences at the click of a button, so that it reflects their task, process, role, department, or organization?

WHAT IS A HIVE?



A Hive is a unique personalized working environment that's been created and branded for a specific persona, department or customer.

BRANDING AND CUSTOMIZATION CONT.

BUY:

Digital Hive's personalization engine enables you to apply specific branding that aligns with different corporate identities (yours or your customer's), add logos, match theming and styles, personalizing the experience differently for everyone. Now add personalization into the mix and create as many 'Hive's' as you need. Whether it's a 'Hive' for Marketing, Sales, or Finance, simply drag and drop the information assets and metrics that matter the most to a user, department, or customer into a 'Hive', and quickly switch between them in the same portal experience - zero code involved.

7

USER EXPERIENCE (UX)



BUILD:

Unless you tempt users to adopt your software by offering an exceptional UX, all the beautiful coding in the world won't matter. These days, with millennials dominating the workforce, people won't be comparing your software's UX against those of SAP or Oracle; they'll compare it to Google, Amazon, and - the inspiration for our software's UX - Netflix. Modern software is built for short attention spans, and expectations for instant gratification, personalization, and device portability.

To build this level of UX requires more than just one programmer, you'll need a business analyst, UX designer, UX developer, UX tester, and a programming Rockstar.

BUY:

Enterprise technology does not compare with the applications that we use in our personal lives, but that's why we've bridged this gap. With Digital Hive you can re-package your existing technology investments and provide users with an intuitive, seamless, and personalized experience.

All considerations have been taken to ensure the user remains engaged and adoption remains. Designed with the end-user in mind, Digital Hive takes inspiration from best-of-breed UX applications, industry methodologies, and approaches. UX is always overlooked by enterprises, so we take UX design very seriously and put it at the heart of everything we do.

USER EXPERIENCE (UX)

CUSTOMIZE:

If you want to adapt and develop the UX, creating your own look and feel, our SDK gives your developers the ability to do this. Use the foundations we've created and adapt them to fit your corporate or personal preferences.

8

ANALYTICS CATALOG



BUILD:

Although this might seem like a simple folder structure and URLs to each reports system, it's far from this and there are lots of things to consider:

- Size of user community
- Number of reports, dashboards, visualizations, contained within your BI systems
- How to add context
- Assembling URLs
- Maintain report names and descriptions
- Guarantee validity of all reports at all times
- Dead link management
- Indexing
- Security
- Virtual folders
- Tagging & Commentary
- Navigation & View Type
- Thumbnail images
- Bookmarks & Favourites

BUY:

Digital Hive's Catalog is your one-stop shop for all of your content. Our analytics catalog lets you organize millions of information assets in an intuitive and user-friendly way. You can create your own folder structures and organize relevant content, tag and bookmark frequently used assets for quick access, add star ratings and comments on content providing a feedback loop with your peers. We do this by utilizing the vendors API in real-time, so if a report is created and changed in the underlying BI system it is reflected instantly in Digital Hive without the need for manual intervention or synchronization.

9

STORYTELLING



BUILD:

As stated before in the “codeless interface” section. How do you build an authoring and design solution that allows your BI team and users the ability to create their own storyboards, home page, intranet, training and process pages? This is a large undertaking, if you don’t have this authoring experience then all of the onus is back on the development team, but wait, they are still writing the code for connectors, security, search, recommendation, flat out doing late nights and weekends, still haven’t got around to thinking about the UX yet.

BUY:

Digital Hive ‘Storyboards’ enable you to have reports, presentations, videos and more, side by side in a single view - irrespective of the business system they reside in. Regardless of the role or department, users have the flexibility to drag and drop content, present non-BI information such as data definitions, report explanations, corporate presentations, RSS feeds and tutorial videos, alongside analytics assets - enabling data literacy and providing insight to make effective data-driven decisions across the business.

10

API & SDK LAYER



BUILD:

It’s complex enough building an enterprise portal, but it’s vital you consider building an API and SDK layer to enable other developers to integrate within your ecosystem.

If you don’t spread the responsibility and allow other development teams to integrate on their own, all of the pressure is once again put back onto your development team. By having a best of breed API layer, you are ensuring conformity, standardization, governance and structure within your main application.

API & SDK LAYER CONT.

BUY:

Digital Hive has created a truly enterprise product that can be utilized across the entire business by other applications and developers alike. Our API layer enables developers to write their own connectors, giving you the ability to plug-in to existing web applications.

In addition to this we have our front end Software Development Kit (SDK) that allows you to write your own front end applications using our building blocks listed above.

CUSTOMIZE:

You can customize anything you want with our API & SDK layer, the only restriction is your imagination.

11

CONTROL



BUILD

You have 100% complete control over how your software functions when you build it in-house. However, with that control comes a great deal of responsibility. You make ALL the decisions, manage all the relationships with the vendors you are integrating with and control the development process.

But is this your main area of expertise? OR are you trying to be a software development company?

BUY:

You can (and should) evaluate Digital Hive to understand how each option meets your requirements.

As much as you might get close to 100% of what you're looking for, it's important for us to highlight now that you'll always have visibility of the Digital Hive product roadmap and we will always welcome your feedback so that we try our best to incorporate this into our future product.

12

MONETARY COSTS



BUILD:

The software builder (that's you) bears the entire cost burden of homegrown software. That includes paying for the initial buildout, ongoing support, bug fixes, upgrades, platform migrations, and keeping up with software industry trends. All of these costs can add up to hundreds of thousands of dollars (if not millions!).

BUY:

Digital Hive owns all costs associated with building and maintenance, leaving you to concentrate on your business.

13

MAINTENANCE



BUILD:

You're on the hook for all maintenance related to your newly built software. This means managing the connectors, recommendation engine, catalog, search, bug resolution, user training and building new functionality - not to mention keeping up with the latest vendor releases of software (which can be as much as once a month per connector).

BUY:

Digital Hive handles all the maintenance behind the scenes and rolls the cost into your subscription fee. We will help launch the platform at your organization, manage maintenance going forward, and push out product upgrades.

14

CONTINUOUS TESTING



BUILD:

Who will be responsible for ensuring that your Enterprise Portal continues to function as expected? Just because it worked when it was deployed, is not a guarantee that it will continue to function as expected, or at least, as required.

Vendors have also been known to modify the APIs, resulting in broken applications. Based on the type of applications you are writing, you'll have to ensure that your homegrown product reflects the recent changes that vendors have made and continuously test them to highlight any problems.

BUY:

To ensure that each product version release is performing as expected, Digital Hive has a direct partner relationship with each BI vendor and a team dedicated to continuous testing.

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AUDITING



BUILD:

If you're building your own analytics portal, you're going to have to build an audit and governance layer to track and monitor any activity by the connector, user, machine learning, search, and Hive. If you don't, how will you measure the success of the application? How will you provide ROI? How will you provide the total cost of ownership? How will you track adoption levels?

BUY:

Digital Hive has full auditing and governance capabilities built into the applications to monitor users, reports, connectors.

This enables you to manage adoption levels across your enterprise, make informed budget allocation decisions, track towards engagement goals and provide the company with a reliable ROI for all data & analytics investments.

AUDITING CONT.

This will enable you to:

- Get the most out of your BI deployments
- Gain complete visibility into all asset usage by users
- Collect analytic information around usage, performance and statistics
- Highlight similar reports to drive out duplication
- Understand which reports and platforms are used by which organization
- Ensure the effective operation of an organization

16

RESOURCE



BUILD:

Directly impacting the Time to Value is the availability of resources.

- Does your organization have the necessary resources to develop the enterprise portal of your dreams?
- Are they free from project work and therefore available, or will you be competing for their time?
- How does the priority competing projects stack rank against your enterprise portal project?
- To get this project off of the ground, will you need to contract external resources?

These days, resourcing is always the bottleneck when launching and delivering a new project

BUY:

Buying instead of building, means your dependency on resources will be significantly less. To ensure quick time to value, our team will guide you through our fast implementation in a matter of days, giving you more time to focus on the business and not developing an application that already exists.

Trust us, we've been doing this for years!

17



TECHNOLOGY SHIFTS

BUILD:

Shifts happen. Your organization managed to get into the situation where an Analytics Portal was required. It would be pretty naïve to assume that you are insulated from change. You don't know what's around the corner or what solution the business needs next, so how do you design and build a solution that can adapt, adopt and integrate future tech without a mass overhaul each time?

Rationalization may also occur meaning platforms will be decommissioned. So how are you going to ensure that the transition between systems is seamless and users are not impacted? Regardless of the nature of the change, your homegrown solution will need to undergo some heavy modifications to properly reflect the technology shifts that you will encounter.

BUY:

It's simple. We insulate you and your business from technology shifts. We have a patented connector framework that allows us to seamlessly integrate any technology into Digital Hive

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OPPORTUNITY COST

BUILD:

Building software in-house can steal precious internal resources from high-profit opportunities. Let's say you're in the business of selling bread. How much more bread could you sell with the resources you're dedicating to building software? And how much market share could your competitors gain if you divert your attention to a non-profitable activity?

BUY:

Purchasing Digital Hive takes opportunity cost right out of the equation. You can continue to focus on core profit-generating activities, whilst taking advantage of Digital Hive's already-live functionality in a much faster time frame. It's a win-win.

19

TIME TO VALUE



BUILD:

If you really insist on building this yourself, plan for having a minimum viable product in 12-18 months - it's more complicated and costly than you can ever imagine! How much time do you have to deliver value? Is your time valuable? Why waste time by building something that already exists?

BUY:

Buying Digital Hive accelerates your time to value drastically. It's designed to get you up and running in days. This saves you and your team time and allows you to focus and prioritize other strategic projects. Why reinvent the wheel?

20

NO BRAINER



BUILD:

We have first-hand evidence of companies who have tried to build this themselves and have spent a minimum of \$1m and still did not complete the project. If you go on and build an analytics portal with one developer in 5 weeks, please contact our CEO as he would love to know how you did this!

For us it's a no brainer. Why would you try to build it yourself when the cost of our software starts from \$22,000 - which would be the same cost as hiring a contract software developer for only 5 weeks?

BUY:

Digital Hives Intelligent Enterprise Portal is transforming the way that businesses connect, create and engage with analytics and information living across multiple systems.

NO BRAINER CONT.

CUSTOMIZE:

Whether your organization needs a custom-built portal for clients or your internal workforce, based on your requirements, we can help you design and create a slick and secure enterprise portal fit for purpose - reducing the cost and time of a lengthy build, exceeding all business expectations.

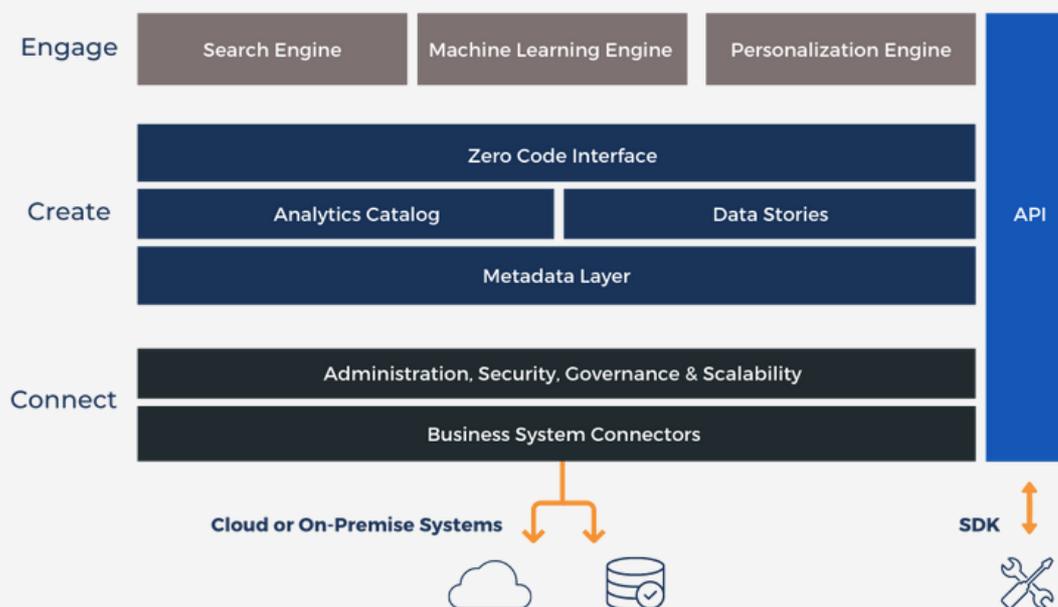
With our software development kit, you have the power to create your own unique portal experience, adding your own coding and design flare, leveraging our complete feature set. Why make the business wait when you can add value instantly.

PURPOSE BUILT FROM THE GROUND UP

ARCHITECTURE MATTERS

In our experience, people that go down the self-build route typically **only** focus on coding the analytics catalog part, missing out on all other fundamental components shown in the diagram below.

When building your own analytics portal, architecture really matters. No one knows what the future holds, but if you have a solid foundation in place, you'll be in a much better position to dynamically adapt and maintain success.



STICKING WITH YOUR DECISION

CONCLUSION

Thank you for taking the time to read our white paper. If you've reached the end and you're still determined to take on the challenge of building your own analytics portal, we wish you the best of luck and every success.

If you would like to contact us to discuss any of the points mentioned above, we'd be more than happy to set up a chat. All you need to do is visit www.digitalhive.com/contactus and leave us a message.

Thanks!

ABOUT DIGITAL HIVE

THE INTELLIGENT ANALYTICS PORTAL

Digital Hive provides an analytics portal solution to businesses enabling them to connect to multiple BI, analytics, and enterprise applications, creating a single portal, users can access all enterprise reporting - regardless of the tool.

With Digital Hive, accessing analytics is as simple as logging in and being greeted with intelligence. Users get to interact with their best analytics assets and information that has been surfaced and recommended in a personalized consumer experience - saving time, boosting engagement and driving adoption across all of your technology.