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# Digital customer onboarding: Building valuable customer experiences through digital bank channels

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A recurring theme we see among banks is process digitization. Digital transformations have proven to reduce operating costs while also enabling banks to be nimble and more responsive to customer needs. They also allow banks to create innovative engagement models through digital channels. Digitization itself, however, is too wide a topic to cover in a single white paper, so we've selected one area that has been largely neglected by banks: **digital customer onboarding.**

While the workflows of retail and commercial customers vary greatly, the goals are the same: Pick a product suite best suited to their needs and onboard effortlessly. The bank's goals are to initiate a positive, long-term relationship, maximize product use, and automate as much as possible.

We break this white paper into three parts:

1. **Landscape:** Understanding the onboarding landscape across major banks today
2. **Strategy and design:** Creating the ideal customer experience and resulting software application
3. **Technology:** Designing the technical architecture to support the landscape, strategy and design

Our objective is to share our experience and provide you with foundational tools to help you on your own product journey. Let's get started.

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## PART 1

### The onboarding landscape: What is the industry standard?

There's a feeling of comfort and friendliness that comes from walking into a coffee shop, being greeted by name, and having an order waiting. Knowing how important that feeling is to their customers, coffee shops have begun to extend this feeling in the digital realm by allowing customers to order from their phone before they arrive. These businesses recognized that they must deliver the same level of service for customers regardless of platform or method of communication, and embrace every opportunity to build a relationship.

According to a recent *American Banker* article<sup>1</sup>, "Customer experience in financial services continues to lag significantly below other verticals, and the opportunity to invest in the underlying infrastructure is massive." Banking institutions are racing to keep up with an increasingly mobile and multi-device customer base. Customers have become

accustomed to a higher level of customer service and expect service to be fast, easy, and seamless.

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While many banks have made improvements in customer experience, the customer onboarding workflow is still one that is often disruptive and unlike all other digital touchpoints. For example, checkbooks have been replaced with tap-to-pay, yet pen-and-paper and fax continue to play a critical role in receiving and processing a new customer application.

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<sup>1</sup> Gilroy, Michael. (2017, May 10). BankThink Fintech's future is in the back end. *American Banker*. Retrieved May 21, 2017, from <https://www.americanbanker.com/opinion/fintechs-future-is-in-the-back-end>

## How are you building your customer relationship from the beginning?

The first step to fully embracing a thoughtful onboarding customer experience is to align your perspective to that of a new customer. Set aside the complexities of regulations, back-office workflow, and organizational structure for a moment and view the experience from the customer's perspective.

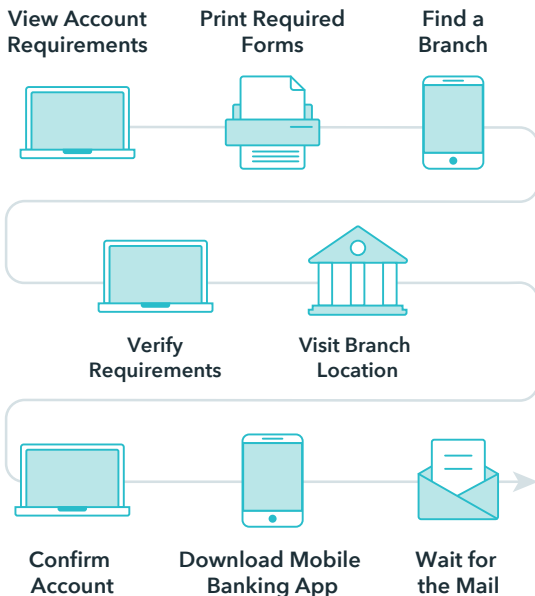
- What workflow is required to become a customer?
- What tasks and challenges must someone overcome before they can be your customer?
- Are there areas where you ask the customer to make a leap of faith or complete a disruptive step to an otherwise seamless digital experience?

Let's take a look at the customer onboarding experiences across these channels:

- Branch approach
- Branch with pre-work approach
- Transitioned channel approach
- Digital approach
- Omnichannel approach

More often than not, a customer's workflow involves several hoops across multiple channels as shown in **figure 1**:

**FIGURE 1: Typical Customer Workflow**

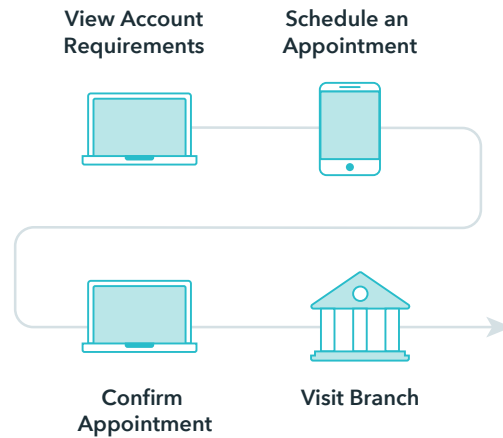


What can we observe from these approaches? What goal is each step looking to achieve and is the customer's need appropriately prioritized?

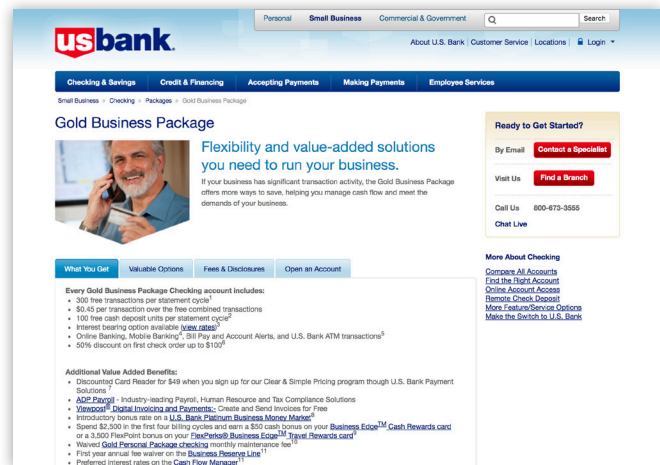
## Branch approach

Onboarding processes that focus on getting customers to a branch, as illustrated in **figure 2**, are not fully leveraging a digital-first strategy. The customer is left to find reference material online that is frequently hidden behind tabs and nested menus. The emphasis on leveraging the branch preserves the personal touch but is dependent on the customer making it into a brick-and-mortar location. While this legacy process has worked over the years, often **the institutional processes outweigh the customer's experience**.

**FIGURE 2: Branch Approach**

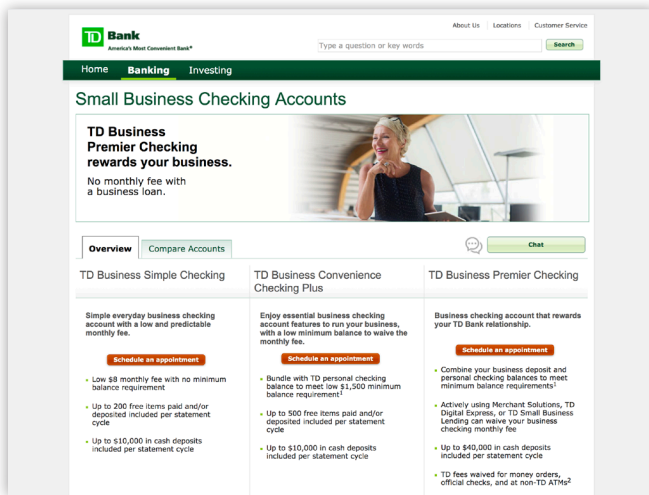


The emphasis on directing the interaction to the branch, as seen on US Bank's site<sup>2</sup>, may deflate the momentum of interaction.



<sup>2</sup> (2017, May 22). Retrieved from <https://www.usbank.com/small-business/checking/gold-business-package.html>

While product information has provided context, there is no immediate path to resolution. There are additional flavors of this approach that incorporate conversations, including impromptu chat and scheduled phone call, as demonstrated on TD Bank's Small Business checking site.<sup>3</sup>



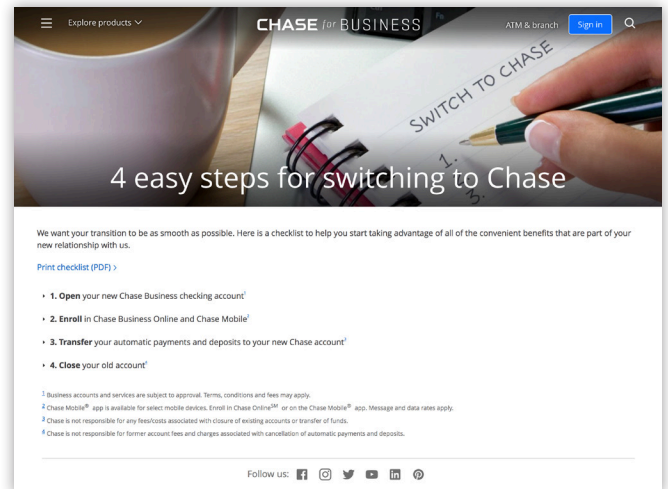
These hybrid approaches begin to incorporate higher-touch digital customer service. This is the baseline of **designing a product around customer need**. It shows thinking in the right direction, while not having fully crossed over to embracing a **digitally inclusive onboarding approach**.

Driving product development with business context alone often delivers these experiences. Incorporating **customer research** will demonstrate where you can drive efficiency and insure your potential customers successfully navigate your onboarding process.

### Branch with pre-work approach

The onboarding experience varies by business type and size. Chase addresses this problem with their Online Switch Kit<sup>4</sup>, including a printable checklist that guides you through the process. They help to minimize the burden by providing as much context online as possible, including specialized checklists for various business types. While you cannot complete the forms in advance, additional checklists, provided by business type, eliminate any back-and-forth trips to a branch.

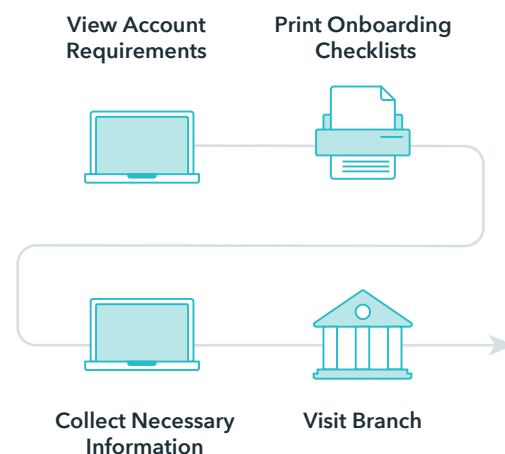
The addition of pre-work streamlines the transition from digital to the branch, as shown in **figure 3**, but is another opportunity for the customer to disengage. While



product information has provided context, there is not an immediate path to resolution. This is the power of an end-to-end digital onboarding experience. The customer seamlessly navigates from learning about services, to providing the necessary information, to completing the process and successfully onboarding.

The customer's journey includes all channels—digital and print—and even the trip to the branch. By **mapping the customer's journey** you will better understand the burden that onboarding places on them, and will identify ways to evolve the product to better serve their preferences and needs. Leverage data from analytics to remove guess work and iterate confidently on your onboarding process.

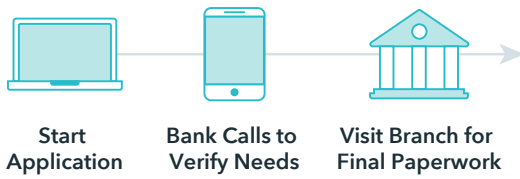
**FIGURE 3: Branch with Pre-work Approach**



3 (2017, May 22). Retrieved from [https://www.tdbank.com/small\\_business/checking.html](https://www.tdbank.com/small_business/checking.html)

4 (2017, June 6). <https://www.chase.com/business/switchkit>

**FIGURE 4: Transitioned Channel Approach**

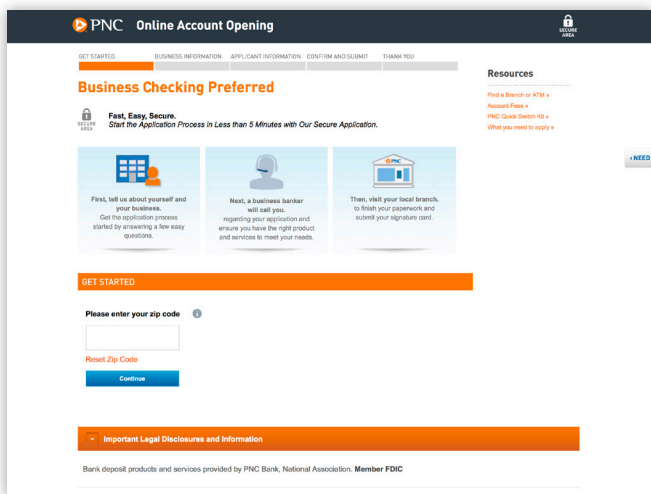


## Transitioned channel approach

The progression to improved onboarding could be delayed by complexities in internal and external processes. Rather than waiting for these to be resolved, create experiences that approximate a fully digital approach as shown in **figure 4**. The ability to submit information digitally, in advance of a branch visit, preserves momentum gained from the decision moment of the customer to invest time and energy in your services.

PNC<sup>5</sup> approaches this by beginning the application online, getting the customer invested, and initiating a call that concludes with them in the bank's branch for the final paperwork. While this is not a fully digital experience, it builds a relationship and positions the institution and customer as partners early in the process.

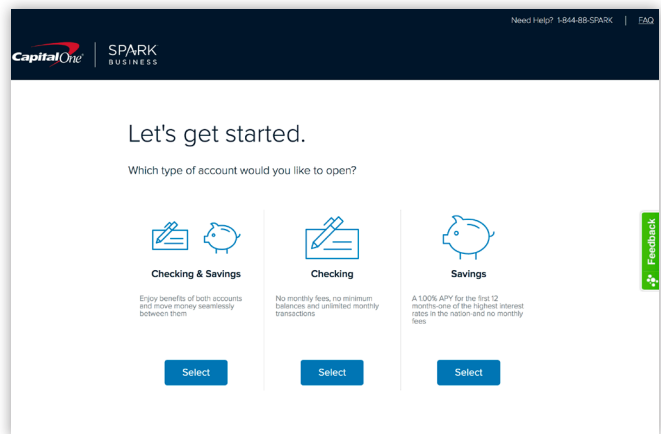
Transitioning customers across channels requires a higher-touch level of service. Digitally minded customers will expect a seamless transition from one step to the next that does not require them to restate or revisit information they have already provided. Demonstrate that you heard and understand the information they have provided and leverage your expertise as an advisor to fully take advantage of this onboarding approach. Consider also



offering a concurrent digital experience leveraging dynamic form processing and application of your business rules to move from this transitioned experience to a fully digital onboarding approach.

## Digital approach

Capital One<sup>6</sup> provides digitally focused onboarding through its Spark Business offering. The company's responsive web application walks users through its registration process with large, friendly icons and includes only the most vital information on a page. These digitally focused experiences have already fully taken root in



many service industries but are still finding their way in the finance world. By building a robust front-end that a customer can encounter on any device, banks provide an improved overall experience without necessarily having to revisit all back-end systems.

It's important to keep in mind that strong digital experiences extend beyond the desktop as well. Many customers have digital wallets on their mobile devices that are a collection of digital versions of their physical cards and applications that help them manage and access their funds. The same people you will be onboarding will also use popular applications such as Mint, Prosper Daily, and Venmo for the digital management of their finances. Apply learnings from researching these related applications to springboard your own onboarding process to the digital landscape.

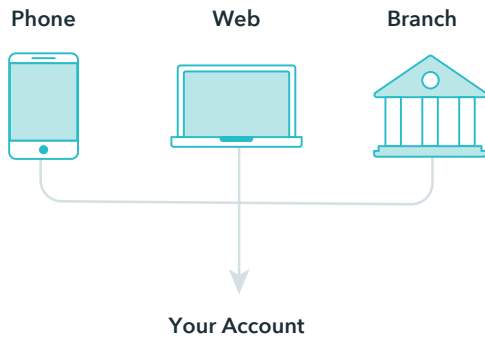
## Omnichannel approach

Elements of the different approaches, when combined effectively, create an omnichannel approach that **embraces the customer's experience over the bank's processes**.

5 (2017, May 22). Retrieved from <https://www.pnc.com/en/apps/welcome-pages/business-checking-preferred.html>

6 (2017, May 22). [https://sparkbusiness.capitalone.com/oao.html?distinct\\_id=0B0834EA681951278AE125B6AAD5E1DF#/signup/productSelector](https://sparkbusiness.capitalone.com/oao.html?distinct_id=0B0834EA681951278AE125B6AAD5E1DF#/signup/productSelector)

**FIGURE 5: Omnichannel Approach**



Regardless of how a customer might find your business, they are able to navigate a sign-up process. The customer knows their information lives in a single, reliable place and can seamlessly navigate between mediums to accomplish their goal, as illustrated in **figure 5**.

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## The strongest onboarding experiences understand the customer's goals and validate their understandings through research.

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The driver behind these innovations, in what essentially is an application with common information, is the need to deliver a full experience to your customer. The coffee shop on the corner with the long line is easily disrupted by a new shop with an efficient operation. People want to move on to the next task in their day, and will follow the path of least resistance to accomplish their goal.

When evaluating your bank's onboarding experience, consider if it is set up for the ease of the business, or the delight of the customer. The strongest onboarding experiences understand the customer's goals and validate their understandings through research. You can leverage data-driven decisions to inform your priority and efforts. By having a cohesive technical approach, you can determine small, valuable releases. These iterations will allow you to effectively deliver a service-driven customer onboarding experience.

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## PART 2.

### Onboarding strategy and design: Creating the ideal customer experience

One of the most challenging parts of a digital product strategy is getting started. For one, failure is always lurking around the corner and tolerance is low. The methodology we use is designed to withstand and tolerate failures. If anything, we want to enable teams to fail quickly, inexpensively, and learn along the way.

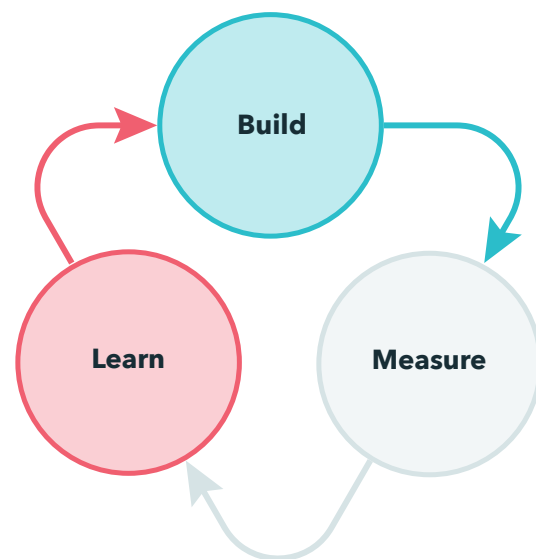
We built several templates<sup>7</sup> that you can leverage when going through the creative process with your team:

- Persona template
- Lean canvas template
- Story map template

The above templates are meant to get you started—they're by no means final for specific organizations and product types. **All can be downloaded from [www.devbridge.com/OnboardingKit](http://www.devbridge.com/OnboardingKit).**

Prior to diving into the mechanics for each step of our workflow, it's important to cover the product design and delivery lifecycle as a whole to provide context. The process as shown in **figure 6** is based on ideas that have been around for some time: build, measure, learn, repeat.

**FIGURE 6: Product Design and Delivery Lifecycle**



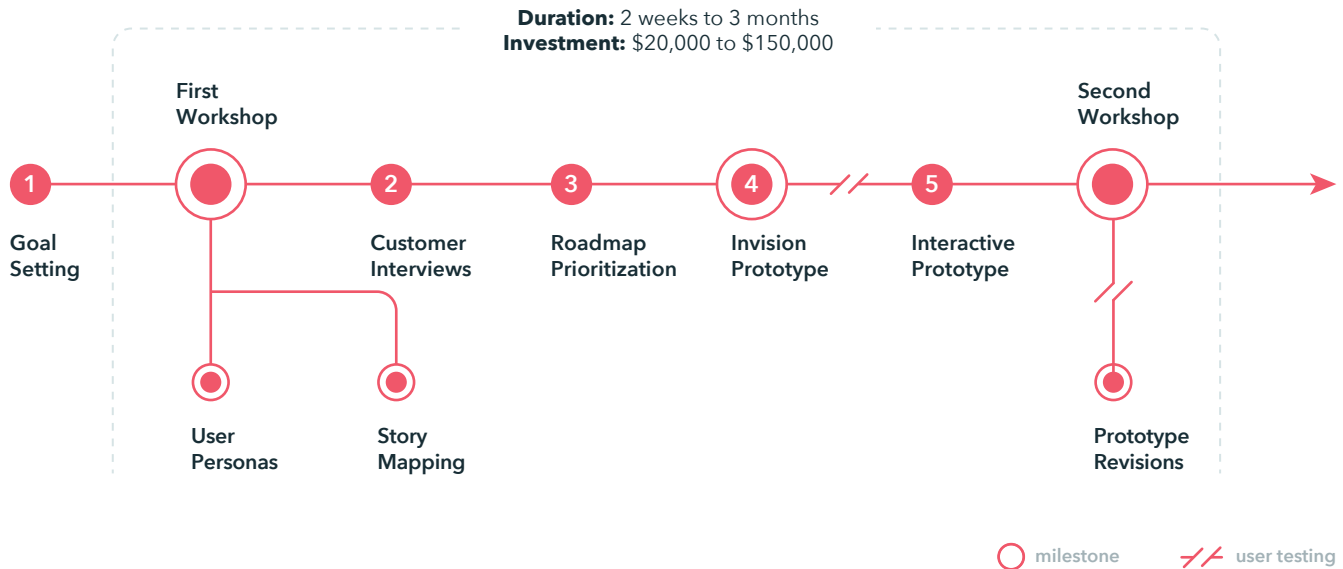
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<sup>7</sup> You can download all the templates and articles referenced in this paper at <https://www.devbridge.com/OnboardingKit>

## Rapid prototyping

The first part of the of the process is rapid prototyping<sup>8</sup> as illustrated in **figure 7** below:

**FIGURE 7: Rapid Prototyping Process**



During this stage of the product lifecycle, we are establishing just-in-time requirements for an idea that hasn't been tested yet. Due to the lean nature of these workshops, we're able to validate or discard our onboarding strategy with minimal investment and short timeframe. The phase starts with the team setting goals, establishing user personas for the future product, and hosting a collaborative workshop where the

stakeholders and the product team define product stories<sup>9</sup> as shown in **figure 8**.

Customers are then interviewed, using the abstract scope captured in the story mapping workshop to further remove bias and introduce additional features not considered by workshop stakeholders. Following customer interviews, the product team reconvenes for a roadmap prioritization

**FIGURE 8: Storymap Example**

**Online Account Opening: Storymap**

Homepage		Account Data Gathering				Data Verification		Qualified Products		Select Products		Application Submission			Status Tracking	Application Approval		Account Onboarding		Non-functional Requirements				
Homepage	Products	Applicant	Business	Payroll	Cash Flow	Applicant Verification	Business Verification	Products	Select Products	Customize Products	Terms and Conditions	Signature	Submit	Track Status	Underwriting	Funding	Account Setup	Communication	Performance	Security	Compliance	Accessibility	Analytics	
Login to existing user account	View list of Products	Full name	Business name	Payroll details	Bank accounts	Secretary of State Check	OFAC Check	View qualified Products	Select Products	Specify Product preferences	Accept terms and conditions	Integrate with eSignature system	Submit Application	View status of existing applications	Credit scoring models	Disburse loan funds	Setup online banking account	New account letter	Load testing	Penetration testing	PCI Compliance	WCAG 2.0 compliant	Track conversion rates	
Apply as a new customer	View Product terms	Job title	Business type	Payment method	Payment processing methods	OFAC Check	Secretary of State Check	View qualified Product terms	View Product details	Compare Product options		View confirmation of submission		Prospect checks		Setup mobile banking	New account email	Stress testing	Fraud detection	Response web		Track drop-off rates		
View Product advertisement	View offer testimonials	Tax payer ID	Employer tax ID	Number of transactions		AML Check	Dun & Bradstreet Check	Steps to qualify for additional Products				View confirmation number				Setup telephone banking	New account phone call	Redundancy				Mobile friendly		
	Contact bank to learn more	Social security number	Business location			Credit Score	Credit Score										Online appointment banking							
		Driver's license number	Number of employees			Answer challenge questions																		
		Upload passport image	Business Number																					
		Passport number	Business tax details																					
		Upload driver's license																						

8 Adomavicius, Aurimas. (2016, October 26). Why rapid prototyping helps avoid product failure. Retrieved from <https://www.devbridge.com/articles/how-to-avoid-product-failure-through-rapid-prototyping/>

9 You can download the story map template along with all the templates and articles referenced in this paper at <https://www.devbridge.com/OnboardingKit>



exercise. This is where a Minimum Viable Product<sup>10</sup> is defined, its features prioritized, and a roadmap established of how the product will be built with multiple MVPs. Ultimately, a Minimum Marketable Product (MMP) is released to market.

Aware of the MVP scope, the team proceeds to design a lightweight, visual prototype that has hotspots mapped using InVision. The idea is to quickly iterate over the feedback and produce a semi-working product that is presented to internal and external users/customers for testing. If the testing is successful, a higher complexity, interactive prototype is built, driven by real data. Alternatively, the team abandons the product with very little funds spent.

The interactive prototype is then put through another round of user testing. However, this time the team makes incremental improvements throughout testing, essentially accelerating the turnaround time between feedback and improvement dramatically. Based on the testing results from the interactive prototype, the product team and sponsors decide if the onboarding product should stay as is or pivot based on new information.

## Productization

The second part of the process is the productization of the prototype, which uses a multi-stage, MVP-to-MMP strategy. **Figure 9** is a visualization of the Dual-Track Scrum process that we use to iterate over the product roadmap.

It's important to note that in the below figure we're not abandoning our cross-functional delivery methodology

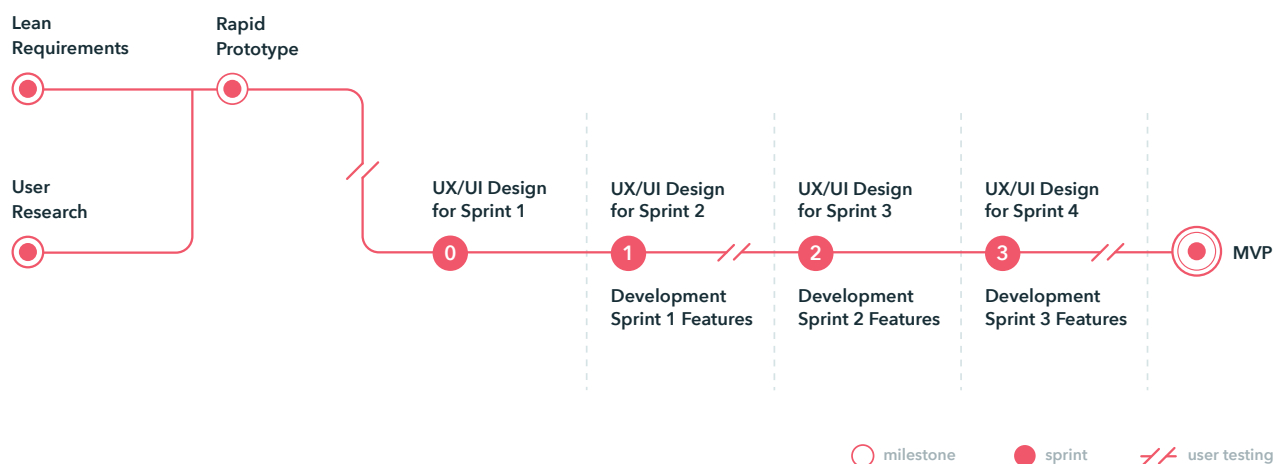
after the completion of the prototype. Rather, the team starts working on productizing the MVP and implementing the needed functionality, while at the same time continuing to define requirements and design for future sprints.

This just-in-time approach is useful because the product team can only consume the amount of requirements that are needed for the next delivery (a single sprint, or two weeks in our case). This frees up resources and lowers the cognitive load of having to analyze and store information that may not be necessary for objectives within the current sprint. We also are not abandoning the product validation. Even though feedback from the prototype may have qualified us to proceed with further investment into the product, we will still set up user testing sessions every couple of sprints to demonstrate and test new features with the customer.

The intent of delivery with Dual-Track Scrum is that the team is unburdened from unnecessary requirements. This approach also provides ultimate flexibility for the product. The scope can be drastically changed based on testing results along the way, building a better product for the customer.

While not in the figure, quality assurance (QA) is embedded within the team. Automated and manual testing scenarios are defined in parallel to the acceptance criteria of each user story, allowing the team to build a strong strategy and deliver a well-tested product by the end of the sprint. This transition to local QA dramatically lowers testing costs because defects can be resolved as they escape, versus at the end of delivery.

**FIGURE 9: Dual-Track Scrum**



<sup>10</sup> Chang, Elijah. (2016, September 6). 4 steps to defining a minimum viable product. Retrieved from <https://www.devbridge.com/articles/4-steps-to-defining-a-minimum-viable-product/>

By listening to customers and using short iterations during the build phase, we are able to pivot and change the product to match customer needs and accelerate the business value generated – all while controlling our spend.

By listening to customers and using short iterations during the build phase, we are able to pivot and change the product to match customer needs and accelerate the business value generated.

Now let's discuss technical architecture to make this onboarding product a reality.

**PART 3.**

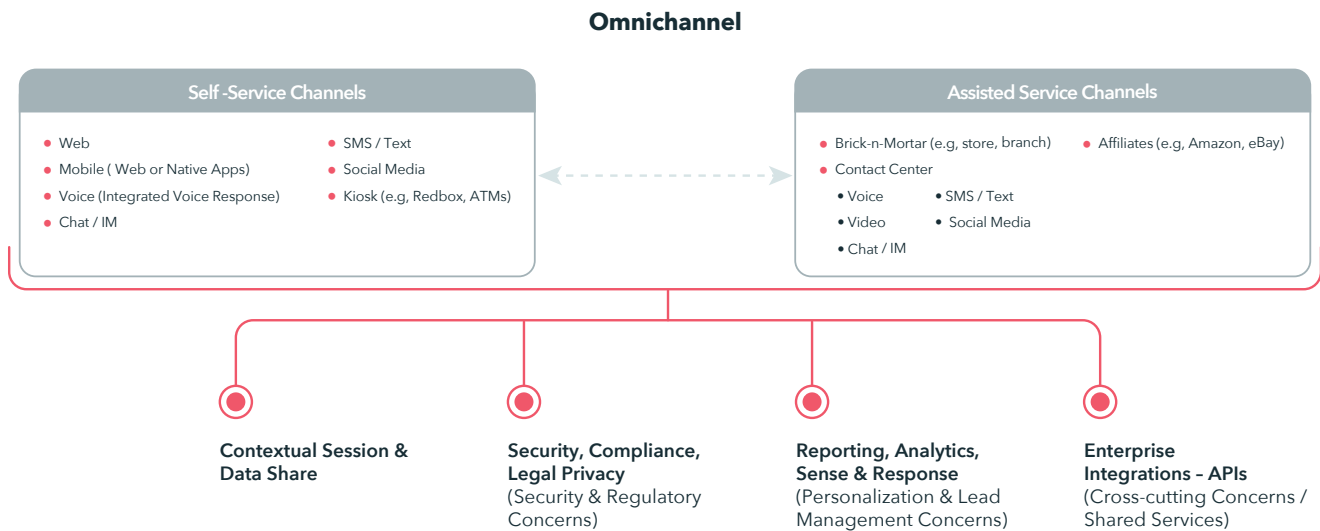
**Technical architecture to support digital onboarding**

Our approach helps define the functional and non-functional points that the system will need as the MVP evolves from workshop Post-it® notes to a shippable product as well as the architecture from concept to solution. Most banks will have a conceptual architecture defined and legacy systems that they base their new concept on (a standard technology stack of operating systems, app servers, container technologies, development languages, etc., that projects will need to conform to). We use these parameters at the beginning of projects to create an architecture.

Our architects and engineers leverage industry trends and their own experience to help clients choose the ideal technology to solve client and customer needs. This section gives you a conceptual omnichannel architecture to employ a digital onboarding experience.

By utilizing the story map developed during the workshop, enterprise and solution architects can derive a conceptual architecture for opening an online account. This conceptual architecture as shown in **figure 10**, gives technology and business stakeholders the ability to understand the product's foundational architectural layers.

**FIGURE 10: Omnichannel Conceptual Architecture**



The omnichannel has multiple channels employed to deliver the customer experience. Each channel is connected to a shared enterprise services layer. The shared enterprise services layer is critical. It abstracts the functions from the channel user interface, which allows the behaviors and functions to be the same customer experience across all channels.

Most banks strive to create an omnichannel customer onboarding experience by allowing customers to choose multiple ways to interact. However, most fail to achieve a complete omnichannel experience due to time and cost constraints. For example, a complete omnichannel experience allows a customer to start the onboarding process on a mobile device in the morning, visit a branch during lunch, and then call into a contact center later that evening.

At each touchpoint, the systems and technology must be consistent and aware, allowing the customer to seamlessly continue where they last left off in the onboarding journey. A key to a seamless customer experience is the contextual session and data-sharing box in the center. The contextual session and data sharing among channels allows customers to switch between channels and ensures a fluid customer experience.

Session and data sharing need to be built into your channel architecture with a persistence layer to allow for resiliency and the ability for customers to start/resume. This is what customers expect. Banks that provide this will succeed in onboarding customers.

## A reference architecture

As we begin to architect the solution for an onboarding business process with any business we need a reference architecture to follow. This gives everyone a map of business capabilities to technology components and helps stakeholders prioritize specific features.

Each section of the reference architecture corresponds to the overall architecture's component. For example, each major component has a major number (e.g., 1.1 Web Experience). Within each major component there is a subcomponent with a minor number (e.g., 1.1.1 Web Client Run-Time), etc. The further decomposition of the conceptual architecture into smaller components that can be delivered in short deliverable sprints will enable you to get your product to market faster.

The delivery roadmap for each component will determine what pieces of the customer onboarding can be implemented as part of your MVP. To help, we ask our clients specific questions to narrow the scope and from there architect a build-to-fit solution. For example:

- Do you want a web experience?
- Do you want a native, device-specific experience?
- Do you want a seamless omnichannel experience?
- What regulatory obligations do you need to ensure the enterprise supports?

**Figure 11** on the following page, illustrates a reference architecture to further dive into a target architecture and specific MVP solution architecture for a customer onboarding experience.

## Architecting a frictionless experience

Once the architecture allows customers to move freely in their preferred channels, you need to have the right “smart friction” in the process. This friction comes in the form of government regulation, customer privacy, and auditability requirements. The friction points should be seamless and digital—which the customer expects—or you will have a large drop-off in conversion, as seen today. This invalidates your stakeholders' business case that this would be a profitable endeavor.

Today, most banking onboarding experiences employ a print step where the potential customer either prints the forms to sign and mail or the bank prints and sends to the potential customer with a pre-paid mailing envelope. In some cases, the bank prints the forms in the back office and completes them on behalf of the customer. Any time these friction points occur, it is highly likely that the bank will lose a conversion opportunity.

Through technology automation, banks can build or leverage third-party services to facilitate data collection, data validation, creditworthiness, upsell/cross-sell/ complementary service offerings, etc.

**FIGURE 11: Reference Architecture**



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# Steps to take.

Following are common onboarding process steps and some solutions to employ:



## Customer identification processing

- Existing customer lookup on systems of record and validation of information
- Scan driver's license (2D barcodes, OCR/ICR)
- Card swipe (e.g., credit card, ATM/debit card)
- Blockchain: digital identity networks



## Know your customer/Anti-money laundering

- Office of Foreign Assets Control Checks and Specially Designated Nationals and Blocked Persons List (SDN)
- AML verification (e.g., Qualifile)
- Social Security administration lookup
- Dun & Bradstreet (D&B) business lookup



## Creditworthiness

- Credit score (e.g., Experian, Equifax, TransUnion, D&B)
- Custom credit scoring engines (e.g., Fair Isaac, Mysis, Findur, Moody's RiskCalc, etc.)
- Fraud detection (e.g., ChexSystems)



## Terms and conditions

- eSignatures - signature cards/contracts (e.g., DocuSign, eSign )
- Blockchain smart contracts

## Upsell/cross-sell/complementary product offerings

- Marketing opportunities (opt-out strategy)
- Lead generation (e.g., online appointment booking)
- Sense and response engines (e.g., cross-sell/up-sell based on analytics)



To accomplish a frictionless customer experience, all channels will need an enterprise Service Oriented Architecture (SOA) back-end. The SOA will allow legacy banking customer and product systems to obtain data and validate information from the omnichannel user interfaces in real-time. To optimize this process, many banks will employ third-party services as illustrated in the list to the left. An architecture guide to SOA/open API within banks is its own topic. However, know that to create a seamless digital onboarding experience your organization will need it.

These conceptual and reference architectures are a good start for those that want to build an omnichannel onboarding solution. The next step would be to create a target and solution architecture that goes into implementation detail for your design and engineering teams. Additionally, create a detailed roadmap to show delivery of said functionality in which sprint, epic, release, quarter or other release plan.

Remember to leverage Dual-Track Scrum with architecture checkpoints along the way. Lastly, embrace DevOps from the start to increase your delivery velocity.

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## Let's Get Started

Creating a seamless digital customer onboarding experience is an area that will challenge banks for the foreseeable future, but one that presents tremendous opportunity. It is our hope that the tools we use will provide a solid foundation from which to get started. By focusing on the customer experience first, not process alone, banks open the door to innovation and solidify their success in the digital age.

Learn more about our agile transformation process and how it can help your business by visiting [www.devbridge.com/OnboardingKit](http://www.devbridge.com/OnboardingKit). Here you can download all the templates and articles referenced in this paper.

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## ABOUT DEVBRIDGE GROUP

Devbridge Group ([www.devbridge.com](http://www.devbridge.com)) was founded on the belief that software shouldn't be mediocre. Our global teams create mission-critical software at scale under aggressive deadlines through product thinking and agile delivery for Fortune 1000 companies. Devbridge has offices in the United States, Canada, the United Kingdom, and Lithuania.

## ABOUT THE AUTHORS

**Aurimas Adomavicius** is the president and co-founder of Devbridge Group. He and his partners founded Devbridge Group in 2008 based on the belief that great software can revitalize the largest of enterprises. Under Aurimas' leadership, Devbridge has grown to a technology powerhouse with over 325 employees in offices around the world. When not in the trenches working with clients, Aurimas is an active speaker and writer on the best practices of product design and engineering.

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