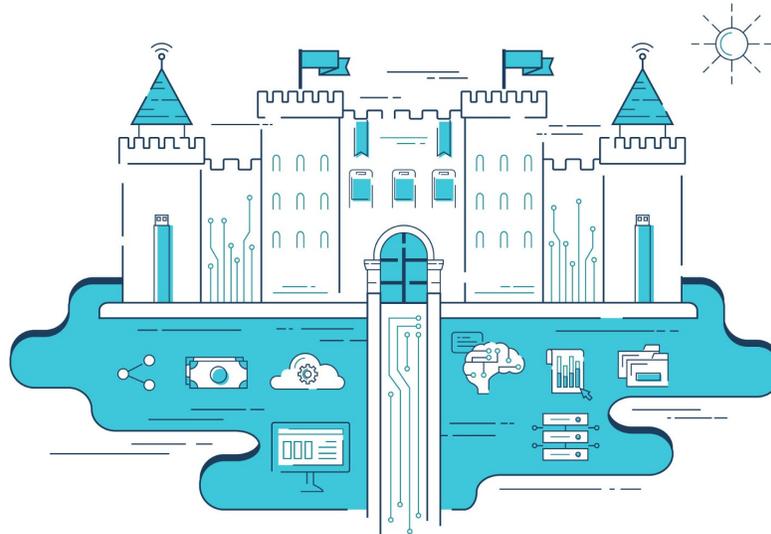




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The New Moats

Why Systems of Intelligence™ are the Next Defensible Business Model

“ In business, I look for economic castles protected by unbreachable ‘moats’ ”

- Warren Buffett

To build a sustainable and profitable business, you need strong defensive moats around your company. This rings especially true today as we undergo one of the largest platform shifts in a generation as applications move to the cloud, are consumed on iPhones, Echoes, and Teslas, are built on open source, and are fueled by AI and data. These dramatic shifts are rendering some existing moats useless and leaving CEOs feeling like it’s almost impossible to build a defensible business.

In this post, I’ll review some of the traditional economic moats that technology companies typically leverage and how they are being disrupted. I believe that startups today need to build systems of

intelligence™ —AI powered applications—“the new moats.”

Businesses can build several different moats and over time these moats can change. The following list is definitely not exhaustive and fair warning, it will read like a bad b-school blog!

Traditional Economic Moats

Some of the greatest and most enduring technology companies are defended by powerful moats. For example, Microsoft, Google, and Facebook all have moats built on economies of scale and network effects.

Economies of Scale: The bigger you are the more operating leverage you have which lowers your costs. SaaS and cloud services can have strong economies of scales: you can scale your revenue and customer base while keeping the core engineering of your product relatively flat.

Network Effects: Best described by Metcalf’s law, your product or service has “network effects” if each additional user of your product accrues more value to every other user. Messaging apps like Slack and WhatsApp, and social networks like Facebook are good examples of strong network effects. Operating systems like iOS, Android, and Windows have strong network effects because as more customers use the OS, more applications are built on top of it.

One of the most successful cloud businesses, Amazon Web Services (AWS), has both the advantages of scale but also the power of network effects. More apps and services are built natively on AWS because “that’s where the customers and the data are.” In turn, the ecosystem of solutions attracts more customers and developers who build more apps that generate more data continuing the virtuous cycle while driving down Amazon’s cost through the advantages of scale.

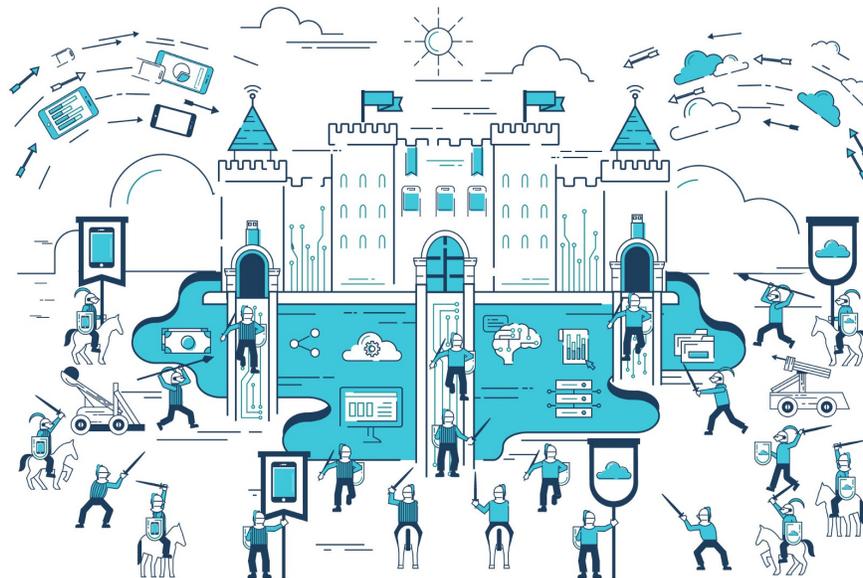
Some Other Traditional Moats

Deep tech / IP / trade secrets: Proprietary software or methods is where most technology companies start. These trade secrets can include novel solutions to hard technical problems, new

inventions, new processes, new techniques, and later, patents that protects the developed intellectual property (IP). Over time, a company's IP may evolve from a specific engineering solution to accumulated operating knowledge or insight into a problem or process.

High Switching Costs: Once a customer is using your product, you want it to become as difficult as possible for them to switch to a competitor. You can build this stickiness through standardization, from a lack of substitutes, through integrations to other apps and data sources, or because you have built an entrenched and valuable workflow that your customers depend on. Any of these can act as a form of lock-in that will make it difficult for customers to leave.

Brand and Customer Loyalty: A strong brand can be a moat. With each positive interaction between your product and your customers, your brand advantage gets stronger over time, but brand strength can quickly evaporate if your customers lose trust in your product.



Old Moats Can Be Destroyed

Strong moats help companies survive through major platform shifts, but surviving should not be confused with thriving. For example, high switching costs can partly account for why mainframes and “big iron”

systems are still around after all these years. Legacy businesses with deep moats may not be the high growth vehicles of their prime, but they are still generating profits. Companies need to recognize and react when they are in the midst of an industry wide transformation, lest they become victims of their own success.



Switching costs as a moat: X86 server revenue didn't exceed mainframe and other "big iron" revenue until 2009.

Moreover, these massive platform shifts—like cloud and mobile—are technology tidal waves that create openings for new players and enable founders to build paths over and around existing moats. Startup founders who succeed tend to execute a dual-pronged strategy: 1) Attack legacy player moats and 2) simultaneously build their own defensible moats that ride the new wave.

For example, Facebook had the most entrenched social network, but Instagram built a mobile-first photo app that rode the smartphone wave to a \$1B acquisition. In the enterprise world, SaaS companies like Salesforce are disrupting on-premise software companies like Oracle. Now with the advent of cloud, AWS, Azure, and Google Cloud are creating a direct channel to the customer. These platform shifts can also change the buyer and end user. Within the enterprise, the buyer has moved from a central IT team to an office knowledge worker, to someone with an iPhone, to any developer with a GitHub account.

No More Moats?

In this current wave of disruption, is it still possible to build sustainable moats? For founders, it may feel like every advantage you build can be replicated by another team down the street, or at the very least, it feels like moats can only be built at massive scale. Open source tools and cloud have pushed power to the “new incumbents,”—the current generation of companies that are at massive scale, have strong distribution networks, high switching cost, and strong brands working for them. These are companies like Apple, Facebook, Google, Amazon, and Salesforce.

Why does it feel like there are “no more moats” to build? In an era of cloud and open source, deep technology attacking hard problems is becoming a shallower moat. The use of open source is making it harder to monetize technology advances while the use of cloud to deliver technology is moving defensibility to different parts of the product. Companies that focus too much on technology without putting it in context of a customer problem will be caught between a rock and a hard place—or as I like to say, “between open source and a cloud place.” For example, incumbent technologies like Oracle’s proprietary database are being attacked from open source alternatives like Hadoop and MongoDB and in the cloud by Amazon Aurora and innovations like Google Spanner. On the other hand, companies that build great customer experiences may find defensibility through the workflow of their software.

I believe that deep technology moats aren’t completely gone and defensible business models can still be built around IP. If you pick a place in the technology stack and become the absolute best of breed solution you can create a valuable company. However, this means picking a technical problem with few substitutes, that requires hard engineering, and needs operational knowledge to scale.

Today the market is favoring “full stack” companies, SaaS offerings that offer application logic, middleware, and databases combined. Technology is becoming an invisible component of a complete solution (e.g. “No one cares what database backs your favorite mobile app as long as your food is delivered on time!”). In the consumer world, Apple made the integrated or full stack experience popular with the iPhone which seamlessly integrated hardware with software. This integrated

experience is coming to dominate enterprise software as well. Cloud and SaaS has made it possible to reach customers directly and in a cost-effective manner. As a result, customers are increasingly buying full stack technology in the form of SaaS applications instead of buying individual pieces of the tech stack and building their own apps. The emphasis on the whole application experience or the “top of the technology stack” is why I also evaluate companies through an additional framework, the stack of enterprise systems.

The Stack of Enterprise Systems



Systems of Record

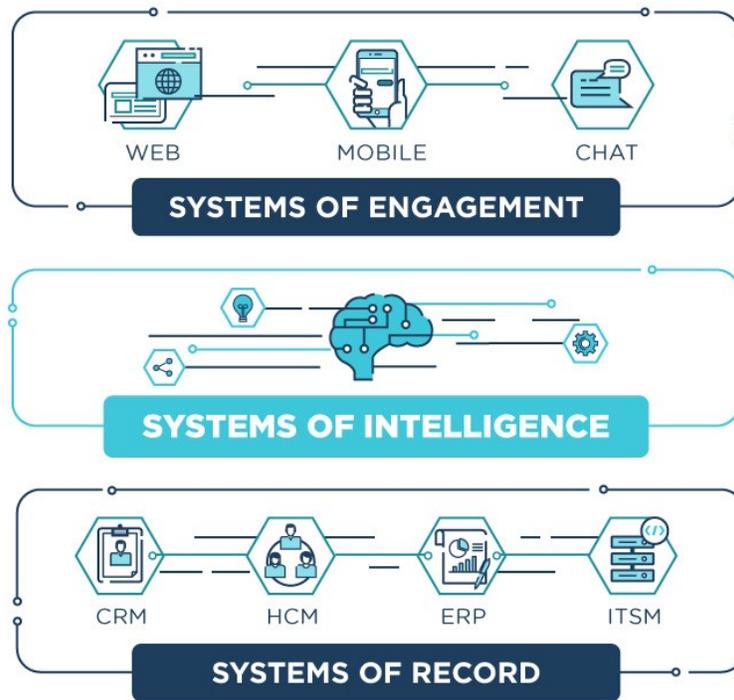
At the bottom of the stack of systems, is usually a database on top of which an application is built. If the data and app power a critical business function, it becomes a “system of record.” There are three major systems of record in an enterprise: your customers, your employees, and your assets. CRM owns your customers, HCM, owns your employees, and ERP/Financials owns your assets. Generations of companies have been built around owning a system of record and every wave produced a new winner. In CRM we saw Salesforce replace Siebel as the system of record for customer data, and Workday replace Oracle PeopleSoft for employee data. Workday has also expanded into financial data. Other applications can be built around a system of record but are usually not as valuable as the actual system of record.

For example, marketing automation companies like Marketo and Responsys built big businesses around CRM, but never became as strategic or as valuable as Salesforce.

Systems of Engagement™

Systems of engagement™ are the interfaces between users and the systems of record and can be powerful businesses because they control the end user interactions. In the mainframe era, the systems of record and engagement were tied together when the mainframe and terminal were essentially the same product. The client/server wave ushered in a class of companies that tried to own your desktop, only to be disrupted by a generation of browser based companies, only to be succeeded by mobile first companies. The current generation of companies vying to own the system of engagement include Slack, Amazon Alexa, and every other speech / text/ conversational UI startup. In China, WeChat has become a dominant system of engagement and is now a platform for everything from e-commerce to games. If it sounds like systems of engagement™ turn over more than systems of record, it's probably because they do. The successive generations of systems of engagement™ don't necessarily disappear but instead users keep adding new ways to interact with their applications. In a multi-channel world, owning the system of engagement is most valuable if you control most of the end user engagement or are a cross channel system that reaches users wherever they are. Perhaps the most strategic advantage of being a system of engagement is that you can coexist with several systems of record and collect all the data that passes through your product. Over time you can evolve your engagement position into an actual system of record using all the data you have accumulated.

The New Moats: Systems of Intelligence™



I believe that systems of intelligence™ are the new moats. What is a system of intelligence and why is it so defensible? What makes a system of intelligence valuable is that it typically crosses multiple data sets, multiple systems of record. One example is an application that combines web analytics with customer data and social data to predict end user behavior, churn, LTV, or just serve more timely content. You can build intelligence on a single data source or single system of record but that position becomes harder to defend against the vendor that owns the data. For a startup to thrive around incumbents like Oracle and SAP, you need to combine their data with other data sources (public or private) to create value for your customer. Incumbents will be advantaged on their own data. For example, Salesforce is building a system of intelligence, Einstein, starting with their own system of record, CRM.

The next generation of enterprise products will use different artificial intelligence (AI) techniques to build systems of intelligence™. It's not just applications that will be transformed by AI but also data center and infrastructure products. We can categorize three major areas where you can build systems of intelligence™: customer facing applications around the customer journey, employee facing applications like HCM, ITSM, Financials, or infrastructure systems like security, compute/ storage/ networking, and monitoring/ management. In addition to

these broad horizontal use cases, startups can also focus on a single industry or market and build a system of intelligence around data that is unique to a vertical like Veeva in life sciences, or Rhumbix in construction.

In all of these markets, the battle is moving from the old moats, the sources of the data, to the new moats, what you do with the data. Using a company's data, you can upsell customers, automatically respond to support tickets, prevent employee attrition, and identify security anomalies. Products that use data specific to an industry (i.e. healthcare, financial services), or unique to a company (customer data, machine logs, etc.) to solve a strategic problem begin to look like a pretty deep moat, especially if you can replace or automate an entire enterprise workflow or create a new value-added workflow that was made possible by this intelligence.

Enterprise applications that built systems of record have always been powerful businesses models. Some of the most enduring app companies like Salesforce and SAP are all built on deep IP, benefit from economies of scale, and over time they accumulate more data and operating knowledge as they get deeper within a company's workflow and business processes. However, even these incumbents are not immune to platform shifts as a new generation of companies attack their domains.

To be fair, we may be at risk of AI marketing fatigue, but all the hype reflects AI's potential to change so many industries. One popular AI approach, machine learning (ML), can be combined with data, a business process, and an enterprise workflow to create the context to build a system of intelligence. Google was an early pioneer of applying ML to a process and workflow: they collected more data on every user and applied machine learning to serve up more timely ads within the workflow of a web search. There are other evolving AI techniques like neural networks that will continue to change what we can expect from these future applications.

These AI-driven systems of intelligence™ present a huge opportunity for new startups. Successful companies here can build a virtuous cycle of data because the more data you generate and train on with your product, the better your models become and the better your product

becomes. Ultimately the product becomes tailored for each customer which creates another moat, high switching costs. It is also possible to build a company that combines systems of engagement™ with intelligence or even all three layers of the enterprise stack but a system of intelligence or engagement can be the best insertion point for a startup against an incumbent. Building a system of engagement or intelligence is not a trivial task and will require deep technology, especially at speed and scale. In particular, technologies that can facilitate an intelligence layer across multiple data sources will be essential. Finally, there are some businesses that can build data network effects by using customer and market data to train and improve models that make the product better for all customers, which spins the flywheel of intelligence faster.

In summary, you can build a defensible business model as a system of engagement, intelligence, or record, but with the advent of AI, intelligent applications will be the fountain of the next generation of great software companies because they will be the new moats.

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