



The 2020 State of Application Assembly

Survey Conducted by Auth0

auth0.com

In-house application builders are no longer taking months or even years to develop applications from scratch — instead they are increasingly using SaaS (Software-as-a-Service) products as “building blocks” to speed time-to-market.

According to the *2020 State of Application Building* survey results, rather than build everything in-house, the majority of app builders now utilize best-in-class SaaS APIs and internal APIs. These APIs represent a set of tools that includes routines and adherence to protocols that create a path of communication between an app and the SaaS to enable unique features and functionalities.

As little as three years ago, whether to “Build vs. Buy” meant building entirely in-house. Companies have historically taken this approach because they believed they would have more control by building every aspect of the application themselves. But organizations found that control was not their problem — adaptability was. By attempting to craft

every aspect of the software development process, they became unable to scale and ultimately unable to build an application that provided the highest level of security, convenience, and functionality for their users.

Companies use this approach to assemble the app in compartmentalized pieces that can be assembled rather than coded. Furthermore, some companies now deploy their entire application into a set of [microservices](#), isolated, loosely-coupled units for assembly. Companies are able to integrate these SaaS components at a much lower cost, compared to building everything themselves. [Computerworld](#) estimated this to be about 15% in savings. [Acumatica](#) says it's closer to 20%.

The benefits that leveraging SaaS offers are undeniable. And, in our *2020 State of Application Building* survey, we uncovered additional insights behind where, when, and what SaaS services are used most frequently.

Key Takeaways



We are seeing a small, but significant, percentage of **product managers** as well as the **security team members** creating apps amongst survey respondents and our customers.



More than **75% of apps** were built for **external purposes**.



Regardless of the size of the company or the team, **51% of respondents** were responsible for **two to five applications** and **28% were responsible for more than five**.



We found that they rely on SaaS for **payments, messaging, data augmentation, or authentication**, allowing them to focus their internal development efforts on their core product.

Source: Auth0 Inc.

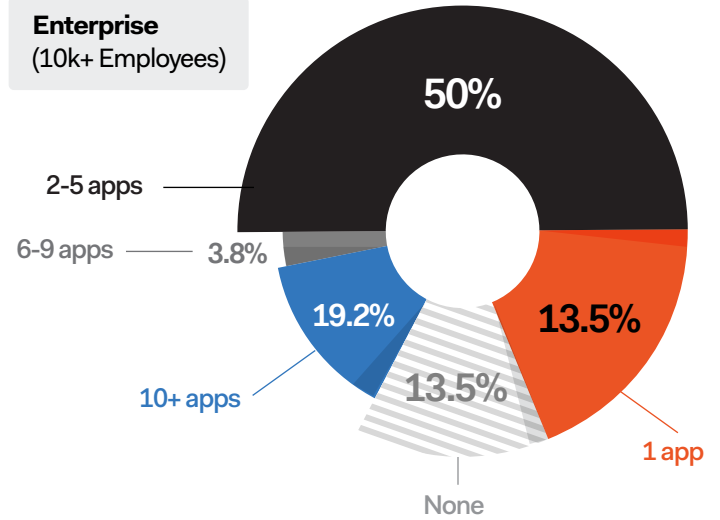
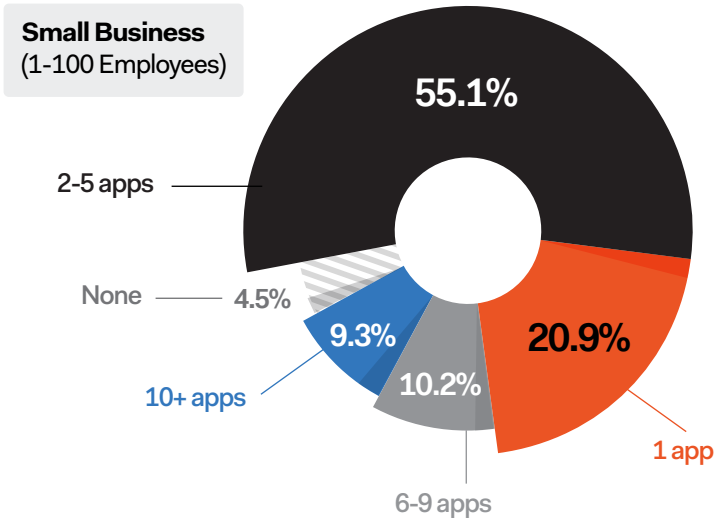
State of Application Assembly

Increasingly, application builders are relying on combining the functions provided by SaaS (Software-as-a-Service) “building blocks” to create experiences which delight their end users.

Auth0 surveyed 426 professionals in a variety of technical roles to determine the state of application assembly in a variety of businesses.

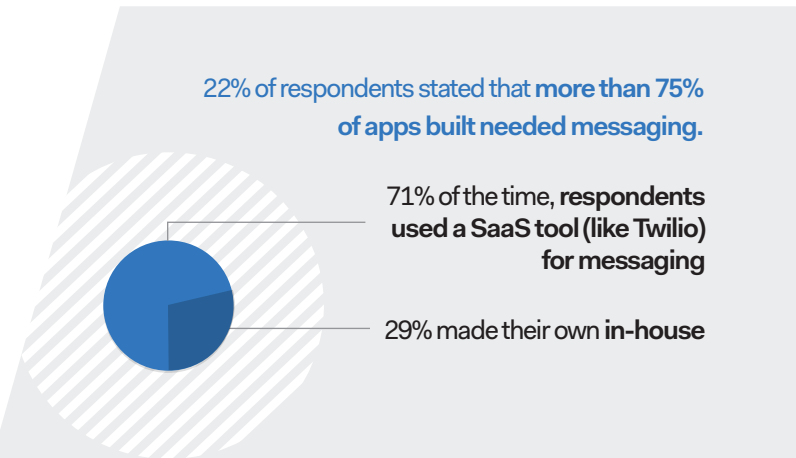
51%

of teams **build two to five apps a year**, regardless of the size of the company or size of the team.



61%

of respondents answered that **75%+ of the apps were built for external vs. internal purposes.**



83%

of all apps **require authentication.**



58% of the time respondents reported using an IDaaS tool **42% of respondents built their own authentication tool in-house**

20% of respondents stated that **75% or more of the applications their teams build require payment processing.**

74% said they **use a SaaS tool** for payment processing

26% claimed they **build their own payment processor** in-house

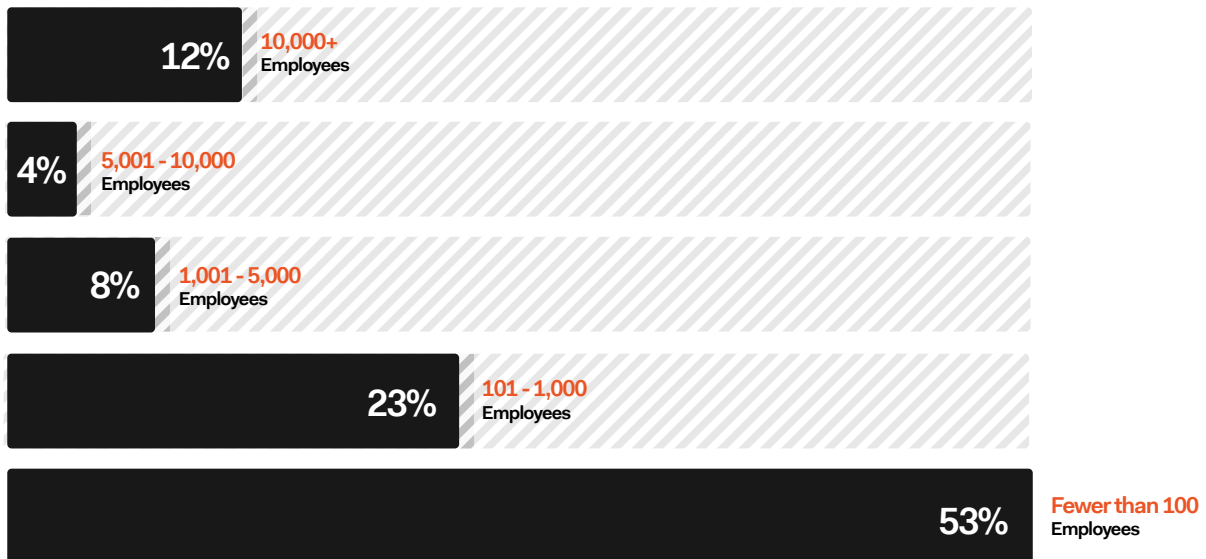
Approach

This survey included professionals in various technical roles and served as a barometer to determine the state of app assembly in a variety of businesses. Application builders were asked about the size of their companies, their roles, how many apps they build each year, who the apps are for, and when/how they utilize third-party expert services for elements like payment processing, authentication, messaging, and data augmentation.

Survey Participants

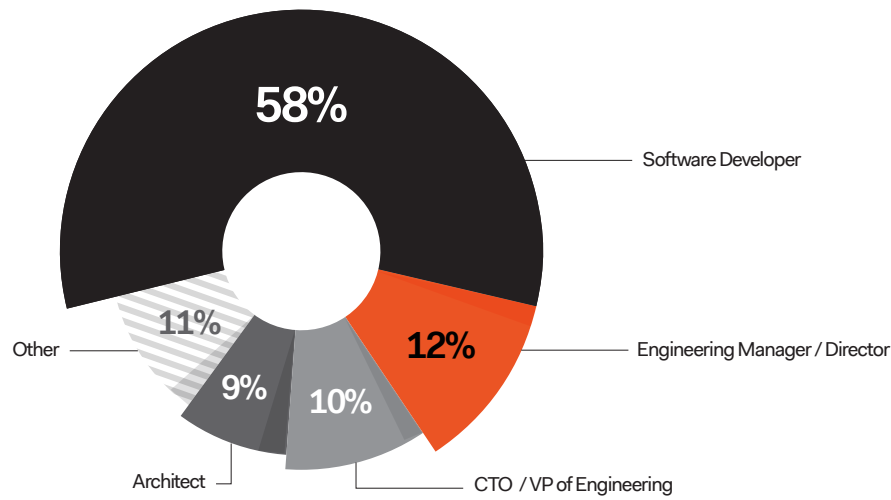
Auth0 surveyed 426 respondents in total, the vast majority (more than 76%) from the United States. About 53% of them came from companies that had fewer than 100 employees. The second biggest group was 23%, from companies with 101 to 1,000 employees. About 24% came from companies with more than 1,000 employees.

| Respondent demographics



Source: Auth0 Inc.

We also asked specifically what role respondents filled within their companies. Software developers made up the biggest group, at nearly 58%. Engineering managers and directors came next, at approximately 12%.

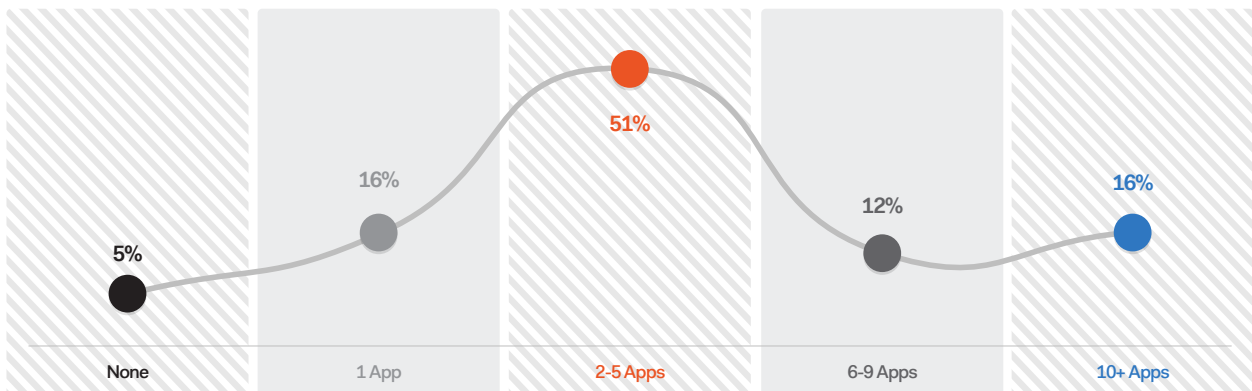


Source: Auth0 Inc.

The Number of Apps Built

Overwhelmingly, individual app teams built between two and five apps in the year surveyed — making up just over 51%. We found that this range held steady independent of company size. This suggests that company size, internal manpower, and potentially budget don't necessarily impact the number of apps one app development team can manage within a year. That being said, 28% of respondents said they built more than five apps in a year and only 16% said they built only one app.

| Number of apps built this year



Source: Auth0 Inc.

Who the Apps Are Built For

We looked at two distinct uses of apps: external users (B2B and B2C) and internal users (for employee use). According to the respondents, the majority of applications built were for external users.

61% of respondents said that the apps the teams built were more than 75% external-facing.

However, only 9% of respondents said more than 50% of the apps they built were for internal-facing purposes, confirming that overall, it was more common to build external-facing apps than internal-facing apps.

| Who are the applications built for?

61% of respondents said that **75%+ of the apps built are for external-facing users (B2C + B2B)**



9% of respondents said that **50%+ of the apps built are for internal-facing users (B2E)**



Source: Auth0 Inc.



Payment Processing in Applications

A small percentage of respondents reported that payment processing was required, but they relied on it heavily.

More specifically, 20% of respondents stated that 75% or more of the applications their teams build require payment processing, suggesting that

payment processing is a less commonly required feature for apps.

When payment processing is needed, the majority of companies — 74% — use a SaaS tool. The remaining 26% reported building their own payment processor in-house.

20% of respondents require payment processing in 75%+ of their applications



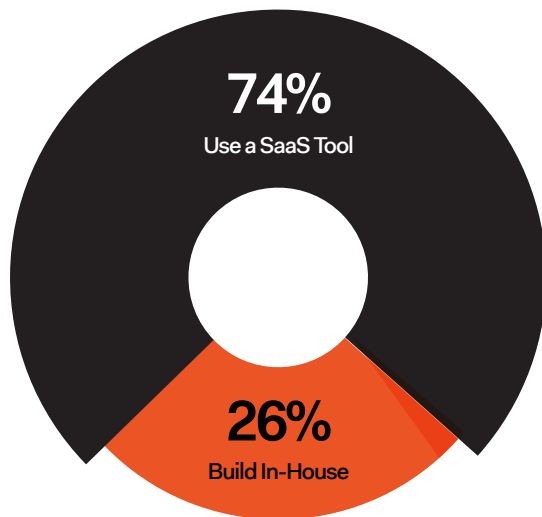
75% most of companies that use a SaaS payment process tool, use multiple tools



Source: Auth0 Inc.

For those who used a SaaS tool, Stripe was the dominant choice. However, many of the survey respondents said that their companies actually use multiple payment SaaS tools, reflected by 39% of respondents citing usage of PayPal as well.

| What SaaS tool is used?



77% of teams use:



39% of teams use:



Source: Auth0 Inc.



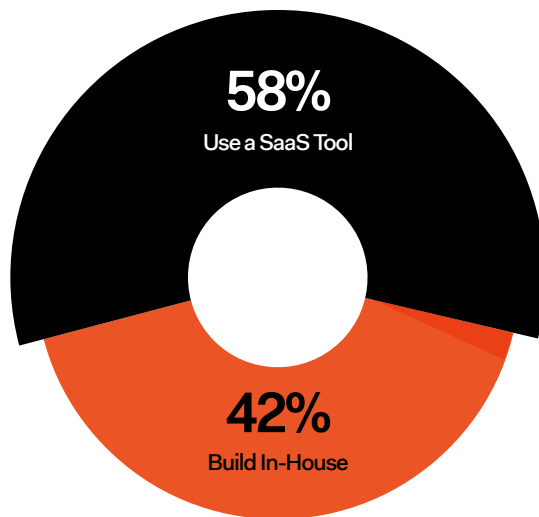
Authentication in Applications

Compared to payment processing, authentication was much more prevalent, required by 83% of all applications built — pointing to the growing need for a reliable third-party authentication solution.

Respondents reported using an IDaaS tool for authentication 58% of the time, while 42% said they built their own authentication from scratch.

With a substantial percentage of companies still building authentication tools in-house — and because authentication is present in the majority of apps — there's a large potential opportunity for application building teams to streamline their processes and improve efficiency by using a third-party IDaaS tool. (Ironically, more teams use a third-party tool for messaging compared to authentication, although there's a greater need for authentication).

| When authentication is used: SaaS vs. In-House



Respondents say authentication is **required**

83%

of applications they build

Source: Auth0 Inc.

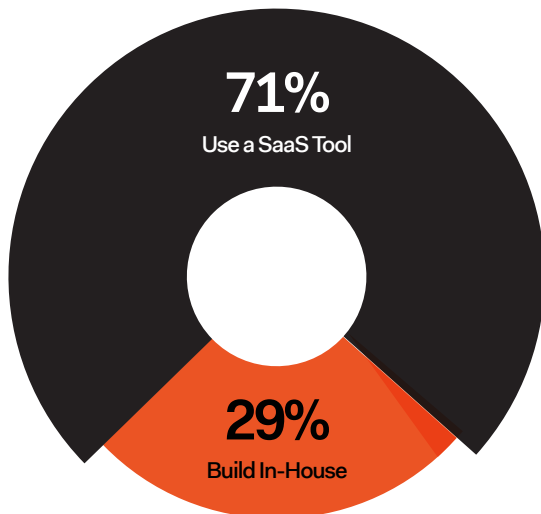
Messaging Services in Applications

Similar to payment processing, messaging occurred in a lower percentage of applications — 22% of all respondents said that more than 75% of the apps they built require messaging.

Again, the majority of employees surveyed indicated that their companies rely on a SaaS tool for messaging services as opposed to building one in-house — 71% vs. 29% building in-house.

Of the respondents who reported using a SaaS tool for messaging, Twilio was the dominant tool, used by 78% of teams.

| When messaging services are used: SaaS vs. In-House



78% of teams use:



22%

of respondents require messaging services in 75%+ of their applications

Source: Auth0 Inc.

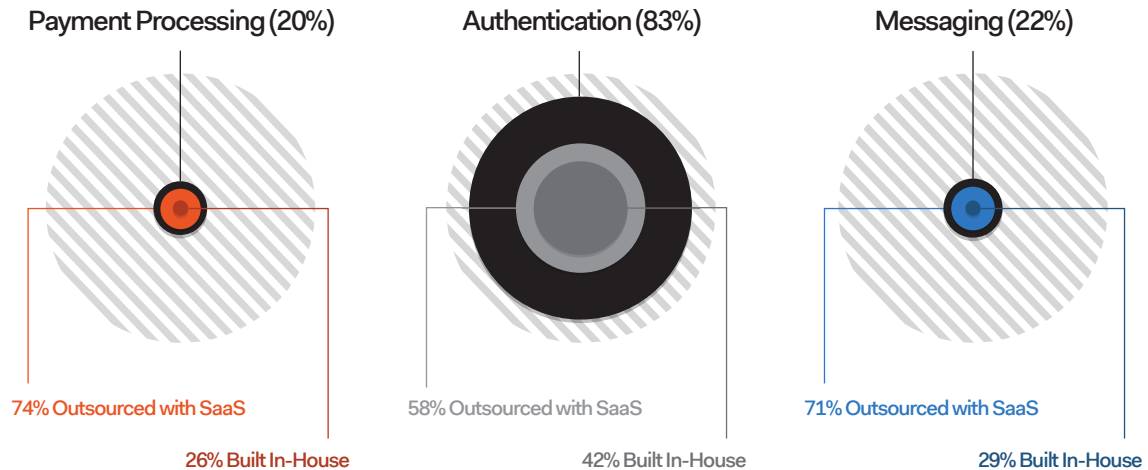
Data Augmentation Services

Data augmentation was the least-needed service, by far. Only 9% of applications built required data augmentation services. It was so absent that the survey determined no clear vendor leader.

Third-Party Tool Adoption

The data suggest that there's a broader adoption for using third-party tools for payment processing and messaging services, compared to authentication. However, far fewer apps need payment and messaging capabilities.

On the converse, however, far more apps need authentication: 83% vs. 20% for payment processing and 22% for messaging.



Source: Auth0 Inc.

Furthermore, in every case, outsourcing is favored over building these tools in-house — by a marked difference.

Conclusion

Companies are moving to using SaaS “building blocks” for services like payment processing and authentication. This allows them to assemble specialized application functions, and offers app builders to focus on core features for their business.

SaaS and component services have effectively removed many of the massive barriers for entering a market — and give app builders access to features and functionality they would never be able to build/maintain themselves.

To fully leverage this model, companies should start by considering:



What the services can offer in terms of **visibility, reporting, and control**?



What are the **added features and security benefits** of the services?



What are the **repetitive functions** used across a high percentage of applications that **can be replaced by a single SaaS platform**?



How easy is it to integrate the new SaaS service into their existing ecosystem?

Source: Auth0 Inc.

Application assembly today is more accessible than ever to companies big and small. Importantly, it appears this is just the beginning of a new wave of companies moving to the SaaS solutions that offer reliable, high-performance building blocks supporting modern software architectures.

Glossary of Key Terms

B2C Users

B2C — business-to-consumer — users are organizations that use applications to sell their product or service directly to consumers — the end users.

B2B Users

B2B — business-to-business — users are organizations that use applications to interact with other organizations.

Internal Employee Users

Internal employee users refer to the members within a single organization using an application/ applications.

Application Assembly

Application assembly is the process in which 1st- and 3rd-party API building blocks come together to create one cohesive software experience.

1st-party APIs

A set of routines and tools that adhere to protocols and are capable of completing tasks natively, customized, and developed in-house.

3rd-party APIs

A set of routines and tools that adhere to protocols and gain partial access to a 1st-party API to provide capabilities the 1st-party API doesn't offer natively.

Application Builders

Application builders are individuals (programmers, DevOps, etc.) overseeing the development and deployment of apps.



Auth0 is the first identity management platform for application builders, and the only identity solution needed for custom-built applications. With a mission to secure the world's identities so innovators can innovate, Auth0 provides the simplicity, extensibility, and expertise to scale and protect identities in any application for any audience. Auth0 secures more than 100 million logins each day, giving enterprises the confidence to deliver trusted and elegant digital experiences to their customers around the world.

For more information, visit www.auth0.com or follow [@auth0](https://twitter.com/auth0) on Twitter.

© Auth0 2020