

E-BOOK



BLUEPRINT FOR MOBILE MESSAGING






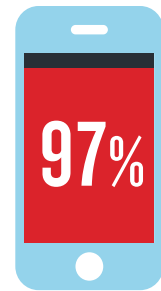


In a relatively short time, mobile messaging has eclipsed all modes of communications as how we connect, share, and engage in conversations. It is how people prefer to communicate today. Mobile messaging includes SMS-based texting, in-app chat, push notifications, and messaging apps like Facebook Messenger and WhatsApp. Businesses are increasingly using messaging as a preferred medium over calling and email to engage with customers on their mobile devices. Whether it's coordinating a stay at a house rental or checking with your bank on a recent transaction, mobile messaging is reshaping entire industries. Mobile messaging is a more immediate form of communication. And, more importantly, it's what people prefer. Those businesses that successfully integrate mobile messaging into their customer interactions create exceptional experiences.

We, as consumers, have been quick to adopt mobile messaging. In fact, 97% of Americans use messaging at least once a day¹. However, businesses have struggled to incorporate new messaging technologies as a customer engagement channel. Only 40% of businesses support messaging as contact channel². Part of the challenge in adopting mobile messaging for business use is that there are too many messaging options. Customers can be reached through SMS, in-app chat, push notifications, and any one of the dedicated chat apps like Facebook Messenger and WhatsApp. The bigger problem is that none of these options has perfect reach. Businesses have to orchestrate the same message across many different messaging channels to reach all customers and reach them over their preferred channel. How do you start chatting with a customer on one channel and then move to another? What about failover? What channels do customers prefer and when?

This *Blueprint for Mobile Messaging* offers a framework based on what we've learned from our customers like Uber, Airbnb, and Nordstrom that have lead the charge into mobile messaging. It's your map to building a better customer experience. Read this ebook to learn how to:

-  • Use mobile messaging to solve the customer communication problem
-  • Choose the right mobile messaging interface
-  • Integrate mobile messaging in your infrastructure



97% OF AMERICANS USE MESSAGING AT LEAST ONCE A DAY.¹ YET LESS THAN 40% OF BUSINESSES SUPPORT MESSAGING AS CONTACT CHANNEL²



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REACH YOUR CUSTOMERS THE WAY THEY WANT TO BE REACHED

Think about all the different ways you reach your customers. The chances are that you don't use only one. You probably use a combination of channels—emails, phone calls, text messaging, and more.

Thirty years ago, it was easy. If you were a business, your customers had a phone number and mailing address. Reaching those customers was labor-intensive, but otherwise relatively straightforward. Then along came the web. Then came mobile and a plethora of messaging apps. They opened up an almost endless number of ways to reach people. The landscape of how you communicate with your customers is more complex and more diverse than ever before.

From a consumer point of view, conversations with their peers increasingly happen over texts and messaging apps. Consumers don't want an email for an urgent alert – they want an SMS. If they spend all their time in Facebook Messenger, they probably want to see your messages in the same app. As a business, if you want to reach your audience, you need to reach them the way they want to be reached.

Millennials, in particular, don't want to call your 1-800 number and wade through a lengthy menu of choices. They don't want to wait on hold for an hour—or even a minute. In fact, 65% of millennials say they'd rather contact businesses via SMS, email, the web, or chat.⁸ They are accustomed to using messaging to communicate with their friends and family. They expect a similar human-centric experience from companies.



**9 OUT OF 10
CONSUMERS
WOULD LIKE TO
USE MESSAGING TO
COMMUNICATE WITH
BUSINESSES.⁸**



In a recent consumer survey, Twilio found that 9 out of 10 consumers would like to use messaging to communicate with businesses. It's quick and easy to text back a confirmation to an appointment reminder, and it's reassuring to receive a notification saying your food delivery is on its way. In most cases, phone calls take too long, and emails go unread. When it comes to communication convenience, there is usually nothing better than a mobile message.

Among top Twilio customers, we've seen mobile messaging efforts revolve around three core objectives:



- Improve user experience by communicating with their customers the way they want to



- Deliver the right information at the right time



- Minimize the cost of phone-based support

This ebook is designed to help you determine which messaging technologies to add to your customer conversation mix. It offers a framework for adopting mobile messaging and includes best practices from leading brands, such as Lyft, Trulia, and Coca-Cola Enterprises. This *Blueprint for Mobile Messaging* is your guide to building a better customer experience and to creating a sustainable competitive advantage.



Brands will flock to messaging platforms. Messaging platforms will see a branded explosion as companies race to be seen where customers are spending their time.

Leo Burnett London's annual predictions for 2016.³

What is Twilio?

Twilio is a global communications platform for developers. With our API and a few lines of code, developers create messaging, voice, and video conversations through their applications that were previously not possible. They can use the information available in software to route communications to the right person and even things, over the preferred communication channel.

Twilio Messaging APIs are used for:



COMMERCE NOTIFICATIONS

To keep customers in the loop with proactive alerts and notifications to reduce agent calls or missed business opportunities.



ACCESS SECURITY

To strengthen or replace a username and password using SMS or push message within the app to receive dynamic codes for secure login, payment transactions, and more.



CUSTOMER SERVICE

To give customers a faster way to get their questions answered by messaging sales reps and support agents directly.



SALES & MARKETING

To improve survey response rates or campaign engagement with messages delivered to users at just the right time.



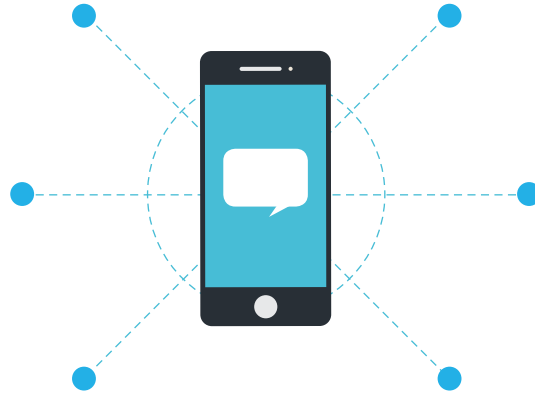
PEOPLE COORDINATION

To reduce response and resolution times by sending messages to schedule shifts or dispatch mobile workers from any existing field service management system.



CHAPTER:1

A FRAMEWORK FOR SUCCESSFUL MESSAGING



All software expands till it includes messaging.

Chris Messina - Developer experience lead, Uber

UNDERSTAND THE CHALLENGE OF STAYING CONNECTED TO CUSTOMERS

Let's kick things off by looking at the flow of a typical messaging notification:

It all begins when a user subscribes to an alert. Typically this is a channel-specific opt-in. For instance, a person may subscribe to transactional SMS, such as a password reset when they get locked out of their account, or SMS notifications that a ride is waiting outside the door.

At first, this works well. Businesses have a reliable way to keep customers up-to-date on the information they care about. But things are rarely so simple. That same customer may decide to download your mobile app and enable push notifications. Now you need to consider how to manage communications using SMS and push notifications.

A common strategy is to stop sending SMS alerts in favor of sending push notifications to the customer to avoid double notifications.



However, 90% of SMS messages are read within 3 minutes, whereas only 1.77% of push notifications are opened on iOS within 7 minutes.⁷ Even if push is a still good fit, you also need to consider if the customer disables push notifications, accidentally clears them or buys a new phone and never re-downloads the app. Many situations can arise that cause the customer to stop receiving push notifications.

And now they are out of the loop.

A shotgun approach is an alternative. You can blast notifications to the customer via SMS and push notification all the time. Customers who want to stay connected with businesses don't mind getting either SMS or push notifications. But when they get hit with both at the same time, it's a poor experience for the customer. Unsubscribe rates begin to soar.

Customers want to stay connected with relevant, targeted alerts, but opt out because they've been barraged with duplicate messages.

All of a sudden you notice that your contact list is shrinking. And customers, who want to stay connected with relevant, targeted alerts, are left in the dark.

NAVIGATE A COMPLEX MESSAGING LANDSCAPE

Beyond SMS and push notifications, customers increasingly want to get notifications in the apps they are already using. At Twilio, we've seen our customers add chat capabilities inside their mobile apps, as well as reach their customers through dedicated messaging apps like Facebook Messenger and Viber. The list of new messaging apps keeps growing every day...

It's unrealistic for your business to integrate every messaging channel out there in every geography. Even if you did, it's a hard problem to orchestrate messages across channels and plan for things like local preferences and failover.



**ON AVERAGE
CONSUMERS HAVE
THREE MESSAGING
APPS ON THE HOME
SCREEN OF THEIR
CELL PHONES.⁸**



MOBILE MESSAGING FRAMEWORK

To help you navigate the mobile messaging landscape, we have developed a four “I”s framework to help you develop an effective strategy for your business.

INTERFACES

The messaging channels you use to reach your customer. These include SMS, push notifications, in-app chat, and dedicated messaging apps. Email and voice communications are additional interfaces beyond mobile messaging.

INTEGRATION

The way you include messaging or chat into your mobile or web app experience. Integration is about how do you used context such as app usage and time of day to augment the communication workflow and add information to messages.

INTELLIGENCE

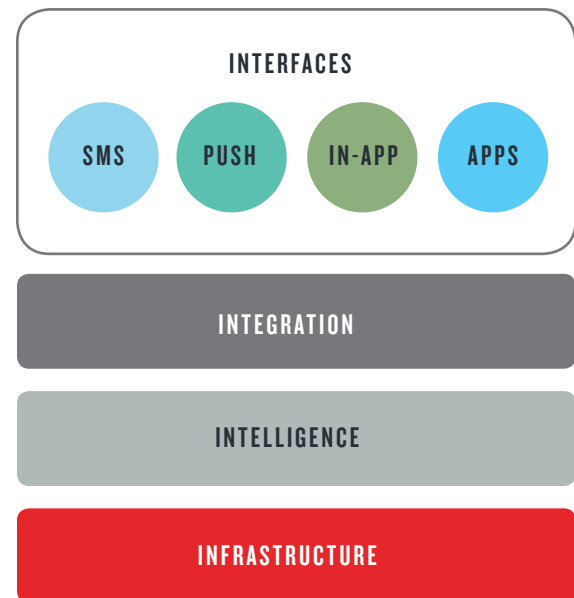
The insight into message content and how you use this data for intelligent routing or to send automated responses. Intelligence is also about where bots can deliver human-style messages at scale.

INFRASTRUCTURE

The way you build messaging interaction into mobile and web apps. You have the choice between building everything from scratch, off-the-shelf SaaS solutions, or cloud-based platforms.

To maximize the effectiveness of your mobile messaging strategy, it must take into account the strengths and weaknesses of each mode of communication. Before we look at each part of the framework in more detail, let’s get an overview of the benefits and drawbacks of mobile messaging.

FOUR “I”s FRAMEWORK FOR MOBILE MESSAGING





7 REASONS WHY MOBILE MESSAGING WORKS



1 IT'S ASYNCHRONOUS.

Both parties don't need to be available at the same time, unlike with phone or video chat.



2 IT'S THREADED.

One of the most compelling aspects of messaging is the context and continuity of a long-lived conversation.



3 IT'S A LIST OF CONVERSATIONS.

The list is quite simple—the conversation that had the most recent activity (inbound or outbound) is also the one that you're most likely to hop back into, so it's up at the top.



4 IT'S EASY.

Most messages can be quickly read from a lock screen notification (or from a watch!) and immediately understood.



5 IT'S INFORMAL.

There's no need for subject lines, intros, or signatures. Messaging is about keeping it to the point. Tap it out, done.



6 IT'S ALWAYS WITH YOU.

Every phone ships with a messaging app that can handle SMS at a minimum. Convenience always wins when it comes to communicating.



7 IT'S EXPRESSIVE.

Whether it's a well-worded note, animated gif, emoji, or video attachment, messages can say a lot. A read message that goes unreplied can say even more.



Text is the most socially useful communication technology. It works well in 1:1, 1:N, and M:N modes. The breadth, scale and depth of ways people use text is unmatched by anything.

Jonathan Libov - Analyst at Union Square Ventures

—AND 3 REASONS IT SOMETIMES FAILS

Despite all its goodness, there are some challenges to be aware of when using messaging for customer conversations.



1 THERE IS NO ONE APP.

Unlike email, messaging has no single interface for all your users. You need to be where your customers are and use the interface that is most likely to make them take action.



2 NEEDS INTEGRATION FOR BUSINESS USE.

Messaging apps are easy for consumers to use, but they often need to be optimized or integrated with CRM when used by mobile workers like customer service reps, salespeople, and field sales.



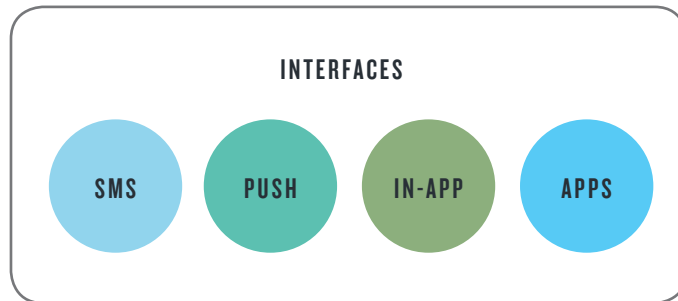
3 GLOBAL REACH AND COMPLIANCE CAN BE MESSY.

Building messaging that works across the globe and is compliant with local regulations can be challenging. Everything from the types of messages, the time of day and opt-in rules must be respected. Violate the rules, and you can be shut down quickly.



CHAPTER:2

KNOW YOUR MESSAGING INTERFACES



You have so many messaging technologies to choose from. The goal is to use the best channel at any given time that meets your business need and your customers’ preference.

First, consider what you’re trying to communicate. Also, consider who your audience is, what devices they typically use, and their preferences. For example, one person may be more likely to read an urgent message over SMS than Facebook Messenger. It may be entirely different for the next person.

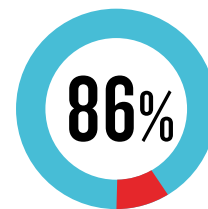
Most likely, there isn’t only one messaging interface that works for your customers.

So let’s jump in.

TEXT (SMS) AND PICTURE (MMS) MESSAGING

SMS or “Short Messaging Service” is the granddaddy of messaging, with its invention dating back to 1992 and it is still the most-used mobile feature.

SMS initially became popular as a person-to-person (P2P) messaging service, but more recently, SMS has seen its most aggressive growth as an application-to-person (A2P) messaging service for businesses. With A2P messaging, SMS are sent between a subscriber (typically a consumer handset) to an application (usually a business).



86% OF USERS OF STANDARD TEXT MESSAGING (SMS) HAVE NOTIFICATIONS TURNED ON.⁸



BENEFITS

SMS is popular because it is:

UBIQUITOUS. SMS is natively supported on every mobile phone.

EASY TO USE. SMS is integrated across most of a phone's native apps.

GROWING RAPIDLY. SMS usage continues to grow significantly for business-to-consumer communications (A2P).

WORKS GLOBALLY. Users can exchange text messages and pictures around the world from any mobile or web app.



CONVEYS URGENCY
90% OF SMS MESSAGES ARE
READ WITHIN 3 MINUTES.⁹

CHALLENGES

But there are some areas to consider as well:

SEPARATE EXPERIENCE.

When a person receives a text, they must leave whatever mobile app they're in to read and respond to the text.

NOT OPTIMIZED FOR RICH MULTIMEDIA.

While SMS/MMS can support images and short videos, that's really not it's forte.

COSTS MONEY.

SMS uses the global carrier network. Carriers typically charge a fee when an SMS is sent or received. The price of sending an SMS message is based on the country in which the recipient is located.



USED FOR

ACCESS SECURITY Two-factor authentication

COMMERCE NOTIFICATIONS Appointment or bill reminders, ETA alerts

PEOPLE COORDINATION Dispatch notifications, instant lead alerts to sales teams





IN-APP CHAT

Many businesses opt to add full-featured chat directly to their web or mobile app. For instance, a consumer looking for flight information in an airline mobile app can chat with a reservations agent without leaving the app. Or in a mobile marketplace, sellers and agents can coordinate transactions in the context of listings. Chat doesn't just stay in the app, it's also more productive. Contextual information such as recent activity in the app and data typed into fields can be shared between parties over chat.

BENEFITS

In-app chat lets brands deliver:

SEAMLESS EXPERIENCES. Users don't need to leave the app to communicate the way they need to with email, calls, or other dedicated messaging apps.

CONTEXTUAL COMMUNICATIONS. The user has a better experience because chat happens within the context of the app. Your employees don't waste time collecting information that they should already know about customers.

RICH MEDIA. In-app chat supports virtually any variety of GIFs, videos, pictures, audio, stickers, emoji, and location information as part of their messages.

SYNCHRONIZED CONVERSATIONS. Customers don't lose their place in the conversation because message-read status and chat history stay synchronized whether they are on mobile or web.

INTERACTION DATA. Get instant access to chat history. Message activity can be stored in the cloud and updated in real time for service analysis or product feedback.



**67% OF PEOPLE
PREFER CHATTING
INSIDE OF AN APP
THEY ALREADY
USE BECAUSE IT'S
CONVENIENT.**



CHALLENGES

But there are some areas to consider as well. In-app chat:

IT REQUIRES A MOBILE OR WEB APP

The functionality is built into the app and requires that the user downloads and use that app to access chat.

NOT OPTIMIZED FOR NOTIFICATIONS.

Notifications can be very useful if a person is already actively using chat. The downside? You need to rely on push notifications or SMS to handle notifications when the app isn't open.

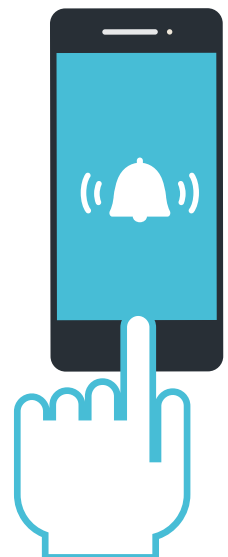
USED FOR

- CUSTOMER SERVICE** Live chat with sales or support, live feedback
- PEOPLE COORDINATION** Team collaboration

The banner features a thumbs-up icon, a headset icon on a monitor, and icons for a tablet and a smartphone.

PUSH NOTIFICATIONS

Push notifications let an app send one-way messages, badges, and alerts even when the device's screen is locked and the app is closed. Notifications use GCM (Google Cloud Messaging) and APNs (Apple Push Notification service) to send messages to Google and Apple devices. A unique token is created for every device associated with a user.



“
This year's killer app will be your notification screen.

Leo Burnett London's annual predictions for 2016.



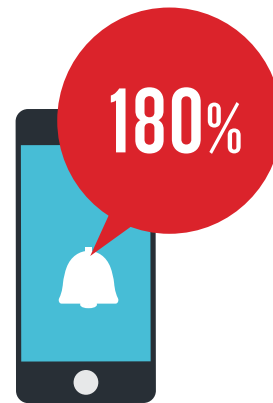
BENEFITS

INCREASE APP ENGAGEMENT. Push notifications are used with apps, making them a great tool for increasing app engagement. In fact, people who opt in to push notifications are about 3x more likely to open that app than those who opt out. (Localytics 2015)

ALLOW NATIVE DEEP LINKING. Drive engagement by linking users to specific locations within a mobile app so they are directed to the right place right away.

LOW COST. Push notifications don't have an underlying cost from Apple and Google, making them a low-cost option for sending one-way notifications.

RELIABLE AND TRACEABLE. With deliverability receipts and real-time status, you know if your message has been delivered and read.



IMPROVE USER RETENTION.
ON AVERAGE, PUSH NOTIFICATIONS INCREASE THE 90-DAY RETENTION RATE⁴ BY 180%, WITH A 27% RETENTION RATE FOR USERS RECEIVING PUSH NOTIFICATIONS COMPARED TO ONLY 10% OF USERS NOT RECEIVING PUSH NOTIFICATIONS.

CHALLENGES

But there are some areas to consider as well:

REQUIRED PERMISSIONS.

Push notifications are not enabled by default when a user installs a new app. A person needs to agree to receive push notifications either at the time of app install or later.

HIGH OPT-OUT RATES.

While rates vary by category, 40% or fewer of people enable push notifications⁵ on their mobile apps.


LOW OPEN RATES.

Only 1.7% of Apple users and 3.48% of Android users open messages. For iOS, it takes on average 7 minutes to be opened, whereas it takes 48 minutes on Android.⁷

FATIGUE.


People only want relevant and time-sensitive notifications. When notifications are used too frequently or aren't valuable, they are ignored.



 **USED FOR**

COMMERCE NOTIFICATIONS Delivery status, account activities, loyalty rewards

SALES & MARKETING Promotions, coupons, and sales



MESSAGING APPS

There's a lot of excitement around using messaging apps to reach consumers. Examples include Facebook Messenger, Viber, Apple iMessage, WeChat, WhatsApp, and Kik. However, the ability for businesses to use these apps varies widely by vendor.

BENEFITS

Messaging apps are:

EASY AND SOCIAL. Young adults and teens are big fans of messaging apps. They're an easy, familiar experience for anyone who texts. Messaging also has more of a social experience than other messaging technologies.

GROWING WILDLY. Messaging apps are more popular than social media, and usage continues to rise rapidly. Messaging app usage is predicted to triple by 2019 to 100 trillion⁶ messages per year

RICH-MEDIA CAPABLE. Brands can create an experience that includes pictures, GIFs, videos, emojis, stickers, and location information.



THE MESSAGING APP MOST LIKELY TO BE USED BY US CONSUMERS, IS FACEBOOK MESSENGER, WITH AROUND 7 IN 10 (69%) STATING THAT THEY USE IT.⁸

CHALLENGES

But there are some areas to consider as well:

GEOGRAPHIC POPULARITY.

Different messaging apps are popular in different geographies, so delivering a consistent experience across apps can be hard. For example, Facebook Messenger and iMessage are popular in the US. WhatsApp is popular in Europe and South America. WeChat is widely used in China. Kakao Talk dominates in Korea.

BRANDS DON'T OWN THE UX.

With messaging apps, brands lose control over the user experience compared to in-app messaging. Many of these messaging apps are evolving into platforms with e-commerce or gaming that may compete for attention with your app.



THE TIME IT TAKES TO INTEGRATE MULTIPLE APPS.

Different messaging apps don't communicate with each other. It's time-consuming for developers to federate across multiple messaging APIs, especially when the market is evolving so rapidly.



USED FOR

CUSTOMER SERVICE Frictionless communications with sales

COMMERCE NOTIFICATIONS Transactional and delivery notifications

SALES & MARKETING Surveys and marketing promotions with a targeted audience





MAKE YOUR MESSAGE HEARD

The use case primarily drives the messaging channel you choose. You need to consider the type of message you want to send, the preference of the user, the content of what you're sending, the device the recipient used last, and so on. It's a complex set of considerations, but thinking these things through for your scenario will pay off. You'll see results with higher read rates and greater customer satisfaction.

Here are just a few variables you may want to consider and how they line up against each of the major messaging channels.

MOBILE MESSAGING INTERFACE CHEAT SHEET				
	SMS	IN-APP CHAT	PUSH NOTIFICATION	OTT APPS
Ubiquitous/Convenient	Yes	Mobile app needed	Mobile app needed	Mobile apps
Reliable w/ Failover	Yes	Somewhat	Somewhat	Somewhat
Urgent	Yes	Somewhat	Yes	Somewhat
App Context	No	Yes	Somewhat	No
Social	No	No	No	Yes
Rich media capable	Somewhat	Yes	No	Yes
App Engagement	No	Yes	Yes	No
Privacy	Yes	Yes	Yes	No

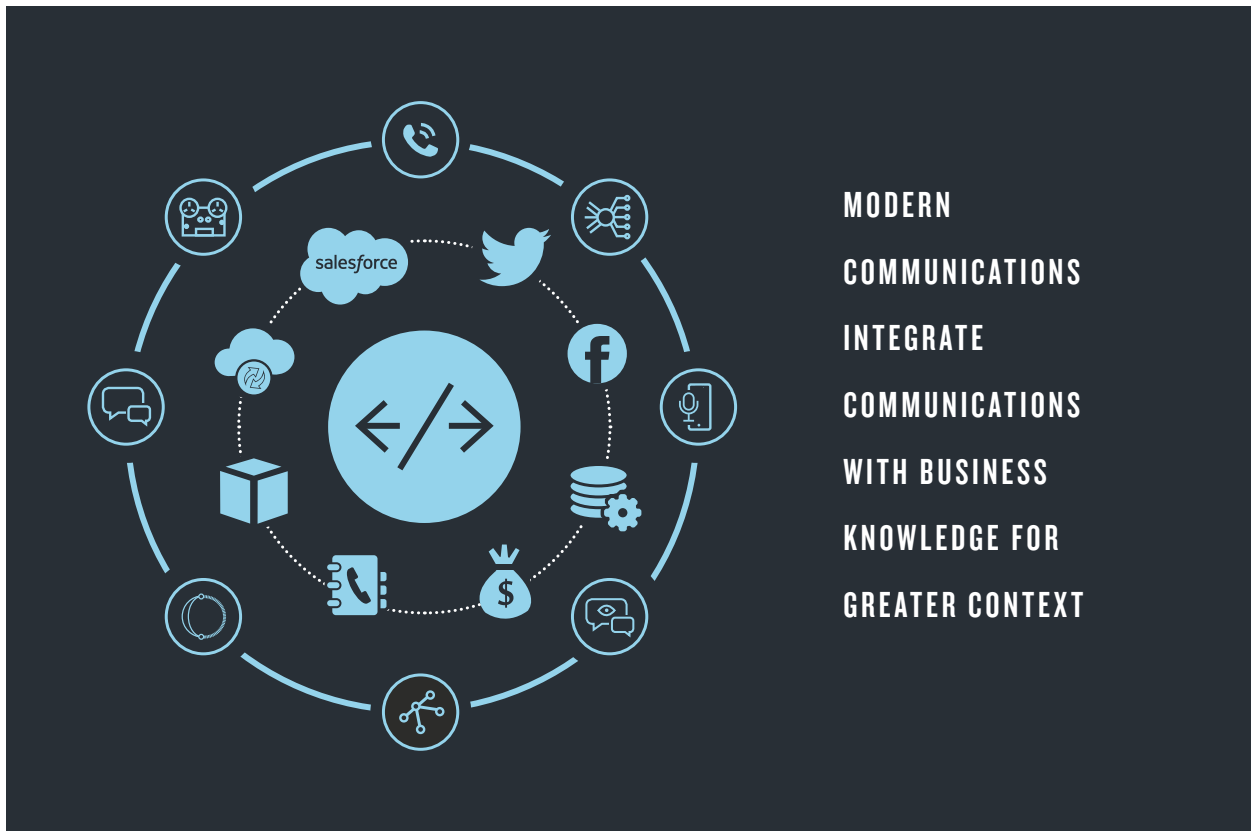
Now that you've determined which interface(s) to use, the next step is to ensure your mobile communications are integrated smoothly into the natural flow of your business and your customer relationships. Remember, context is everything.



CHAPTER:3

FORMULATE YOUR MESSAGING INTEGRATION

Mobile communication needs to work in lockstep with the natural flow of business, using information that's relevant to each stage of the customer journey. Using information from CRM, ERP, and other enterprise systems that may contain customer shipping information, past orders, ongoing support issues – makes a communication touch more effective.



CONTEXT-DRIVEN CHANNEL SELECTION

This contextual information influences the channel you use to reach the customer. For instance, if a person started a transaction on a mobile app, it may be best to use in-app chat or push notifications to reach that customer. Or if you're sending a notification to request confirmation of suspicious activity on an account, you want a fast, reliable notification like SMS.



CONTEXT-DRIVEN MESSAGE ROUTING

Consider this scenario. Real estate apps are a popular way to hunt for that perfect home. When a potential homebuyer sees a new listing, they can use the mobile app to request that an agent contact them. If messaging is built into the CRM, that lead can be distributed instantly to the right agent, who is responsible for the home, is available at the time, or who speaks the same language as the buyer. The agent receives the incoming message with the context of who is calling and what property he's interested in. This way the agent can instantly communicate with the buyer using in-app chat. Or the agent can use another messaging channel like Facebook Messenger or SMS if the buyer is no longer in the app.



CONTEXT-DRIVEN CONVERSATIONS

The real estate agent in the above scenario can also use information about the customer to start the conversation off on the right foot. What if they knew that the customer had attended an investment seminar recently, owned 12 rental properties in that region, or was mid-way through closing another property? By building mobile messaging into existing apps, context becomes part of the overall experience.

EXAMPLE: DESIGNING CHAT WITH CONTEXT

While there are many ways to build chat, let's look at one example of adopting a messaging strategy that adds context to chat.

STEP 1 PASS CONTEXT ALONG WITH THE COMMUNICATION.

Many businesses start with chat using a "drop-in" live chat agent. These products are quick to embed into a website or mobile app but lack the level of integration that can bring context to the conversation. Programmable messaging APIs instead can allow consumers and agents to interact more fully with context. For instance, agents can see detailed information about a consumer's recent activity in the app. Consumers can drag a product of interest into the chat screen, and the agent can see rich contextual metadata about the product and related information. This kind of rich context can provide a much more informed interaction.



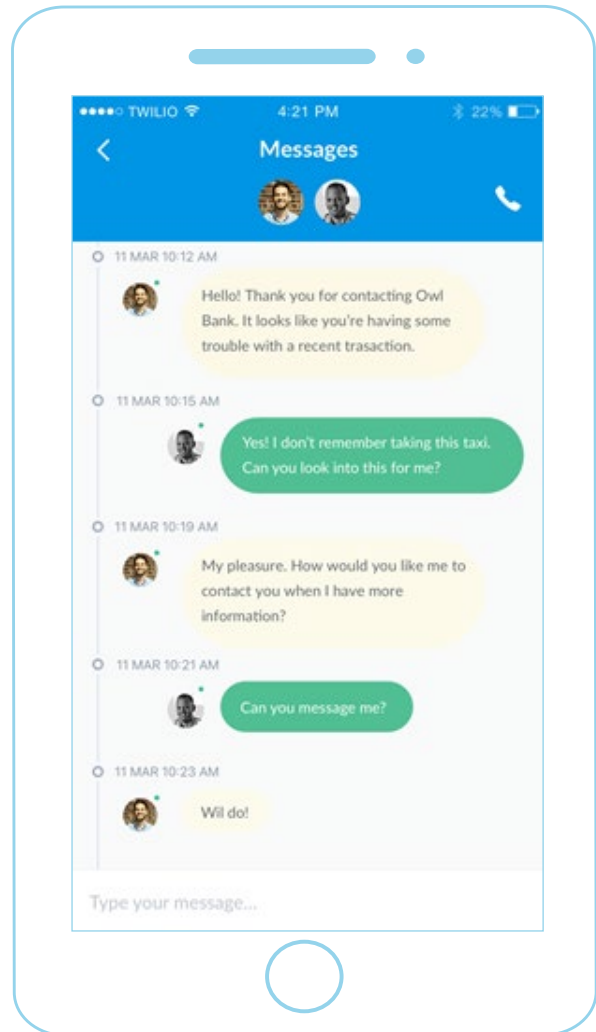
**PROGRAMMABLE
MESSAGING APIS CAN ALLOW
CONSUMERS AND AGENTS TO
INTERACT MORE FULLY WITH
CONTEXT**

STEP 2 GIVE THE AGENT A SINGLE VIEW.

By embedding messaging and other communication modes (e.g., voice or video) into the CRM browser window, the agent has a single interface for all customer interactions. This creates a strong tie between communication and CRM. Programmable messaging APIs make it possible to add a unified messaging interface to the agent side while communicating with customers using their preferred messaging interface.

STEP 3 BUILD MESSAGING INTO THE CONSUMER MOBILE APP.

Generally customers needing to communicate with a representative get thrown out of the app and into a dumb phone screen. None of the contexts surrounding the reason for the call is passed to the agent. It doesn't allow for any level of intelligent interaction. By embedding communication into the mobile app instead, customers can message support agents without ever leaving the app experience.



Integrating mobile messaging into the context of the customer conversation allows you to reach your customers the way they want to be reached. In-app chat is a great way to address customer service issues faster and privately, rather than customers airing their grievances and troubles in the public forum of social media. It's a better customer experience, and it reduces support phone calls and emails.

Managing multiple interfaces while preserving context and integration can be a major challenge at scale. In the next chapter, learn how messaging intelligence can help you to engage with larger numbers of customers efficiently, without sacrificing the quality of the user experience.

CHAPTER:4

BOOST YOUR MESSAGING INTELLIGENCE



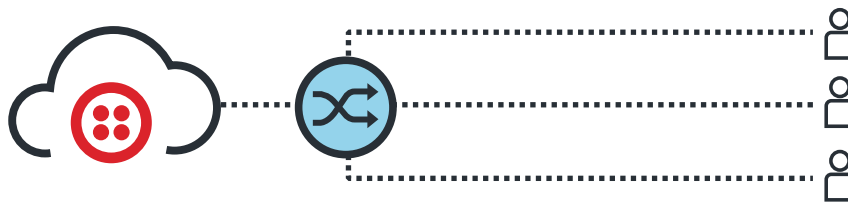
Messaging is more than just exchanging content between people. It involves a tremendous amount of intelligence to analyze content, deliver the message to the right person (or bot), and respond in the context of that interaction. Messaging between businesses and consumers involves a tremendous amount of complexity to get it right and make the interaction feel natural--and feel human.

INTELLIGENT INSIGHTS

The first part of the equation is the insight we can gain into the message content. Is the person messaging you about an issue with an order? What is the status of that transaction? What products have they ordered in the past? Are they angry? What language are they using in their message? Who has helped them in the past?

All of these insights can be used to automate a messaging interaction that provides the best possible experience for the customer. Consider that, today, most messaging applications are handled by human agents who generate, route and respond to messages. However, messaging is becoming more intelligent as parts of the human workflow are automated using these insights about the message and the people sending the messages.

An example of this transition is the Twilio TaskRouter API, which is an intelligent routing system. TaskRouter can dynamically assign messages to the human agents that can best handle them. Messages and other types of data can be routed based on the "skills" required and the priority set.





ARTIFICIAL INTELLIGENCE: CHAT BOTS

Insights allow you to tailor the experience for the customer. You can route their message to someone who is experienced with their situation. Or to suggest responses to an agent. The next logical step after collecting and analyzing messages using things like natural language understanding (NLU) and intent extraction is to automate responses with bots.

The technology and the R&D that have gone into creating bots today is phenomenal. We're still really just scratching the surface of what bots will be able to do. Microsoft Skype, Facebook Messenger, and Slack are just a few examples of messaging products using bots based on machine learning for smarter interactions.

For the #botcurious, there are many different types of bots. For example:



- There are chat bots that can carry on a 2-way conversation with a human.



- There are also Personal Assistant bots, that you know as Siri, Google Now, and Cortana. These bots can answer questions and respond to commands, but they typically don't carry on a 2-way conversation, at least as their primary function.



- Notification bot is logic that lives in your chat room. They pop up now and again to notify you of relevant information, but you don't necessarily chat with them.



- Then there are command line bots that use simple text commands to access services like checking the weather or ordering a car directly from Slack or controlling an IoT device.

For mobile messaging, think about bots as anything that lets a customer interact with a business through messaging. Bots might augment a person representing the business or might operate on their own.



Three things are influencing this fast-moving space:

1. ADVANCES IN ARTIFICIAL INTELLIGENCE (AI).

The last few years have seen tremendous advances in artificial intelligence, driven by greater availability of computing power, specifically GPUs. AI also takes advantage of massive amounts of tagged data now available to everyone. A wealth of compute resources and large data samples have pushed AI further and faster than we ever expected.

2. ADOPTION OF APIS AND MICROSERVICES.

For bots to be useful, they must know about the world around them and be able to act in that world. Development trends have moved away from monolithic applications as we've adopted APIs and microservices. These services enable bots to interact with the world in a way they never could before. Bots can understand a calendar, look up current inventory, or make updates in real-time.

3. ADOPTION OF MESSAGING BY BUSINESSES.

As businesses seek to develop human-style communications with customers at scale, the practical use cases for bots have expanded exponentially. The rise in bot technology is due in part to the massive adoption of messaging by consumers for personal communications. But business-to-consumer communication has created new business cases for bots, which is driving even greater investment.



BUSINESS-TO-CONSUMER COMMUNICATION HAS CREATED NEW BUSINESS CASES FOR BOTS, WHICH IS DRIVING EVEN GREATER INVESTMENT.

HYBRID INTELLIGENCE: HUMAN+BOT

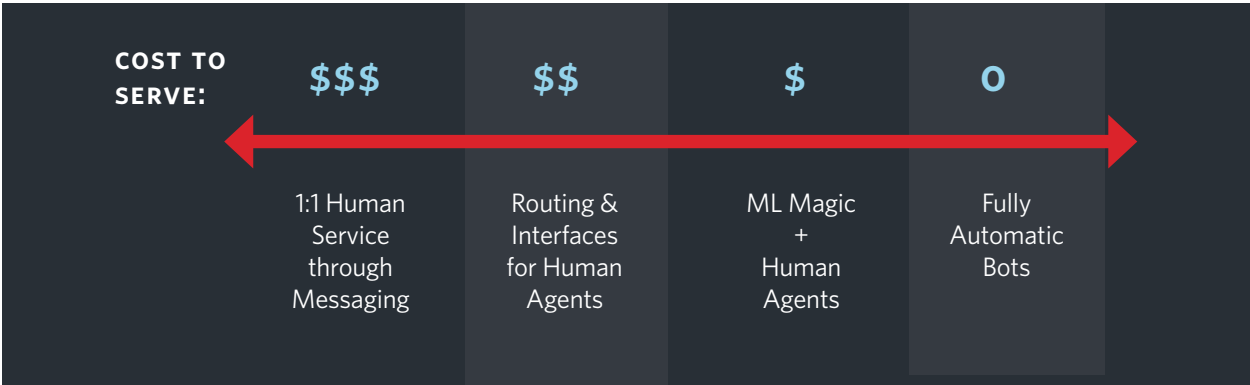
The promise is this: A bot should be able to handle just about everything you can throw at it. While many are trying to build a true artificially intelligent bot, a hybrid-based approach is most practical in many scenarios.

The human+bot is a simple way to achieve intelligent messaging, and it is arguably all that many businesses need. In this approach, a bot is a first-to-respond entity, and it falls back on a human agent if it doesn't know how to respond effectively. Facebook [M](#), [Fin](#), and [Clara](#) are examples of this type of bot.



The goal of the human-assisted bot is to fulfill requests using machine learning as often as possible and only when necessary fall back on a human agent to handle the request. Bots can learn from human decisions, so they get better with algorithmic and data-driven decisions day by day. Over time, bots will get better and better, eventually reducing the need for humans to step in.

Hybrid intelligence is a “best of both worlds” approach and makes for an excellent way to deliver human-style communication at scale.



So you now know which interfaces you’re going to use, how you’re going to integrate mobile messaging seamlessly into existing customer communications and business flows, and how you can use artificial intelligence to deliver mobile messaging at scale. But how do you implement your strategy? In the final part of the framework, we’ll consider best practices for building a mobile messaging infrastructure.

CHAPTER:5

BUILD YOUR MESSAGING INFRASTRUCTURE





Most guides to mobile messaging don't delve into the world of infrastructure. But for the enterprise, and for business-to-consumer messaging in particular, infrastructure is critical. Infrastructure dictates what you can and can't do. It defines what workflow is possible, how you leverage other business systems, and where messaging fits into the customer journey.

Until recently, most businesses have considered mobile messaging infrastructure as a choice between two approaches. Either you build the infrastructure from scratch and have ultimate customization and control, or you purchase an off-the-shelf SaaS offering and forgo customization for the sake of simplicity.







While customization is key, the idea of building your own messaging infrastructure is not for the faint of heart. It requires massive investment in both upfront capital and ongoing operations. It means setting up a dedicated messaging gateway, engineering for scalability and uptime, and committing to bulk messaging contracts with network providers. These contracts typically specify minimum commits that make you predict usage over time and pay through the nose if you exceed those limits. Next? You need to write custom code to expose an API for the app development team. Only then are you ready to build your messaging app.

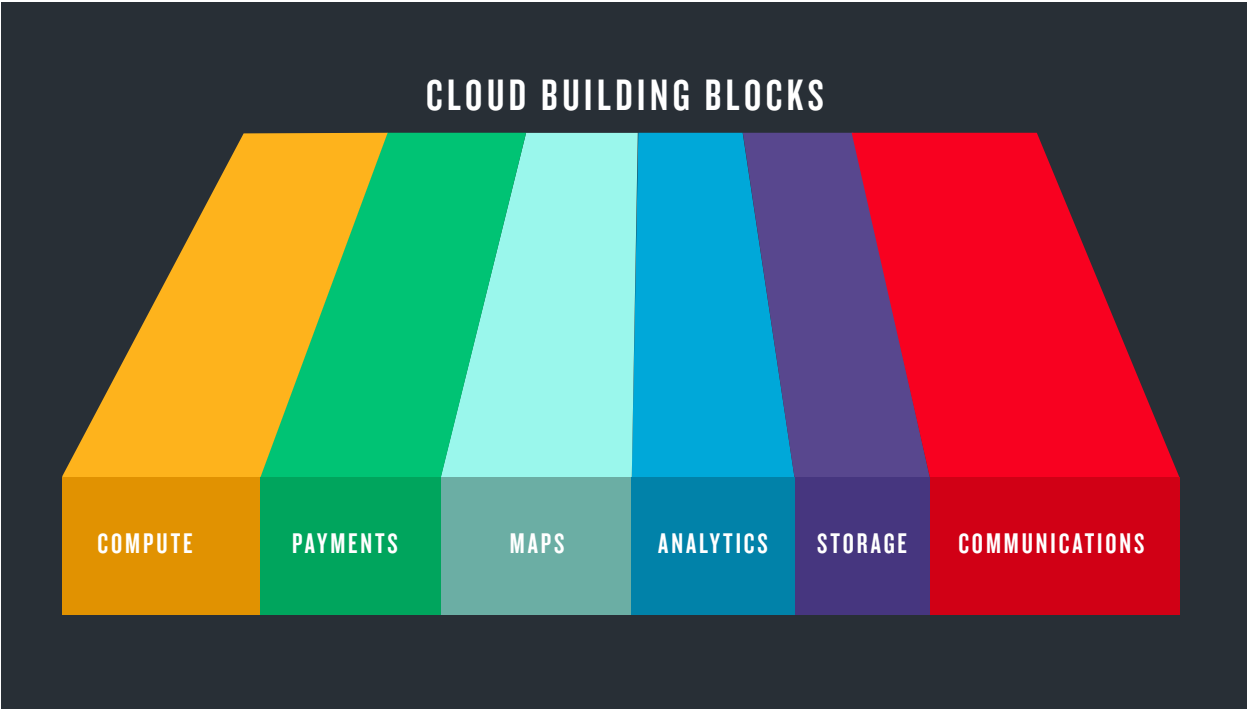
Recently, a new method has emerged: Cloud building blocks for messaging. In this case, services are delivered from the cloud using APIs. They are built from the ground up to serve developers. You effectively get the customization of a build-your-own architecture without the drawbacks.



 <p>TRADITIONAL INFRASTRUCTURE</p> <ul style="list-style-type: none"> - TIED TO VENDOR ROADMAP - UPFRONT SUBSCRIPTION + FAST TIME TO MARKET + ELASTIC SCALE - PAYPER SEAT 	 <p>CLOUD BUILDING BLOCKS TO AUGMENT INFRASTRUCTURE</p> <ul style="list-style-type: none"> + OWN YOUR ROADMAP + NO UPFRONT COST + FAST TIME TO MARKET + ELASTIC SCALE + PAY FOR WHAT YOU USE
--	--

This building-block approach has proven itself across everything from computing resources to global scale. It puts businesses in control of roadmap, vendor choices, and development tools. Some examples include:

 <p>COMPUTE</p> <p>Leverage cloud compute services like Amazon EC2 and Microsoft Azure to power applications.</p>	 <p>PAYMENTS</p> <p>Stripe and others offer a payment infrastructure designed for marketplaces, mobile apps, e-commerce, and other digital economy businesses.</p>	 <p>MAPS</p> <p>Businesses can easily integrate digital maps into their applications using APIs for Google Maps, Microsoft Bing, or others.</p>
 <p>ANALYTICS</p> <p>Data can be collected and retrieved from other applications, such as CRM, or devices, such as sensors.</p>	 <p>STORAGE</p> <p>Services like Amazon Elastic Block Store (EBS) offer flexible, cloud-based storage.</p>	 <p>COMMUNICATIONS</p> <p>Twilio offers mobile messaging, voice, and video through a cloud-based API.</p>



Applying platform economics to communications allows enterprises to reduce communications costs, innovate faster and be better positioned to take advantage of digital opportunities.

Mark Winter, IDC.

This shift toward cloud-based building blocks is creating a continuous state of disruption in businesses as they strive to remain competitive. Cloud-based building blocks are easier to procure, highly scalable, and let you adapt quickly to address market changes.

In the case of mobile messaging, businesses are using APIs to messaging to existing software, creating more relevant and contextual communications.



MOBILE MESSAGING BUILDING BLOCKS

While many businesses see cloud based building blocks as the answer, it's important to recognize that two distinct approaches exist.

First, there are point products. They include APIs available from various messaging apps, APIs that repackage and resell carrier services, and SDKs that enable in-app chat and push. As a business, that means you still need to federate across all messaging options and develop complex orchestration logic to select the best channel for each message.

More recently, Twilio has introduced a different approach—an all-in-one messaging toolbox for developers that orchestrates across every major messaging channel. You get global reach, delivery intelligence, and the highest reliability over both IP and carrier networks, all with minimal development effort. This toolbox includes orchestration across SMS and MMS, in-app chat, push notifications, and messaging apps like Facebook Messenger and Viber.

This building block approach to mobile messaging includes three key components:



1. PROGRAMMABLE MESSAGING

Start building your app in the programming language you already use. You no longer need to provision infrastructure, engineer for uptime and write custom code to expose an API.



2. SUPER NETWORK

A distributed software layer orchestrates messages across mobile messaging infrastructure, giving you the ability to reach everyone over the channel that's most relevant. No need to negotiate contracts with carriers, build to multiple APIs and create logic for routing, monitoring, and failover.



3. INNOVATION BUSINESS MODEL

With cloud building blocks, you can set up an account and press "go" on your prototype. No contracts. You pay for what you use, and scale up on demand.

With this approach, mobile messaging can easily be embedded within every single app you use. Communications can become more meaningful and relevant as you incorporate the context of those apps and the advanced features of the mobile device into your communications.



CONCLUSION

ELEVATE YOUR CUSTOMER EXPERIENCE WITH MOBILE MESSAGING

For businesses to thrive in a market where a sustainable advantage is fleeting, they need to make the customer experience a competitive differentiator. Mobile messaging has quickly become the preferred communication method for customer interactions because it addresses your ultimate goal: superior customer service.

This ebook has laid out a four-part framework for how to reach your customers the way they want to be reached. Let's take a final review of what to consider when developing a mobile messaging strategy.



INTERFACES

You have many messaging technologies to choose from - SMS, push notifications, in-app chat and messaging apps. There isn't one messaging interface that works for your customers. Select the interface based on what you are trying to communicate and your customers' preference.



INTEGRATION

Integrating mobile messaging into the context of the customer conversation makes interactions more productive. Add customer, order or issue information from CRM, ERP, and other enterprise systems to bring context to your communications. Contextual information influences the channel you use to reach the customer, how you route your message internally and how you engage in customer conversations.



INTELLIGENCE

Intelligence is the key to delivering human-style messages at scale. Add intelligence to help you to engage with larger numbers of customers efficiently, without sacrificing the quality of the user experience. A hybrid approach with human-assisted bot - where bots handle most requests and fall back on human agents if needed - is gaining adoption.



INFRASTRUCTURE

Adopt a building block approach to get global reach, delivery intelligence, and the highest reliability over both IP and carrier networks, all with minimal development effort. Twilio's programmable APIs are part of an all-in-one messaging toolbox that orchestrates across every major messaging channel to reach your customers the way they want to be reached.

Now that you've got a handle on how to use mobile messaging most effectively, it's time to execute! Whatever messaging technologies are right for your business, Twilio is there to help you build them.



MOBILE MESSAGING CHECKLIST

Get started with mobile messaging

You can use this online spreadsheet to complete your mobile messaging checklist.

bit.ly/mobilemessagingchecklist

GENERAL CONSIDERATIONS

- Who is your audience?
.....
- What messaging channels do you plan to use? What messaging channels are required for each use case?
.....
- What volume of messages do you expect to send on each channel?
.....
- How frequently do you plan to send messages on each channel?
.....
- Will your messages be one-way, two-way, primarily outbound or primarily inbound?
.....

INTERFACES

SMS SPECIFIC

- How do people opt-in specifically to receive SMS?
.....
- How do people decide what to receive via SMS and when?
.....
- Can you deep link to your app or mobile web site?
.....
- What types of phone numbers need to be provisioned? Do these numbers need to be local?
.....
- Does the country where you're provisioning a local phone number require a local presence?
.....
- Are there any country specific regulations to the type of traffic you can send?
.....



- Are you using an alphanumeric Sender-ID to identify your brand as the sender? If so, does the destination country require that you register that Sender ID or the content of the message?

.....

- Do you want to use a consistent identity each time you message a user?

.....

PUSH NOTIFICATION SPECIFIC

- What operating systems do you need to support?

.....

- Do you have your own app installed on customer devices?

.....

- What percentage of your users have push notifications enabled on your mobile app?

.....

- When do you prompt people to enable push? Just on install or afterward also?

.....

IN-APP CHAT SPECIFIC

- Will in-app chat support group messaging or just 1:1 interaction?

.....

- What type of presence and other contextual information needs to be shared between users?

.....

- How will you organize users, groups, chat rooms, etc.?

.....

- Primarily what type of chat will this be? Business-to-customer or user-to-user? When do you prompt people to enable push? Just on install or afterward also?

.....

- How do you plan to notify people of responses? Push? SMS? When do you prompt people to enable push? Just on install or afterward also?

.....



MESSAGING APP SPECIFIC

- What platform do most of your users prefer to message on? Do they have push enabled?

.....

- How do users opt-in to messaging with you on that messaging app?

.....

INTEGRATION

- What processes are needed to receive inbound customer messages and what software systems will handle them?

.....

- What days and times will you actively respond to inbound customer messages? What's your response SLA?

.....

- How will you gather a customer's channel preference?

.....

- What are your messaging success metrics?

.....

INTELLIGENCE

MESSAGE CONTENT

- What is the purpose of your messages? For example: marketing, notifications, anonymous communications?

.....

- What will you send in your messages? Plain text, images, audio, video?

.....

- How is message content reviewed for compliance with your opt-in policy?

.....

- Will any analysis be done on the content of each message? Sentiment and intent analysis, language identification, etc.?

.....



BOTS

- Will you support automated responses to inbound messages?
.....
- What types of messages will receive an automated response vs. connect user to an employee or contact center agent?
.....
- How sophisticated does a web or mobile chat bot need to be? Just simple proactive notifications or threaded conversational discussions?
.....
- What context is needed for your bot to have meaningful discussions with customers and support commerce?
.....



INFRASTRUCTURE

SERVICE AVAILABILITY

- What are your uptime requirements?
.....
- What privacy and security requirements are relevant for messaging in your business/industry?
.....
- What is the service availability of the internal and third-party software systems used and what's the impact of their downtime on your service?
.....



OPT-IN/OPT-OUT

- How will people opt-in or opt-out to receiving your messages on each channel?
.....
- What is your opt-in policy and where is it posted?
.....
- How will you use customer data and have you included this detail in your opt-in policy?
.....

GLOBAL CONSIDERATIONS

- What countries are you sending messages to?
.....
- What steps are you taking to localize your identity when sending messages in each country?
.....
- What country-specific regulations do you need to adhere to?
.....
- When will you be sending messages? Not everyone is in the same time zone and certain countries have regulations around when you can send them.
.....
- What languages and dialects do you need to support?
.....

ABOUT THE AUTHORS



ROBERT FENSTERMACHER

Robert is Director of Product Marketing at Twilio focused on SMS, IP Messaging, and platform. Before Twilio, Robert ran product and solutions marketing at Aruba Networks and held senior product management positions at Sycamore Networks, Alcatel-Lucent, and Ascend Communications.



DEVANG SACHDEV

Devang is Head of Content at Twilio. He loves telling the stories about technology and how it changes our lives every day. Before Twilio, Devang led product marketing teams at NVIDIA and RichRelevance.

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BONUS CHAPTER

10 BRANDS SHARE HOW THEY USE MESSAGING

People have moved from calling and emailing to messaging. Businesses are catching up. They use Twilio to add messaging capabilities to their software. This way, they're able to communicate the right information at the right time - at scale.

Here a few ways in which brands and business put mobile messaging to use:



COMMERCE NOTIFICATIONS

Brands use mobile messaging to send alerts or notifications before or after a time-sensitive business event. Alerts such as appointment reminders, bill alerts, or order notifications are a few examples.

Commonly used interfaces:

SMS	Creates urgency and does not require a dedicated mobile app.
PUSH NOTIFICATION	Used in conjunction with SMS to allow customers a choice.



CUSTOMER SERVICE

Brands can give customers a faster way to get their questions answered using mobile messaging. It gives your sales reps and service agents the power to effectively communicate with your customers..

Commonly used interfaces:

IN-APP CHAT	Ideal for high message volume and integrating context: key to conversations.
MESSAGING APPS	Lacks full context but allows the customer to communicate in an app they already use.



PEOPLE COORDINATION

Brands and businesses use messaging to reduce response and resolution times for coordination with people within the organization or outside. Automated messages are used to dispatch mobile workers from any existing field service management system.

Commonly used interfaces:

SMS	Integrates easily into internal systems and does not require a dedicated app.
IN-APP CHAT	Allows integration of context for faster response or resolution.



ACCESS SECURITY

Businesses use messaging to strengthen or replace a username and password access security mechanism. SMS, automated calling, or push notifications are used to receive dynamic codes for secure login, payment transactions, and more.

Commonly used interfaces:

SMS	Available natively on all mobile phones and creates urgency.
PUSH NOTIFICATIONS	Brings user to the app and provides more contextual information.



SALES AND MARKETING

Brands can create a sense of urgency that isn't possible with email by sending offers using text and picture messages.

Commonly used interfaces:

PUSH NOTIFICATIONS	Low-cost option when an app is present. Good for context-based notifications based on app use, location, etc.
MESSAGING APPS	Allows for marketing with the social context of the user and their demographic profile. Promotion to monetization in one flow.



UBER

Uber is everyone's private driver. Customers can request a private car pickup from their mobile phones. Uber keeps customers updated about the status of their ride in real time with text messages and push notifications to any mobile device and even smart watches. Fast delivery of customer notifications is critical, and even a minute's delay can leave a customer standing in the rain waiting for a ride they didn't know was canceled.

Using SMS and push notifications for ETA alerts has enabled Uber to:

- Deliver a superior customer experience with proactive notifications
- Scale deliverability as the company grows
- Use a single messaging platform globally



We built the Uber experience without Twilio initially, and the problem was, people were not getting the high-quality experience we were promising. The kinds of problems we were seeing with other providers, we just haven't seen with Twilio. I sleep easier, and my engineers sleep easier because we're not dealing with situations where it's taking 15 to 20 minutes for a text to be delivered.

Travis Kalanick, CEO, Uber



No more searching for change to feed the meter. PayByPhone is modernizing old-school parking with reliable and secure mobile payments. Drivers across North America, Europe, and Australia can pay parking meters via the PayByPhone mobile app. PayByPhone uses SMS to send one-way notifications to motorists 5 minutes before the meter expires, so they can add time via the mobile app and don't need to return to their vehicles.

Using SMS for billing alerts and other notifications has enabled PayByPhone to:

- Provide customers with a better customer experience
- Reduce costs threefold for outbound texts in the US
- Simplify the challenge of managing relationships with multiple SMS providers



Twilio delivers a very reliable SMS pipeline that ensures we get alerts out to users. PayByPhone users love the text message reminders, which cut down on annoying parking fines and make it easy for people to add more time from anywhere without having to rush back to the meter.

Chris Morrow, Head of Infrastructure & IT Operations, PayByPhone



Arkansas Children's Hospital is known for its pioneering pediatric patient care, cutting-edge care, and saving kids' lives. But it can only help patients who show up for their appointments. The hospital began using mobile messaging for appointment reminders to reduce no-shows and ensure it directly meets the needs of patients.

Using the appointment reminders has:

- Reduced the hospital's no-show rate, saving \$250,000
- Freed them from dealing with a fickle, costly, on-premises call center
- Enabled patients to opt into voice reminders for appointments



[Twilio] has been a massive improvement over the old system I built with a phone card, land lines, a server and the MS-TAPI.

Stewart Whaley, Team Leader, Systems Development Group, Arkansas Children's Hospital



When consumers and small businesses click the “Buy” button on Dell.com, they want their orders fulfilled quickly. But if the payment was flagged by the credit card company as fraudulent, Dell had to email or call the customer to resolve the issue. The process could take up to 24 hours, and email often ended up in the junk mail folder. To get customers their shiny new laptops and servers faster, Dell decided to switch to SMS messaging for order confirmations.

Now, if a customer’s credit card is put on a fraud hold by the bank, Dell automatically and immediately sends the customer a text notification. The customer can then quickly resolve the issue quickly with the credit card company. Best of all, Dell successfully added mobile messaging in just a few weeks before Black Friday and the start of the busy holiday shopping season.

Using SMS for order confirmations has allowed Dell to:

- Resolve payment issues quickly and minimize lost sales
- Reduce calls to the customer service center relating to order status
- Scale volumes of messaging globally



With Twilio, we went from concept to implementation in just four weeks.

Amer Chowdhry, Senior Product Manager, Dell’s eCommerce Platform



NORDSTROM

As a retailer known for customer service, Nordstrom knew it needed to act quickly when it learned that one-third of its customers would like to be served by text message. Now, customers can text their Nordstrom personal shoppers directly. And salespeople can use in-app messaging to remind customers of new arrivals and send them pictures if they are looking for that special outfit.

Using in-app chat and MMS allows Nordstrom to:

- Deliver on customer expectations for personal service
- Enable secure and seamless communications between customers and sales staff
- Rapidly integrate rich media messaging into its mobile app



Technology is moving very fast, and our customers' expectations for service is growing with all those trends. We recognize that their definition of service is changing. We wanted to find a way to connect with them in a private, secure way but provide them the personalized service they desire.

JB Brown, Senior Director of Mobile Application Delivery, Nordstrom



Coca-Cola Enterprises

Coca-Cola Enterprises, which sells and distributes about 12 billion bottles and cans to more than 170 million consumers in Europe, uses SMS to send technicians to keep 60,000 vending machines that deliver their products running.

For urgent maintenance orders, an agent sends an SMS directly from Salesforce for faster resolution, along with enhanced record keeping and better visibility into the handling of repairs.

Why Coca-Cola Enterprises uses SMS for dispatch notifications:

- One developer was able to integrate SMS with Salesforce and start sending SMS in a single day
- Call center agents no longer have to use a separate system to communicate with technicians in the field, increasing productivity
- SMS records are now stored alongside service requests, improving visibility and enhancing record-keeping



The speed with which we could do this, plus the ease of implementation, were two of the driving factors for [using SMS]

Carl Kennedy, Associate Director of IT Development, Coca-Cola Enterprises



In heavy goods vehicle logistics, margins are extremely tight, and many distribution companies still use a manual approach that eats away at profits for the hirer and the driver's pay. Driver Exchange, a marketplace that connects thousands of freelance truck drivers with hirers across the UK, is changing that dynamic. When a hirer books a driver into a shift, the driver receives a notification. He receives another SMS confirmation after picking up the keys at the distribution center. At the end of the shift, the driver receives another SMS confirmation.

Using SMS for shift scheduling enables Driver Exchange to:

- Create a direct connection between the hirer and the driver
- Handle thousands of shifts each day, sending 10,000 SMS notifications each month
- Offer 75% lower cost than competitors

Not only does using SMS for shift scheduling help Driver Exchange bring much-needed efficiencies to trucking, but also it creates an opportunity to attract fresh talent to the industry through better pay.



The whole idea wouldn't really work without Twilio.

Harry Blundun, co-founder, Driver Exchange



Box lets you store all of your content online, so you can access, manage, and share it from anywhere. It counts 92% of the Fortune 500 as customers, and security is paramount when business-critical information is stored in the cloud. To add another layer of security, Box uses SMS for two-factor authentication to verify users are who they say they are before logging in.

Using SMS for two-factor authentication:

- Protects customers against weak passwords without key fobs or other hardware
- Is the easiest and most secure way to send two-factor authentication
- Was quick to integrate into the Box application



One of the three business pillars of this company is security.

Lev Kantorovskiy, Software Development Manager, Application Security, Box



SurveyMonkey®

Polling can be hard for any organization, but the data provided is often invaluable. So companies put up with the laborious manual processes involved with large banks of telephone callers. SurveyMonkey saw the inefficiencies and decided to reinvent telephone surveys with the help of a Twilio infrastructure.

Why use SMS APIs for real-time surveys?

- Application development time measured in hours
- Easy integration with existing tools, programming languages, and databases
- No long-term contracts or commitments



No one else can offer a poll at 6:00 p.m. and get results by 6:30 p.m. And what takes the best vendors 3 to 5 days we can accomplish in just two hours.

Chuck Groom, Head of Engineering, SurveyMonkey



When Experience needed a better way to communicate with fans at live events, the company knew SMS messages were the way to go. By integrating text messaging into its fan Experience mobile app with the Twilio SMS API, Experience created a mobile marketing machine. Experience's mobile app lets fans at a game or live event pay to upgrade their seats in real time.

Twilio supported SMS marketing has enabled Experience to:

- Deliver upgrade offers to people in the stands who have opted in to receive them
- Give fans access to otherwise inaccessible seats
- Allow teams, venues, and promoters to make money on unused inventory



If for example, you were a sports team and you wanted to offer personal service to your tens of thousands of season ticket holders, it was almost impossible. Twilio makes it easy.”

Garrett Langley, Vice President, Experience



BUILD YOUR OWN

Customer experience is a primary competitive differentiator today. Your customers expect exceptional experiences every time. And whether making a purchase, resolving an issue, or just getting more information, they expect to communicate in a way that fits the moment. And that for many people, that communication is mobile messaging, as well as the usual phone calls and emails. With Twilio's communications APIs, you can communicate with your customers the way they want.

We hope that you are inspired by this Mobile Messaging Blueprint, and we can't wait to see what you build.

