Synechron

Citi Payments Express

Discovery Final Playback

December 2022

Contents

Executive Summary

A summary of the collaborative 8-week discovery project into B2B payments

Overview

Synechron, the **Payments Express team** and the **New Operating Model (NOM)** team were tasked with developing an updated experience for the launch of **Payments Express (PX)**, moving from a heavily manual onboarding journey to an **automated digital only** approach, while meeting control and compliance regulations.

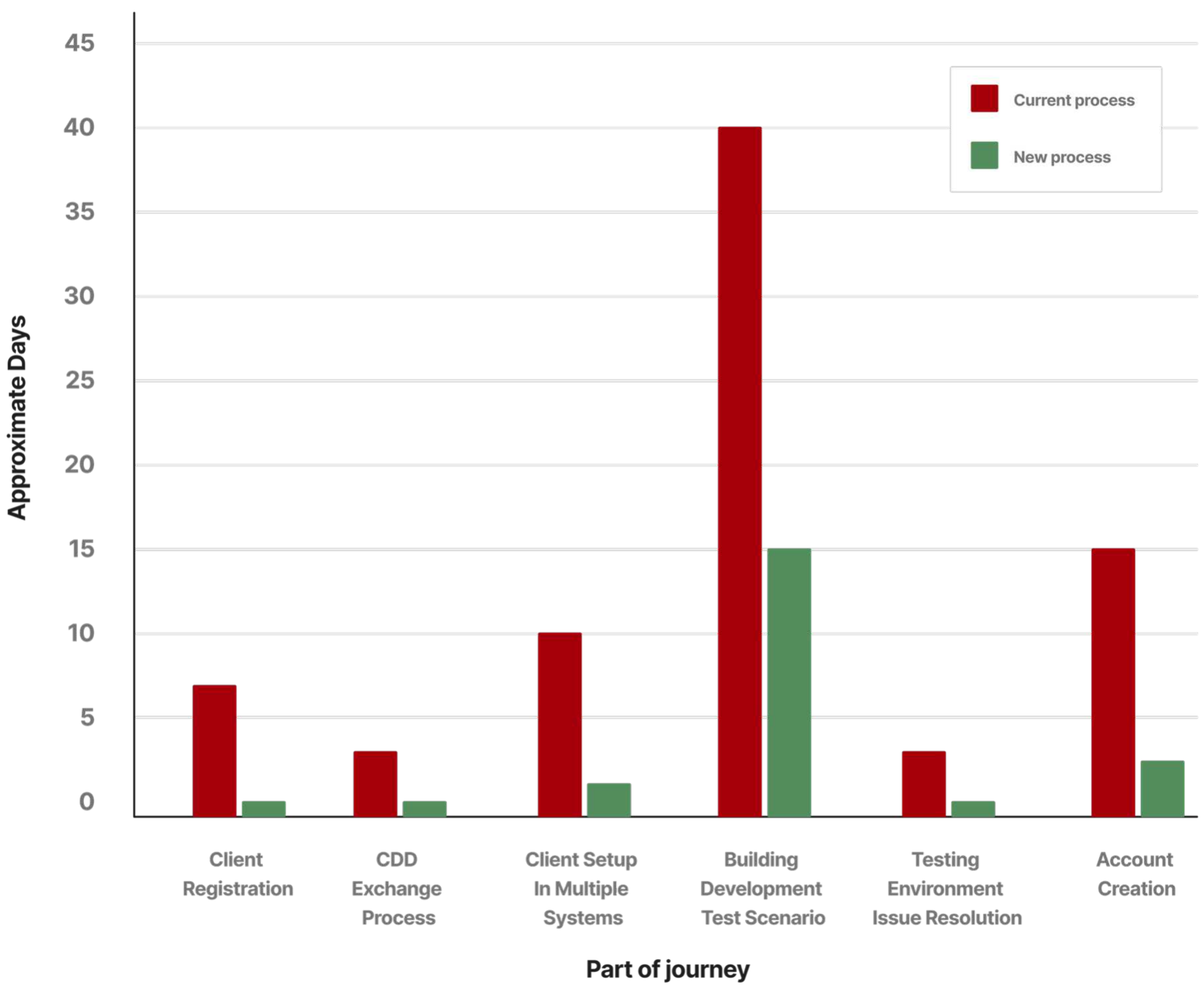
The combined team set out to tackle the challenge of designing for an experience that **removes as many human touch points** as possible, while reducing overall **implementation time**, for new-to-product onboarding (for existing clients).

The new onboarding journey, if implemented, will be comparable to other leading competitor journeys, and a **stand-out process in the banking industry.**

Key takeaways

- Full onboarding from kick-off to production ready can be reduced from an average of 2 months to **2 weeks**
- Onboarding requires up to 7 people to complete. This can be reduced to **2 (1 internal & 1 client)**
- The new onboarding flow could **remove at least 10 mundane email** conversations between clients & Citi staff

Graph: The Approximate Days To Complete Journeys - **Current** v **Proposed** Process



Citi Payments Express

Team's Understanding

Citi's current offering of a **developer portal** for **payment clients** relies on mostly **manual human onboarding** processes. Along with known testing challenges, this greatly increases the time it takes to onboard clients.

Citi also wants to understand the **competitor landscape**, and how other companies are providing solutions to their clients, for lessons learnt in order to improve Citi's position in the market.

Scope

We identified 2 key areas of impact for this discovery project:

Client Onboarding

- All **touchpoints for onboarding** clients, including support during onboarding only
- **Tech requirements** & improvements for onboarding clients
- Best practice **client journeys**
- Best practice **internal journeys**

Payments Developer Portal

- **Sandboxing** and testing journeys
- Dev portal **features** and design
- Best practice **user journeys**
- **Swagger** documents

The Ask

- Undertake a best practice **market as-is analysis** (both direct and non-direct industry) and **report synthesis**
- Produce detailed **user analysis & user flows** for the identified key journeys
- Identify, **define and develop key user personas**
- Design concepts for **developer portal improvements**
- Create a **service design blueprint** (as-is and to-be)
- Identify and define areas for **automation**
- As-is review of **architecture to create the to-be**
- Produce a **release plan** based on concepts

Our Approach

A summary of the 8-week discovery project

Activities undertaken

3
Conversations with Technical Implementation Managers

10+
Conversations with Internal Stakeholders

Studying the market landscape of payments companies and other comparators

Identifying all human interactions between Citi and clients for onboarding and the dependencies on them

Key outcomes

1
We mapped the PX onboarding service blueprint and identified opportunities for workflow reduction

2
Devised and agreed an acceleration of onboarding time from approximately **8 weeks to 2 weeks**

3
Identified and designed how to **remove all client and human interactions** with prototypes that we believe can be delivered within **18 weeks by 3 squads***

Next steps

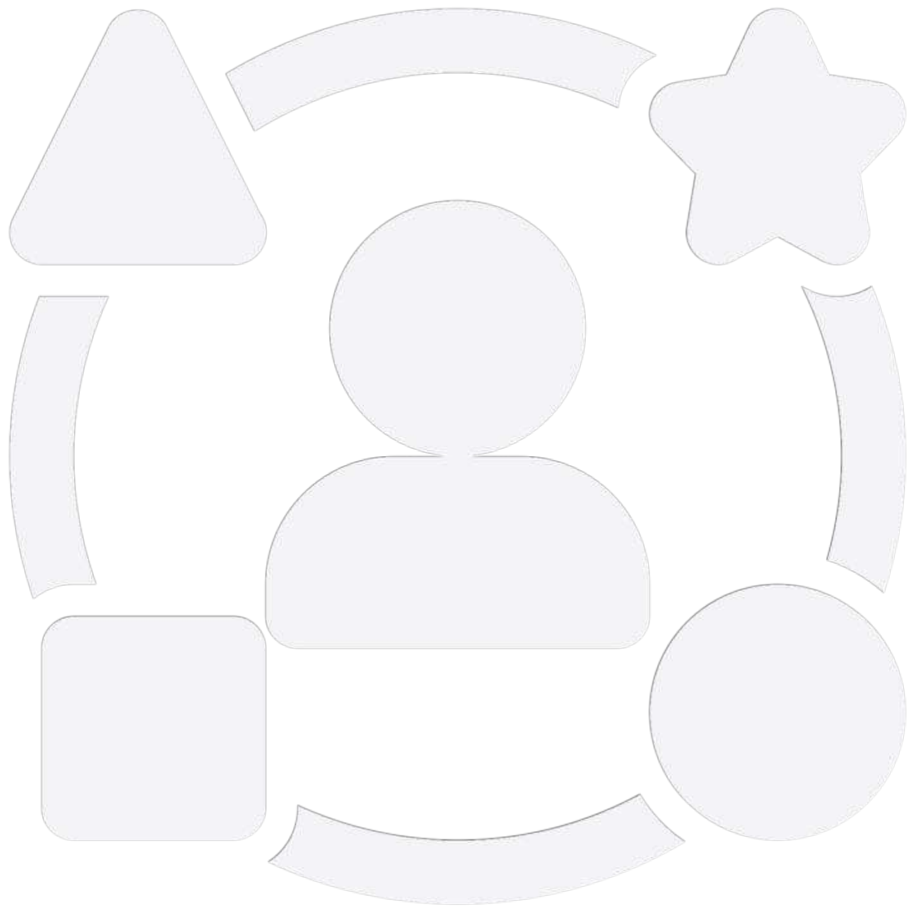
1
Continue validation of research through user research with clients and proxy clients (In progress)

2
Validate assumptions internally with teams for impact and feasibility

3
Use validations to expand and adapt recommendations ahead of project kick-off

*Subject to validation of assumptions

Experience



Design Approach

User voice was key through the discovery; we spoke to users & stakeholders as often as possible. We conducted various types of feedback sessions and collected business input on a regular basis to map out real challenges and opportunities.

01

We first went into true 'discovery'

Reviewing the existing systems and processes to gain an understanding of the strengths and opportunities

02

Undertook competitor analysis for 'best in class'

Identifying & analysing competitor product offerings for developer onboarding, and understanding best practice solutions

03

We started mapping things out, the 'as-is'

The key current state flows and systems were mapped out to provide a better understanding of the current user experience, while identifying pain points

04

We started to design, with validated flows first

Defined new user flows and created designs to visualize an improved user experience, which would also support technical improvements

05

We then tested and iterated based on findings

We reviewed designs with key stakeholders and users, iterating any changes within the MVP prototype

The team working together collaboratively to execute the rigours 8-week plan

Synechron

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CX Lead

Nadia McGregor
Service Designer

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Payments SME

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Citi Payments Express

Peter Holford
Citi NOM

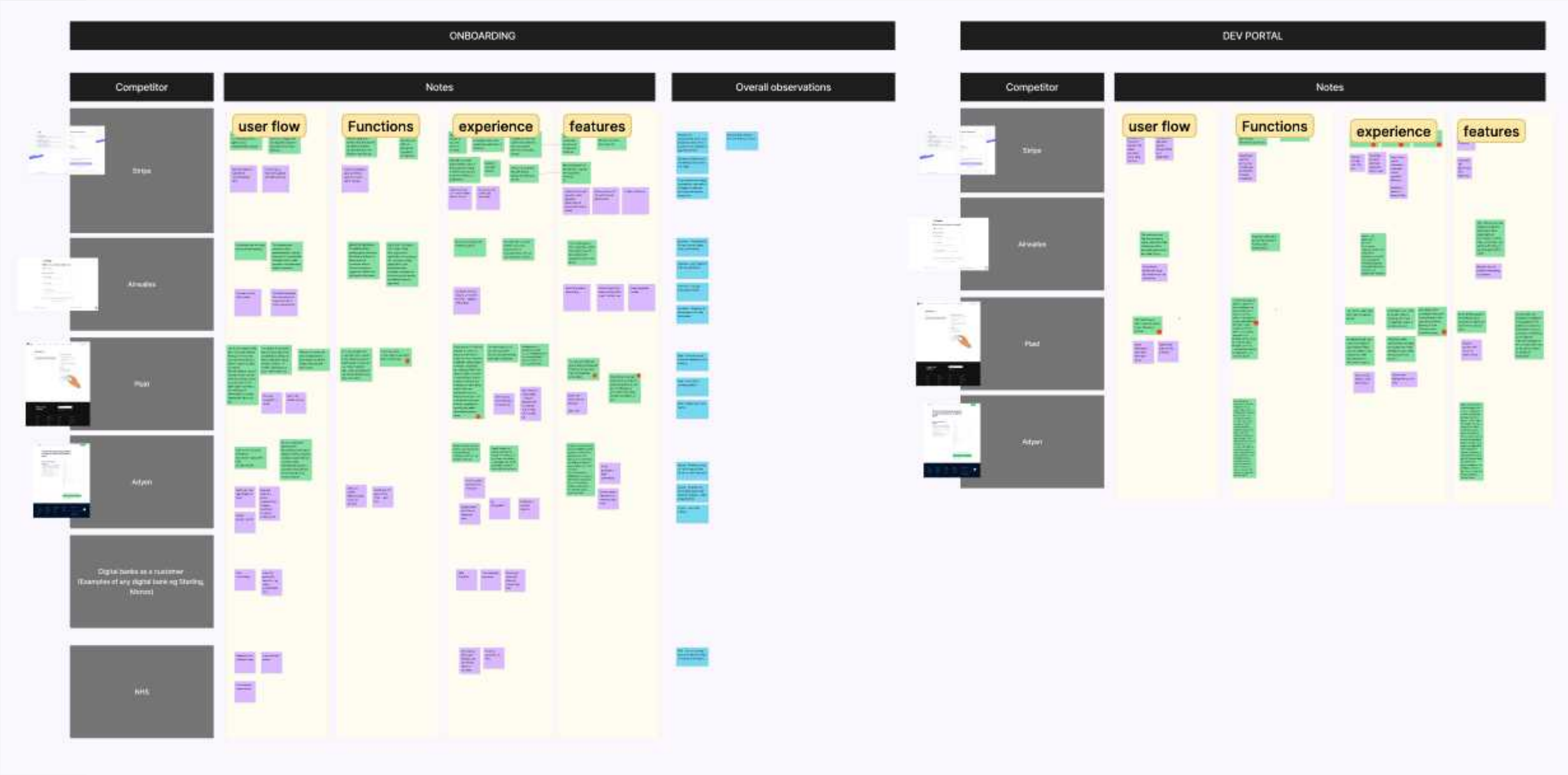
Caitlin Flanagan
Citi Stakeholder

Chris O'Brien
Citi Sponsor

Using FigJam

We use **FigJam** as a workshop tool to map out competitor screens and flows, with annotations & UX methodologies to get comprehensive analysis in one place. The link below goes to the board with all the workings for this project.

[FigJam board]



What is UX & UI

UX - User Experience

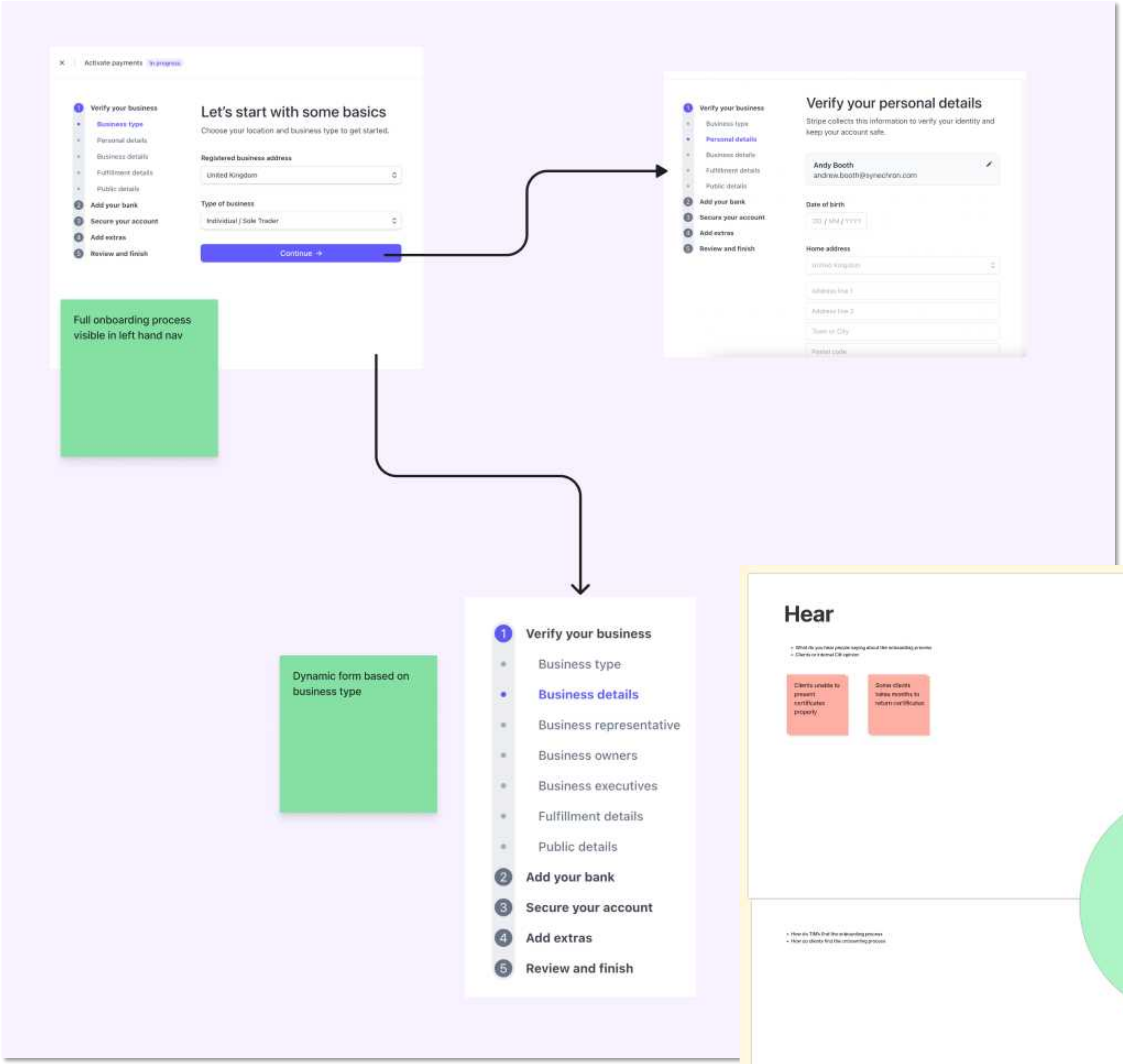
UX stands for **User Experience**. This is explaining **how people interact** with a product, and the **emotion** that goes with it. For example clicking on a website that does not load is bad UX as it is frustrating.

UI - User Interface

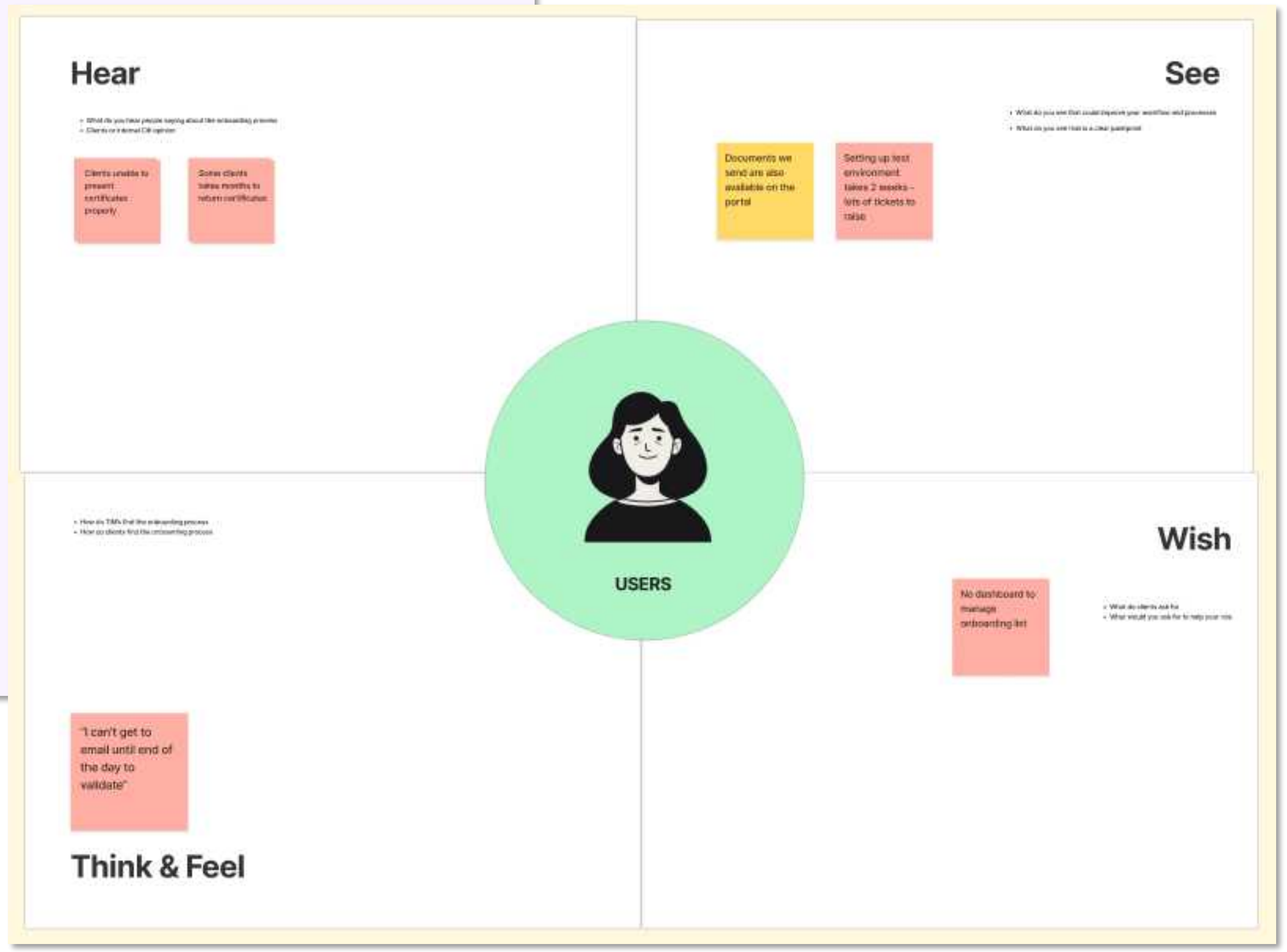
UI stands for **User Interface**. This is the **point of interaction** between a user and a digital product. For example a button on a website is part of the UI. If that button was very small, or not an easy colour to see, it would be bad UI.

Why we use these

By looking at these in parallel, we can highlight what is **best for the user**, and also identify any **pain points** they have which can be **resolved** with better design. Based on the example above, making a button easily visible, and goes to a working page would improve the UX/UI..



User Interfaces



User Experience

Who We Reviewed From The **Payments Providers Landscape**

The below diagram summarises the list of **key players in the payment landscape**. Each entity follows a unique strategy to offer preferred value propositions to their shared audience. We have chosen at least **one key player from each key category** in addition to the recommendations from Citi for the analysis. We felt these companies would provide us with a **complete range** of customer base, user goals & onboarding types.

Online, Merchant & Cross Border Focused

- Paypal
- Square
- ✅ **Adyen**
- FleetCor Technologies
- Wirecard
- ✅ **Western Union**
- StoneCo
- Euronet
- ACI

Private Companies

- ✅ **Stripe**
- Paytm
- Klarna
- ✅ **Plaid**
- Toast
- ✅ **TransferWise**
- Payoneer

Big Tech Firms & Startup Unicorns

- XavidXchange
- BREX
- Klarna
- NUBank
- One97
- PagSeguro
- ✅ **Plaid**
- Ripple Square
- Stone
- ✅ **Stripe**
- Toast
- Toss
- ✅ **Tradeshift and TransferWise – ALIPAY**
- MEPESA
- Amazon Pay
- Google Pay
- WeChat Pay
- Apple Pay
- Kakao Pay

API / Data Aggregator 2020 Deals

- ✅ **Visa - Plaid**
- Sofi - Galileo

Card Companies

- ✅ **Visa**
- ✅ **Mastercard**
- AmEx
- Discover

Corporate & Investment Banks

- ✅ **HSBC**
- ✅ **JPMorgan**
- ✅ **Barclays**

Learnings From **Standout experiences**

From the research, there are several companies with strong product offerings. **Stripe** is a market leader in B2B payments, **Mastercard** & **VISA** are specialist payment providers, **HSBC** is a direct banking competitor and **NHS** offer a strong solution in a different industry. Different features can be pulled out from each of these to help define a better product for Citi.

stripe

Market Leader

Stripe offer a large product for multiple business types & users with no developer experience

- Onboarding is a fully online journey, but is widely **focused on multiple users** needs, creating a long process of questions
- The developer portal is **primarily designed for non-developers**
- The Developer tab has some useful features such as **"logs"**, with the aim to **reduce support needs**
- Stripe customer support is a hugely invested area, with use of **Discord social platform** and **Livechat**

mastercard Payment Gateway Services

Payments Provider

Mastercard offer a one-page account creation as a company before selecting API needs

- The initial account is created as a **company**, before API projects are created under the company account
- There are **no compliance or security blockers** from gaining access to sandbox keys for users
- Owners are allowed to **add multiple users** to the Project sandbox
- **Production setup can be requested** directly from the sandbox page without the need to contact an internal Mastercard user

VISA

Payments Provider

VISA has a very similar solution to Mastercard with a one-page form followed by Project creation

- Visa encourage users that sign up will allow them to "**play in the sandbox**", showing how it is easy to get testing without blockers
- The main dashboard is **virtually identical to Mastercard**
- Some **documentation is locked** if you are not signed in, acting as a soft blocker for users
- **Multiple users can be added** to a project
- Support on VISA is limited to a **contact form only**

HSBC

Direct Competitor

HSBC have a part digital onboarding flow, where users can get to a certain point before security blocks

- The first step of the process **splits users** down different paths depending on API types
- Although users are able to create an account online, **they are locked out of further steps** until approval
- HSBC offer a **large help section** which can be accessed from sign in
- **Postman is used as a testing tool** for developers to help getting started sandbox

NHS

Outside Industry Example

The NHS offer a digital account creation flow which allows certificate and security documents uploaded

- Account creation is for a **company first**, before being able to add users
- The company creates "**Products**", which act in a similar style to Projects on **Mastercard** & **VISA**
- Depending on APIs selected, users are given a **full to-do list** of requirements to gain full approval, such as **contract upload** & signing
- Outside of the account creation, the user experience is very poor with **limited features** and support

Competitors Scoring

About the Matrix

- Each competitor was scored out of 5 over the key areas related to onboarding & the developer portals
- Internal processes were not possible to include in this matrix
- Scores of 5 were for unique propositions or features
- N/A are for sections not possible to access due to paywalls or compliance

Summary of Findings

- **Airwallex** performed on average strongest with clear and simple journeys.
- **Stripe** were strong in several areas but let down slightly by a long onboarding journey with several irrelevant sections.
- **HSBC** performed best out of the traditional banks, by offering useful features such as Postman
- **NHS** has a better digital onboarding experience than all of the payments industry with an easy user experience
- **Barclays** onboarding failed on 2 attempts due to poor guidance & possible bugs

Competitor analysis deck available on request

Graph: Scoring the UX/UI of journeys for each competitor

N/A	1	2	3	4	5
Not accessible / does not exist	Un-usable / Very poor	Poor compared to competitors	Average compared to competitors	Good compared to competitors	Best / Unique features

Company	Developer/portal onboarding	Developer portal UX	Developer portal UI	Developer portal Features	API documentation	Sandbox & Testing	Support
Citi	N/A	2	4	3	3	1	2
Airwallex	4	4	4	3	5	4	3
Adyen	3	N/A	N/A	N/A	3	3	3
Barclays	1	N/A	5	N/A	4	N/A	3
HSBC	4	2	N/A	N/A	4	3	2
JP Morgan	2	N/A					1
Mastercard	4	3	3	N/A	4	4	4
NHS	5	5	2	N/A	3	N/A	2
Plaid	3	4	4	3	5	N/A	3
Stripe	3	4	4	5	3	5	5
TransferWise	3	2	4	2	4	3	2
Visa	4	3	4	4	3	5	3
Western Union	2	2	2	3	3	N/A	5
Worldpay	2	N/A	1	N/A	4	N/A	4

Onboarding Types

We identified the level of human interaction on each providers onboarding process

- After reviewing a range of companies, we were able to determine 3 onboarding patterns; **Fully Digital**, **Part Digital** and **Human Client Facing** journeys
- **Citi** currently sit in the manual grouping, and the clear aim should be a full digital approach, putting them ahead of banking competitors
- Part digital onboarding's main benefit is preventing full access to the developer portal **until compliance checks are complete**. This approach is favoured by the **traditional banks** but creates a frustrating user journey.
- Payment specialists such as **Mastercard** & **Visa** allows users to access testing environments easily with a full digital onboarding approach and no compliance blockers in the flow.

Graph: Company onboarding processes by type

Understanding Standout Onboarding Journeys

About the matrix

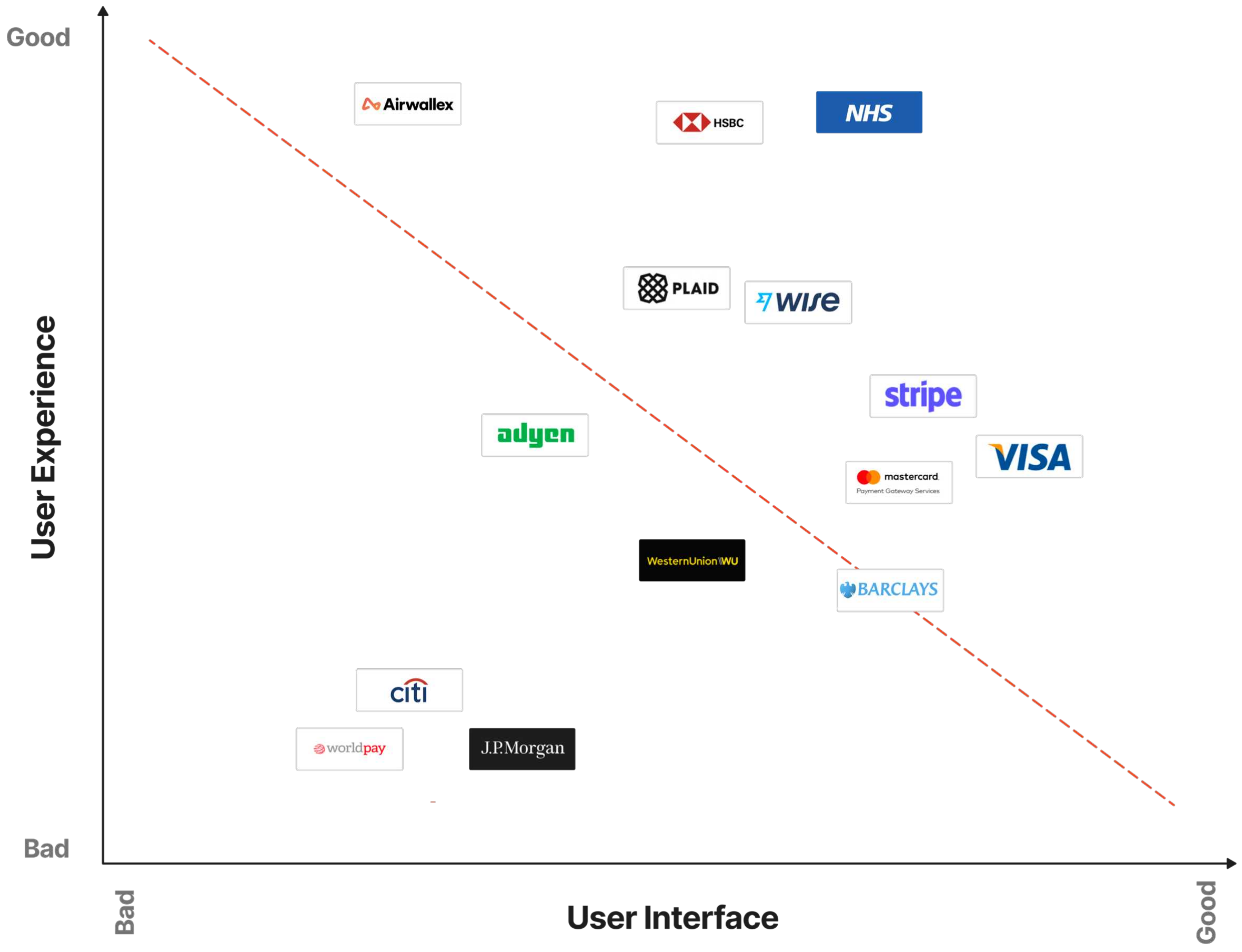
This matrix compared the UX/UI of each onboarding journey against the quality of product on offer. Based on this we can identify who we can learn from the most. The red line divides who we feel are competitors to aspire to and where Citi should rank.

Findings

- **NHS** onboarding was standout due to it's complete digital only approach, with clear tasks ability to upload/download files while tracking progress
- **Visa** & **Mastercard** both focus on project creation as onboarding, which gives companies control over multiple users
- **HSBC** uses open banking data to reduce the onboarding length
- **Citi**, **JP Morgan** & **Western Union** are all manual onboarding processes requiring further conversations to proceed

This ranking is based on our collection experience across user journeys and products

Graph: Indicating the best User Experience & User Interface onboarding journeys



Understanding Standout Developer Portals

About the matrix

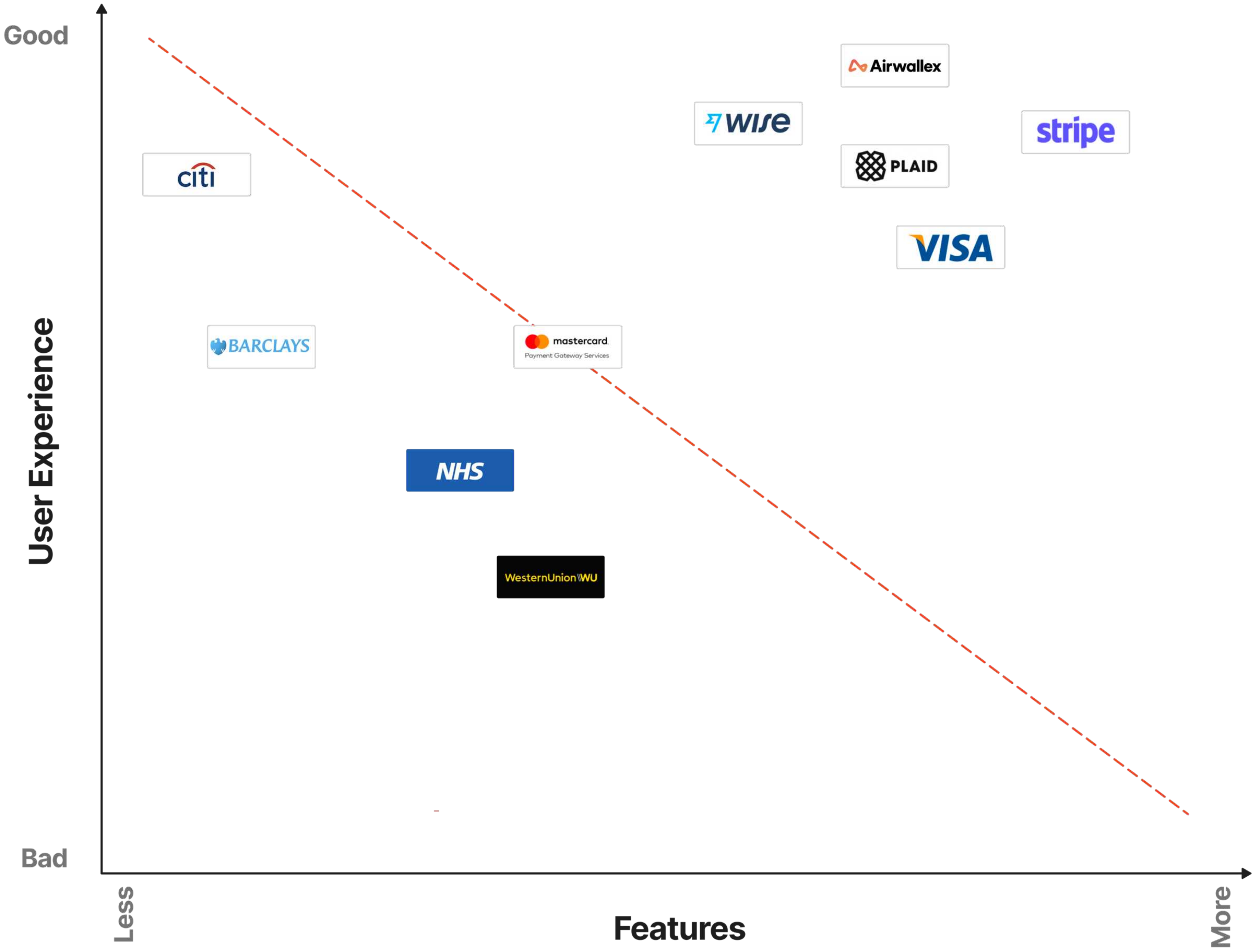
This matrix looks at the usability of each portal with functionality and features available. This is showing competitors who's portals are accessible through digital onboarding. The red line divides who we feel are competitors to aspire to.

Findings

- Quite a few competitors don't allow full access to portal until a manual step is complete (e.g. approval)
- **Stripe** has the largest portal in terms of features, and is designed for several user types such as small business owners and developers
- **Citi** has a clean well designed portal, but with limited features
- **Barclays** have focused on visual design over features, such as dark mode themes and iconography

This ranking is based on our collection experience across user journeys and products

Graph: Indicating the best Developer Portals User Experience & Features



About **Personas**

What is a user persona?

User personas represent the **needs and goals** of your target audience. They are an in-depth analysis of your ideal customer and their behavior patterns, goals, skills, attitudes, problems, and background information. These **help you connect** with your target audience and make better product decisions.

Who are the users for Citi Payments Express?

The personas for Citi Payments Express are B2B **client's PM**, **API developers** & **Technical implementation managers (TIMs)**. However, we need to consider the broader ecosystem of B2B organisations within which these personas operate. Any external influences and constraints for these users, effect they way they interact with Citi's onboarding journey.

We focused on the **end-user personas**

With the focus of the project on the end user experience of Citi onboarding, we explored the below questions for the B2B businesses, client PM and API developers, and Citi TIMs;

Responsibility
- What is their role within the organisation?
- What does their job description look like?
- What are their skills?
- What do they do or what's happens daily/weekly/monthly?

Rewards
- How will the individual and the organisation win?
- What does winning means?

Risk
- What may get in the way of their success?
- What can and does go wrong?

We developed **3 user personas**

Based on a synthesis of these customer interviews (with Synechron technology and product team) as well as a secondary research.

We developed three user personas shown in the next slides. These visual profiles helped us to tap into the demographic details including their **behavioural patterns**, **needs,** and **pain points.**

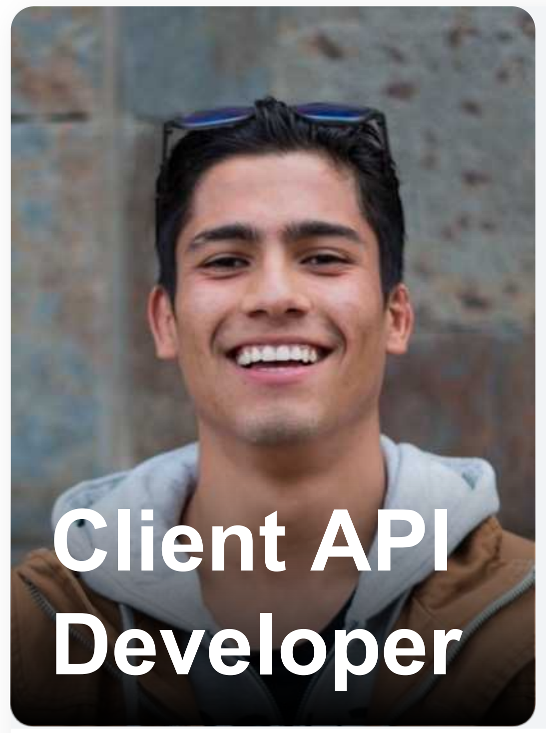
We are tailoring the solutions to **these potential users**

This exercise has helped us to **scope our work and tailor the solutions to these potential users.**

Furthermore, it will help us to uncover potential features and product propositions that really add value for them.

User Personas

These are the **3 key User Personas** for Citi Payments Express Onboarding



“It is important to me to have test data clearly available, and easy access to support during this process

KEY ROLES & RESPONSIBILITIES

Client API developers are experienced integration or application developers working either as part of the B2B client IT team or the third party that B2B client would hire to help them with the integration if they don’t have in-house capabilities.

In the context of onboarding and implementation, their primary responsibility is consuming the CitiConnect APIs, followed by testing respective Product API functionalities before take it ahead for production deployment.

To do the above, they need to work closely with Citi TIM and their Internal business or product team..

PAIN POINTS

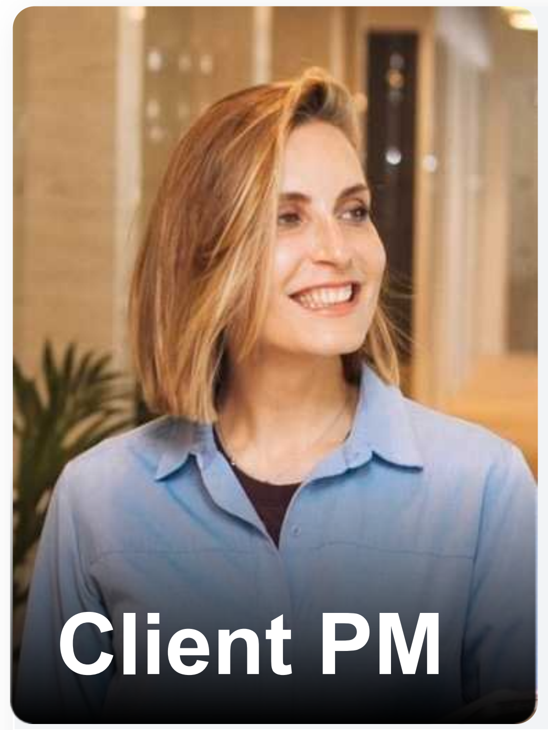
- Having delay in procurement of client certificates
- Not having sufficient data to test
- Having no clear and quick path to troubleshooting

NEEDS + EXPECTATIONS

CITI needs to help the client API developers test their code that calls CITI API easily and address any issues as quickly and smoothly as possible

GOALS

To build secure applications when they use CITI API and being able to have a quick Integration with CitiConnect APIs.



“I wish to retain ownership of all access for our developers, and justify any costs or needs for them

KEY ROLES & RESPONSIBILITIES

Client PM is a functional user of the dev portal. They would be the point of contact from the business side of the client with Citi.

They oversee the integration between the client and Citi and ensure that it progresses as fast and smooth as possible. They make sure the right people are engaged in troubleshooting and integration issues.

PAIN POINTS

- Not being able to assess the operational and reputational risks
- Not being sure if Citi will keep up with the high space of PaaS and have the best offering over time

NEEDS + EXPECTATIONS

To be able to find out what the API does without tech Jargon and being able to set up my developer to do his/her job and being supported so that we can onboard our merchants as quickly as possible and assumes all compliance and risk factors.

GOALS

To buy PaaS and justify the costs that involve constant commercial aspects analysis, different layers of stakeholders’ decisions followed by detailed discussions.

“I need visibility over the entire onboarding process. Clients sometimes have very slow internal processes and really struggle with certificates

KEY ROLES & RESPONSIBILITIES

TIMs role in general needs technical and business skills.

They will initiate partial setup's during client on-boarding process, they rely on various technical support teams for system setups, trouble shooting issues etc during the entire journey of client on-boarding.

They are the central point of contact for the client from Citi and will have the visibility on current status in client onboarding journey at any given time.

PAIN POINTS

- They are communicating with multiple teams through multiple tickets.
- They are dependent on the support team and cannot do anything themselves. No visibility on the downstream activities and track it through SLA's.
- The complex onboarding process causes TIM to spend around 6-8 weeks to complete end-to-end client onboarding.

NEEDS + EXPECTATIONS

Need to have visibility and quick view of any system issues like system is down/maintenance etc
Need to have minimum manual activities/interactions to save time and effort.

GOALS

To enable the client in completing the onboarding as quick as possible. To guide the client for their certificate requirements. To raise it tickets for creating client testing environments. To help the client in resolving any issue that arises during API integration. To identify the systems issue if any from Citi and raise the appropriate IT tickets with require support groups. To help Citi in securing the signoff from the client in a timely manner. To notify Citi's production support team to create system setups

User Interviews: **Learnings**

The key focus was to conduct interviews with stakeholders and users, in order to understand user needs and gather the recommendations for the service blueprint.

Interview 1

Mohan & Shums

Roles: Implementation managers (TIMs)
Experience: 7 years

- Discussed all the documents and certificates being shared between Citi and their clients
- Ran through the detailed business processes for onboarding

Interview 2
(Usability testing)

Kamal Rao

Role: B2B client PM
Experience: SME in the payment domain with 17 years of experience

- Completed an As-is Analysis of Dev-portal from a Client PM perspective
- Agreed potential **improvement opportunities** such as a digital ‘quick start guide’, and a robust (technical) support system
- *(Synechron SME presented PM role)*

Interview 3
(Usability testing)

Nagaraj Davanagere

Role: B2B client API developer
Experience: 20 Years in developing, designing and integrating similar API

- Completed an As-is Analysis of Dev-portal from a client API developer perspective
- Agreed potential **improvement opportunities** such as a 'handbook' guide for developers, adding more modern coding languages.

Interview 4
(Workshop)

Citi Payments Project Stakeholders

Role: Subject experts and owners

- Hosted a workshop with the key stakeholders to share AS-IS blueprint
- That session helped us to clarify the missing information we had
- Agree on and finalise all the existing raised and identified pain points.
- Brainstorm at a high level how to solve existing problems.
- As a result, identified more specific questions we needed to clarify with Technical team at Citi to start the solution phase.

Interview 5

Yogesh, Dommeti & Bernita

Roles: CTE & Product setup, leading APAC production team

- This Q/A session helped to understand the technical environment and get clarity on more technical issues from the last engagements
- This one-hour semi-structured interview helped to identify the differences between systems in production and testing
- Concluded that the Downstream systems are expensive to build and currently there are differences in the systems between CTE and Production
- Learned that the backend team GIDA is accessible only through Marketplace and the support request for client code setup to invoke Citi API's

User Testing

In order to validate our prototypes and features, we arranged interviews with users to run through the journeys that would be improved.

Key Aims

- To identify what features the client (both PM and API developer) want beyond what we already have developed.
- To identify areas of improvement that help the user accomplish their key task based on their roles.
- To gather feedback and adapt current proposals
- To learn of any blockers that may occur implementing new features

Full Usability Deck available on request

Below is the summary of the questions we asked in the user testing

Participant Build
- Describe a bit about your role and why you are using this portal.
- What are the key tasks you are aiming to do in this portal?
- **Developer**: On a scale of 1-5, how familiar are you with onboarding APIs?
- **PM**: On a scale of 1-5, how easy is it for you the API knowledge of the onboarding process in general?

First Glance Testing
- What is your first impression of the dashboard?
- What, if anything, doesn't make sense here?

Task Specific by Use Case
- **New client**: You are given this link by the salesperson from CITI, what is the first thing you do? Going through opening an account process, how can it improve?
- **Already created account:** Where is the first place you check when you log in and why?

Imagine as a;
- **PM:** You want to make sure your developer is fully set to integrate the API, how do you do it?
- **API developer:** You want to read the portal API, what would you do?
- What do you need to do as a **PM (or Developer)** in the onboarding process?
- What do you do if you have any questions or there is an issue?
- What do you think about the community? How easy was it to find the support you needed and how could they improve?
- What is the most important thing for you to know and how would you like to be informed?
- How useful is this dashboard for your role and why? How would you improve it?

Usability Testing
- What do you think of the study guide?
- Was there anything that surprised you? If yes, what?
- What do you think of the content presented on each page and the way it is presented?
- What was difficult or strange about this prototype, if anything?
- What was easy about this prototype?

Holistic Experience
- Now that you have explored the menu, tell me what you think of the order and the content?
- On a scale of 1-5, how do you rate your experience of the site- the onboarding?
- Any other observation you would like to share?

User Testing: **User Flow Feedback**

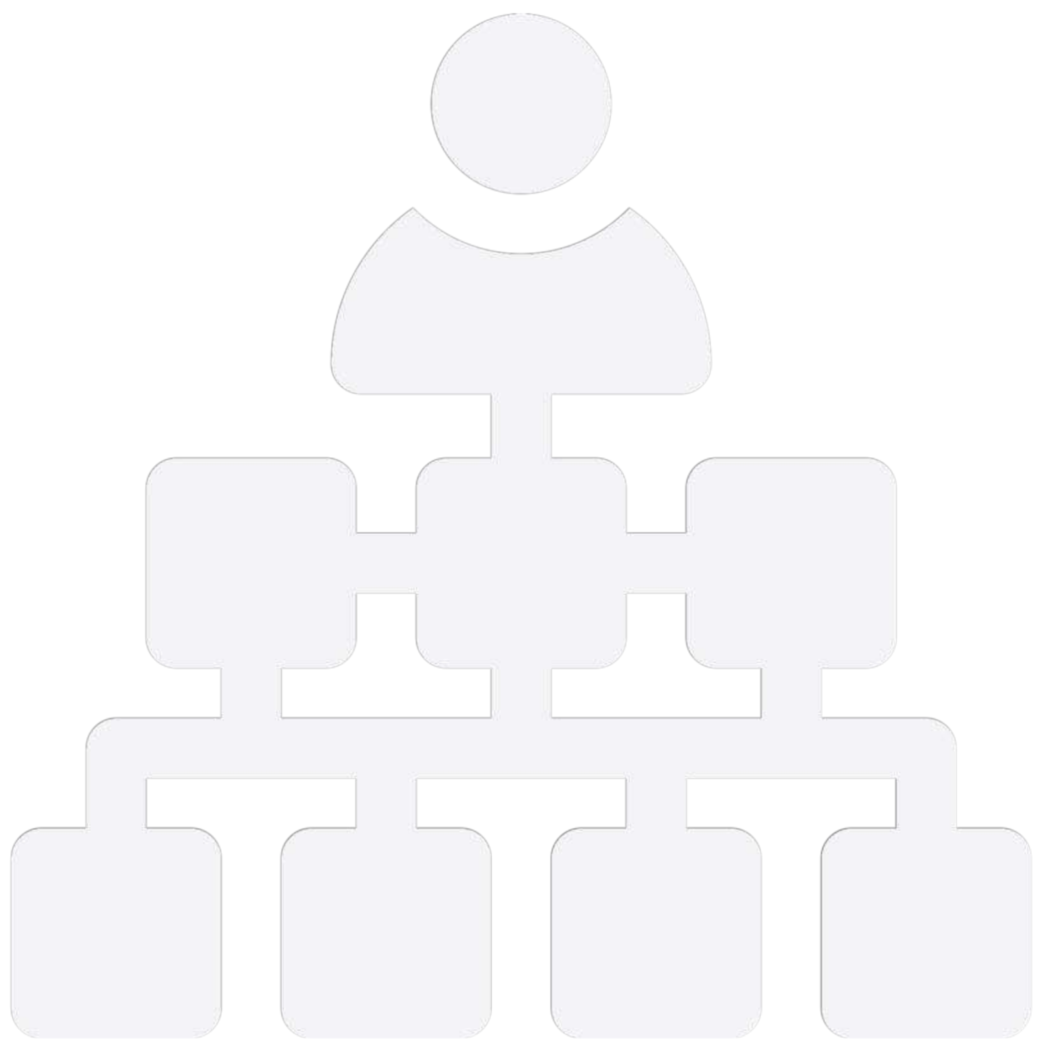
From reviewing several key full digital onboarding flows, we have been able to summarise what the ideal flow would be for a user from "start" to "testing" which allows the user to self-serve. This creates a simple structure for us to design for and use in initial testing and comparisons against Citi's current offering.

This flow and further competitive analysis led to the development of the prototype which we tested with one experienced B2B PM and Senior developers from Synechron. Below is the summary of their suggestion for improving the onboarding flow/prototype.

Ideal User Flow	User lands on developer website →	Clicks on create an account →	Provides basic details →	Provides secondary or business details →	Verifies account via email or text →	Access dashboard with clear next steps guidance →	Creates new project defining requirements & users →	Completes testing with support on portal →	Switches to production after completed testing
 **Client PM**	The sequence of the menu bar can be improved by adding 'APIs category' and with detailed information on APIs	Include more prompts in the 'Create an account page': a short note about the journey from creating an account to accessing and consuming APIs.	Prepopulated information for the existing client. Include I accept terms and conditions for legal purposes. Include a technology management role like a solutions architect in the roles drop-down	Separating 'Create an account and 'detailed business information required to avoid a fraction of the journey.		Include the API category as the first step in the browser also. Seeing the API list as early as possible will make choosing API here on the project page much easier.	Creating the project should be part of the earlier create an account or some howe easier to navigate. I would almost do what we had with the registration notification, I would have 123 sequential steps.	The suggested support steps are great.	
 **Client API Developer**	Adding 'API categories to access the detailed API list first thing. Add more information in "Documentation" as the first place for discovery and support a developer choose.	Explain in detail the different API developer accounts. In addition to the quick start guide, Including the steps on this page; to get the certificate and how to integrate with the payment API	Postpone this phase until after exploring the API. Split developer roles into split developer role into a back-end developer (focus on internal systems) and a front-end developer (focus on the data returned from the API to consume it).	Same as Above		Same as Above	The project creation and the information and document required need to be on two separate pages. So the developer can upload it when needs it.	Include more information in the Documentation and repeat it as part of 'Support' as it is where developers look for their answers.	

User Flows

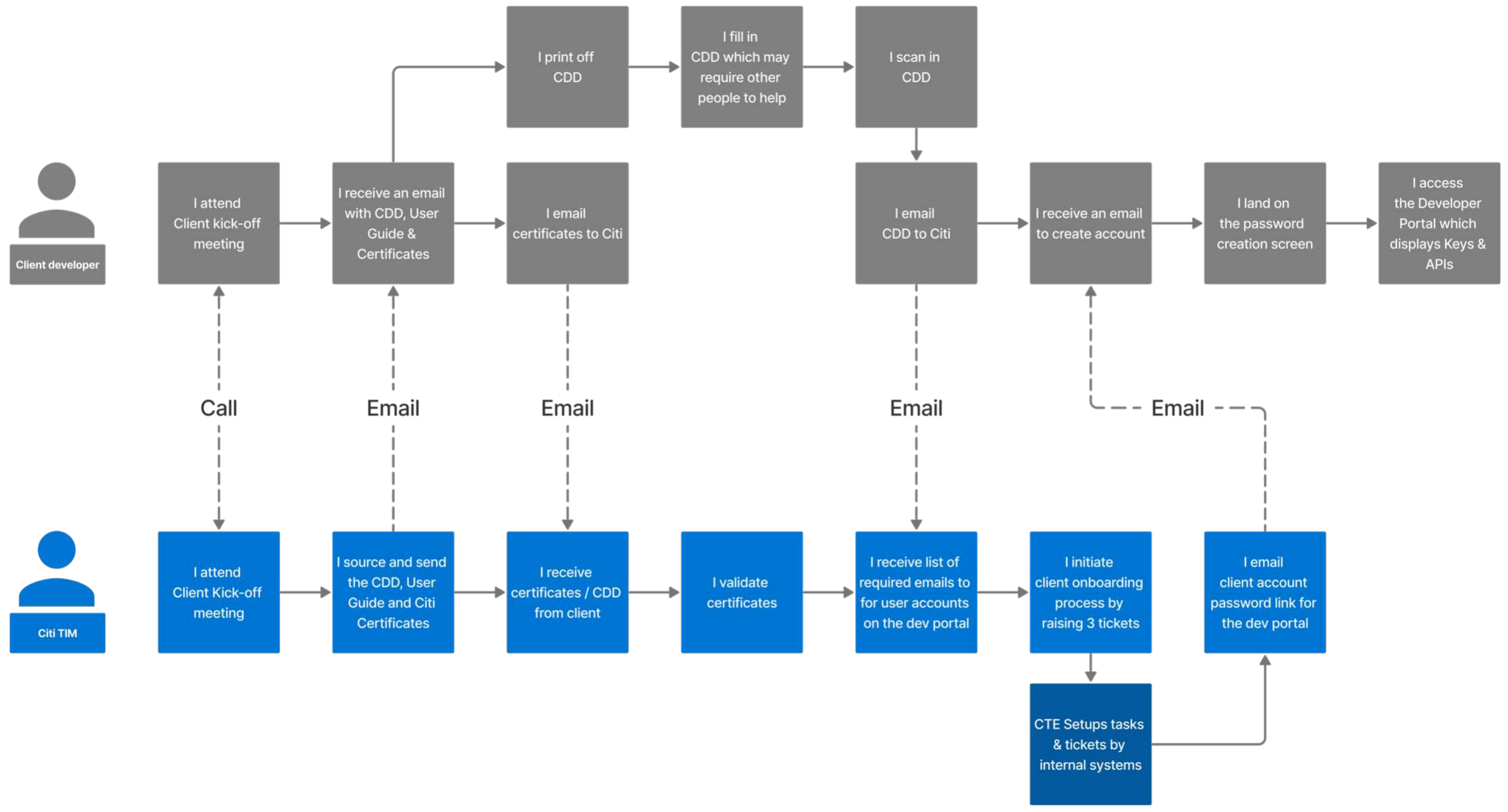
We have created key user flows which define new user journeys for an improved onboarding experience



Client Discussion As-is User Flow

The first stage of the onboarding flow is the client discussion, which requires **constant human interaction** with several emails back and forth between users. This can be dramatically improved by designing this flow as an online form.

As-is: Currently **2-3 weeks** as an average. Can be up to 2 months

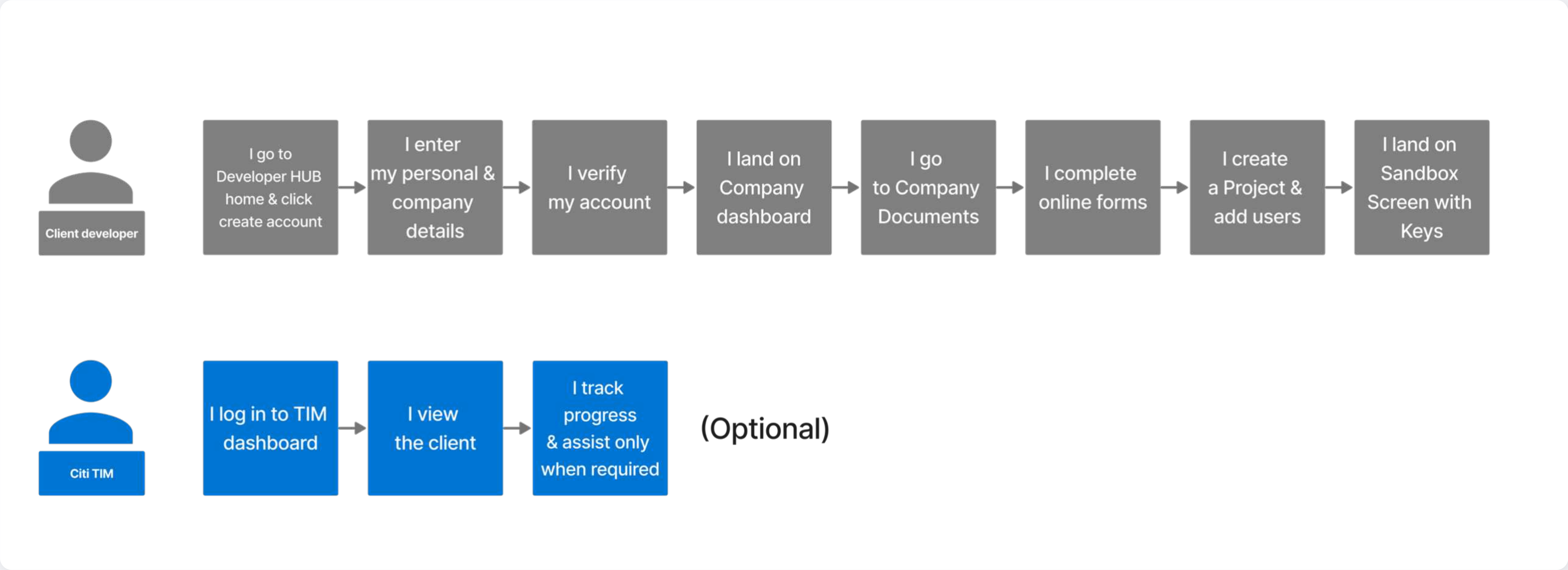


- **5 human** points needed at least
- Each human interaction **adds time** to overall journey
- Client developer is **entirely depending on TIM** to complete onboarding
- Client requires printing and scanning facilities which is less likely in remote working, and extremely **extremely slow process** for very few questions
- TIM has to **source documents** for the client, and collect/store them. This would also be with all other onboarding clients
- TIM has to **create tickets manually** on internal services to get required access for clients. Each ticket adds time delays.

Client Discussion To-be User Flow

By adding account creation form, we were able to **completely remove** all human interaction from this stage, **reducing the time required** to progress

Impact: Process could be reduced to **2-3 days**

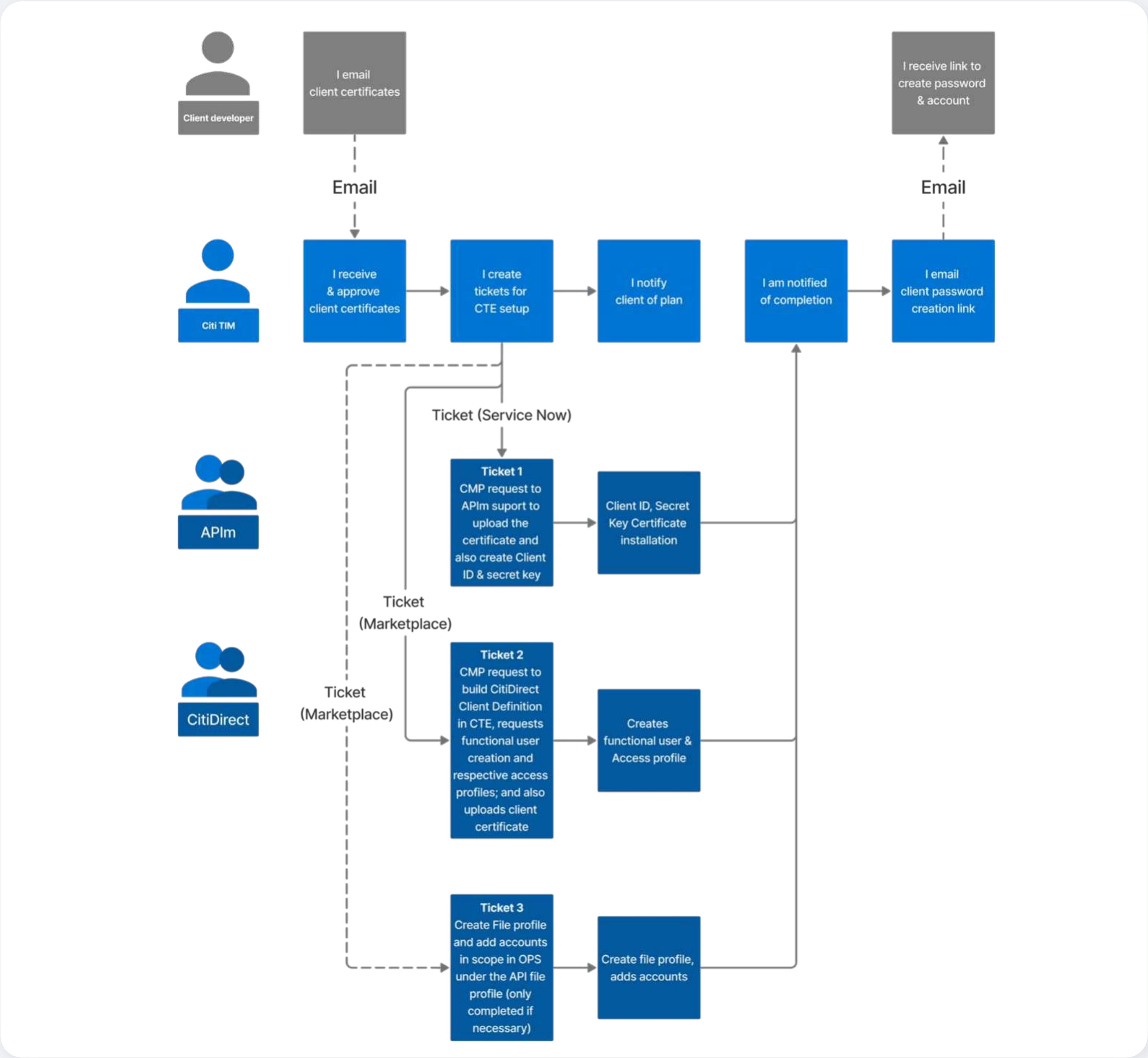


- **5 human** points of interaction removed
- Online account creation form allows client to **self-onboard** and access the portal
- Documents can all be **downloaded / uploaded** from this portal now a client has access
- **Compliance constraints** can still be used to prevent further access for clients
- TIMs can **monitor progress** of clients on their own dashboard, instead of by email
- TIMs role is **entirely optional** at this stage

CTE Setups As-is User Flow

Currently during the CTE setups, the TIM is **required to create multiple tickets** on different services to progress the onboarding journey. These steps can be automated which would reduce time required for this stage.

As-is: Currently **2-10 days** for end-to-end client setup

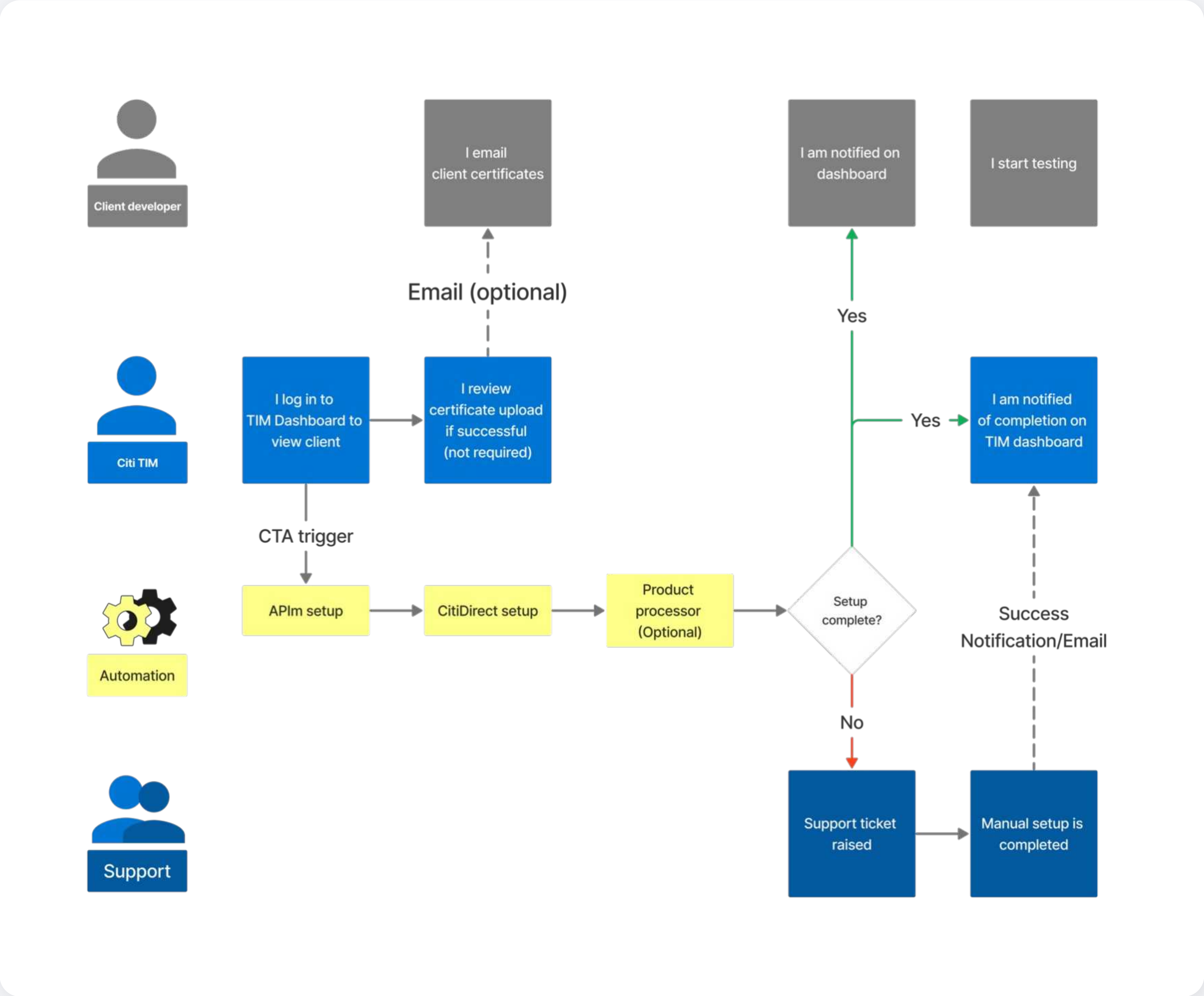


- TIM is currently creating **several tickets** in different systems to progress client, creating a slow process
- Client has **no visibility** of backend process or any issues, so will not identify issues easily
- **Various teams** are involved in the environment setup, such as APIm gateway, CitiDirect, Service Now & Citi Marketplace
- Process requires **emailing with the client**, which is slow and unsecure

CTE Setups To-be User Flow

By **automating the CTE Setup**, we were able to reduce manual ticket creation by the TIM, while still allowing intervention when required

Impact: Maximum of **2 days** due to new automations

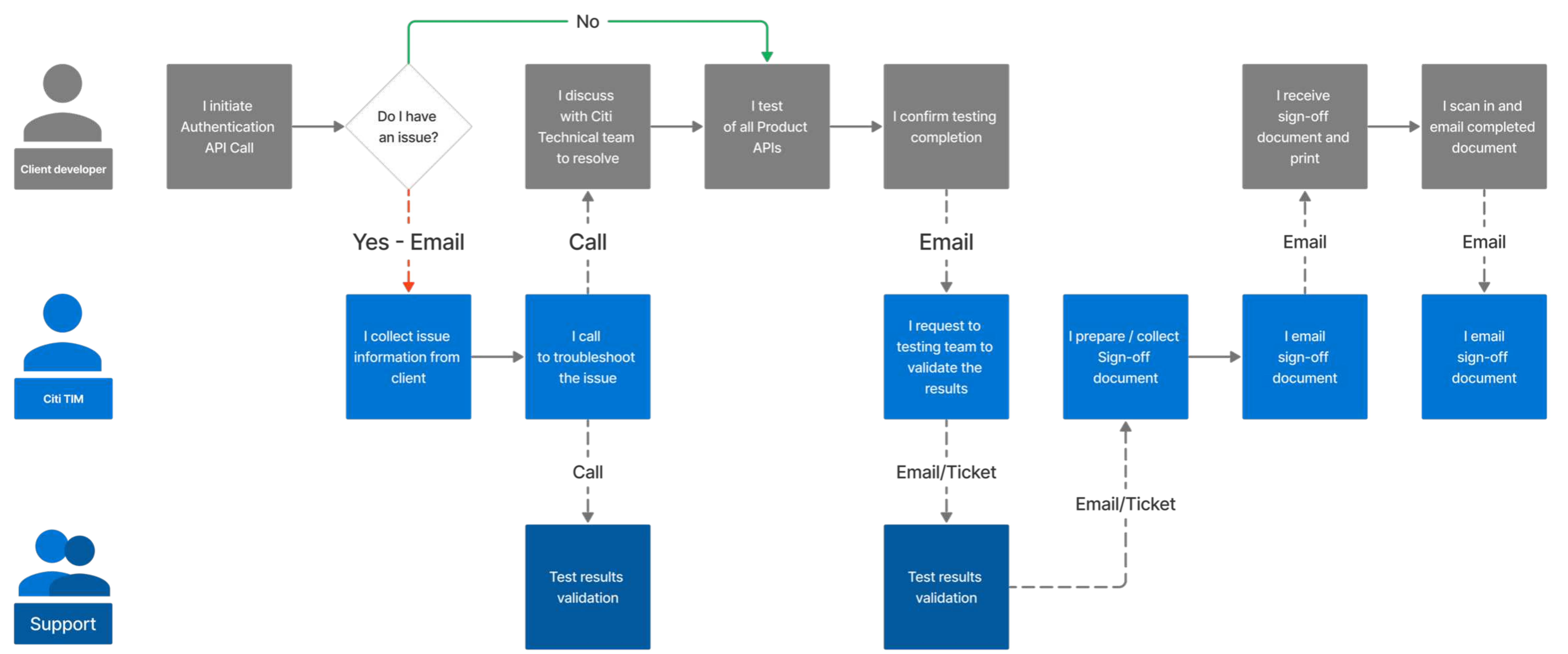


- A TIM can review client certificates in their dashboard, but this is **no longer required** as part of CTE setups
- A TIM or Client can **trigger the automation** setups from their portals, depending on permissions
- Client will **automatically be notified** of completion
- If there are errors from the setups, the manual journey can still be used as **a fallback**

CTE Testing As-is User Flow

The user testing stage is currently **poorly supported for client developers**. Several areas can be improved from a technical & content perspective. However, there is a clear opportunity for a user to self-serve support and resolve testing issues before needing to contact a TIM.

As-is: 2 weeks to 2 months due to client dependencies

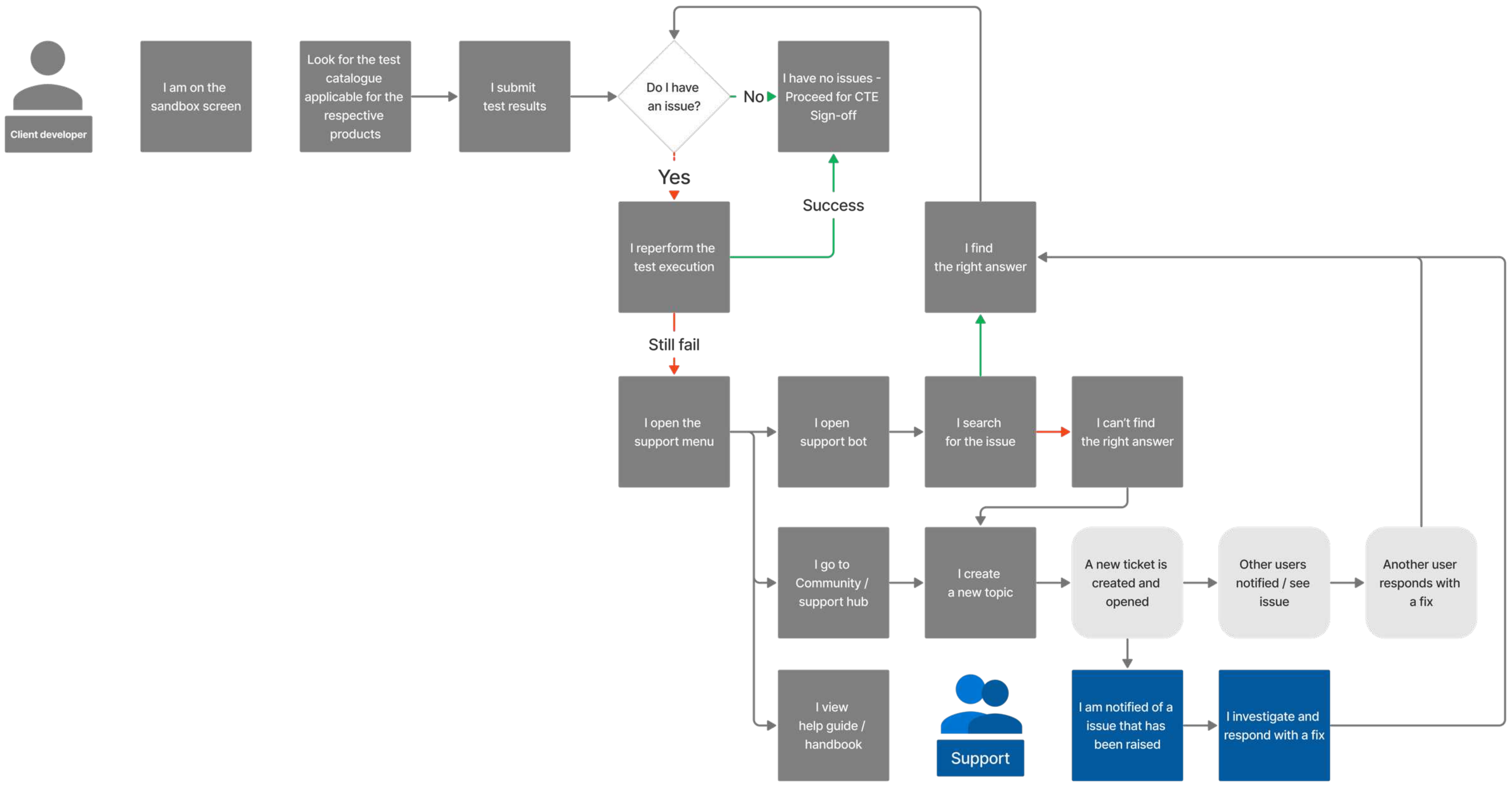


- TIM has **no visibility** over client testing progress
- The only option for support is **directly emailing** the TIM, who in turn emails internally, causing a slow chain
- Very **little test data** is available for functionality of APIs, adding time to user testing
- Sign off confirmation **requires emails** & documentation adding to time

CTE Testing To-be User Flow

By creating a support section accessible to clients, there is a strong chance **issues can be resolved without contacting Citi**

Impact: End to end testing could be completed in **1-2 weeks**

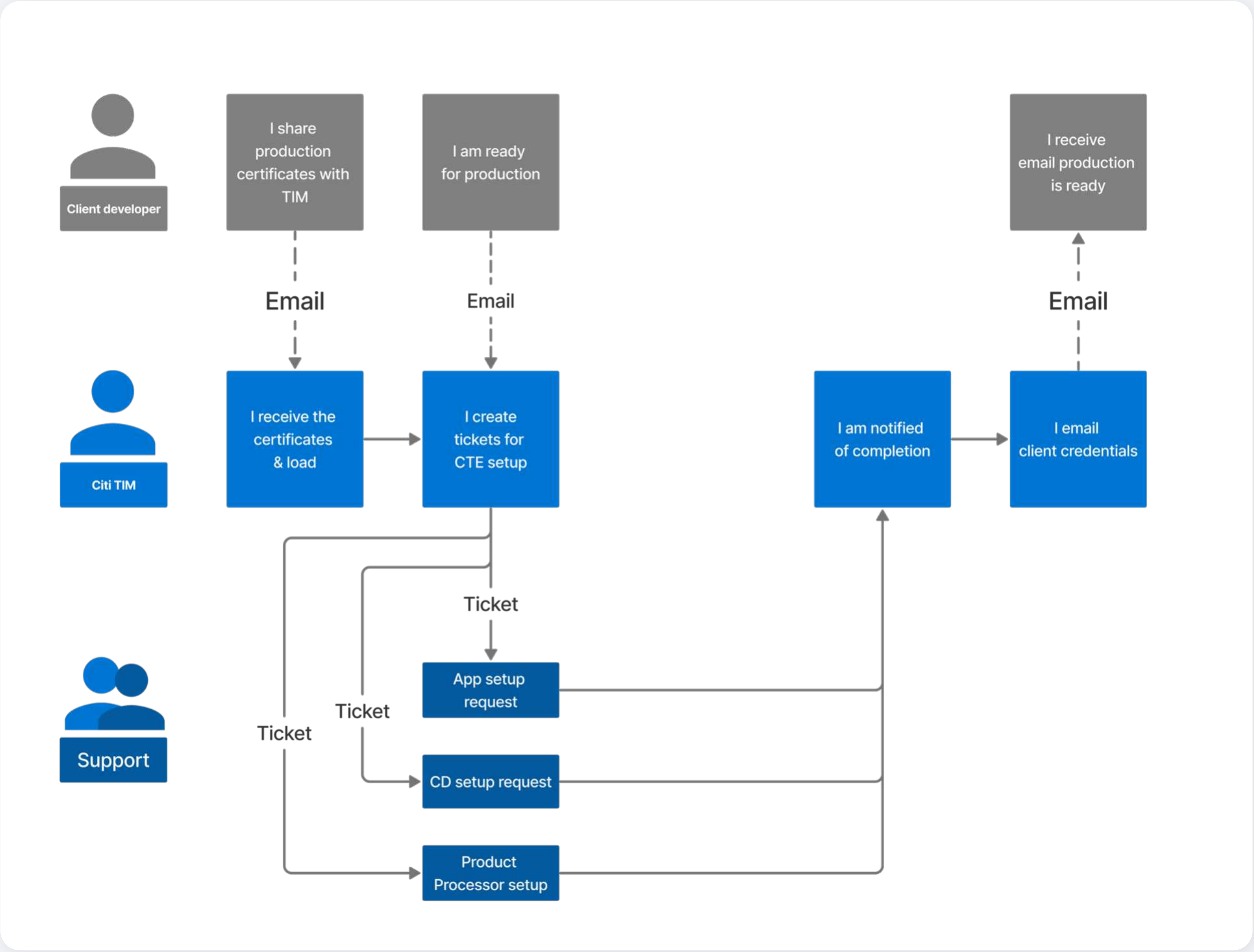


- A support section of the portal can offer **several solutions**, such as a community hub, user guides or chatbots
- A community hub allows many users to contribute issues, and even solutions, building a **large help guide**
- Citi can use the learnings from this hub to identify **common issues** and challenges faced by the users
- The current user guide/handbook is not accessible online, and can **easily be added here**

Production Setup As-is User Flow

As with the CTE Setup, by **automating Production Setup**, we were able to reduce manual ticket creation by the TIM, while still allowing intervention when required

As-is: Average **2 weeks**

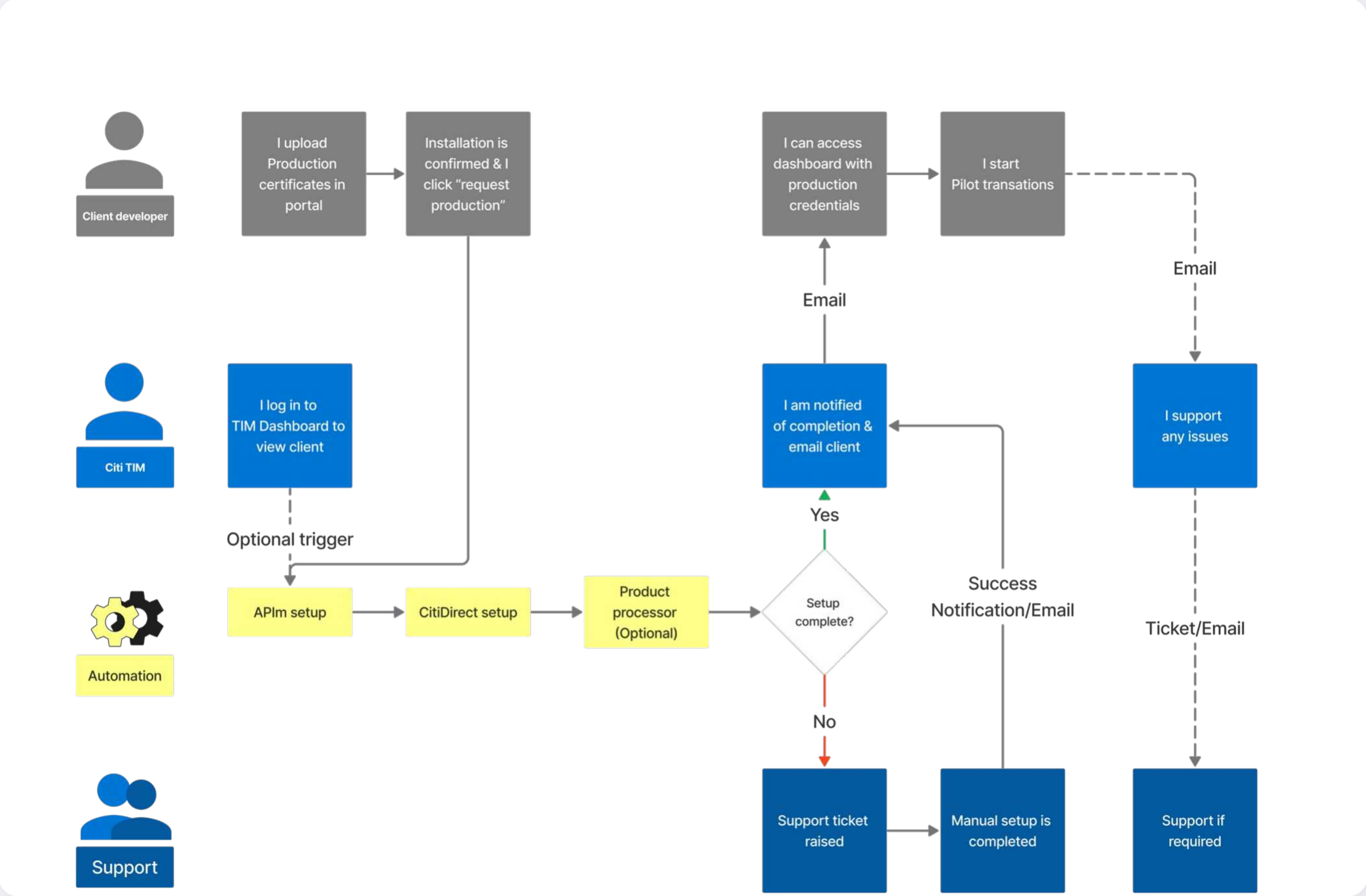


- Production certificates are shared by email
- TIM has to create multiple tickets in different systems to progress client, creating a slow process
- Client is emailed production credentials

Production Setup To-be User Flow

As with the CTE setups, we can remove the entire ticket creation process by automation, saving time to progress

Impact: Production readiness activities can be completed in **4 days**
(2 for setup, 2 for Pilot transaction validation)



- Client developer can request production from the portal directly, triggering the setup automation
- TIMs can have also trigger production setup if required
- Manual support is still a fallback option if there are automation errors

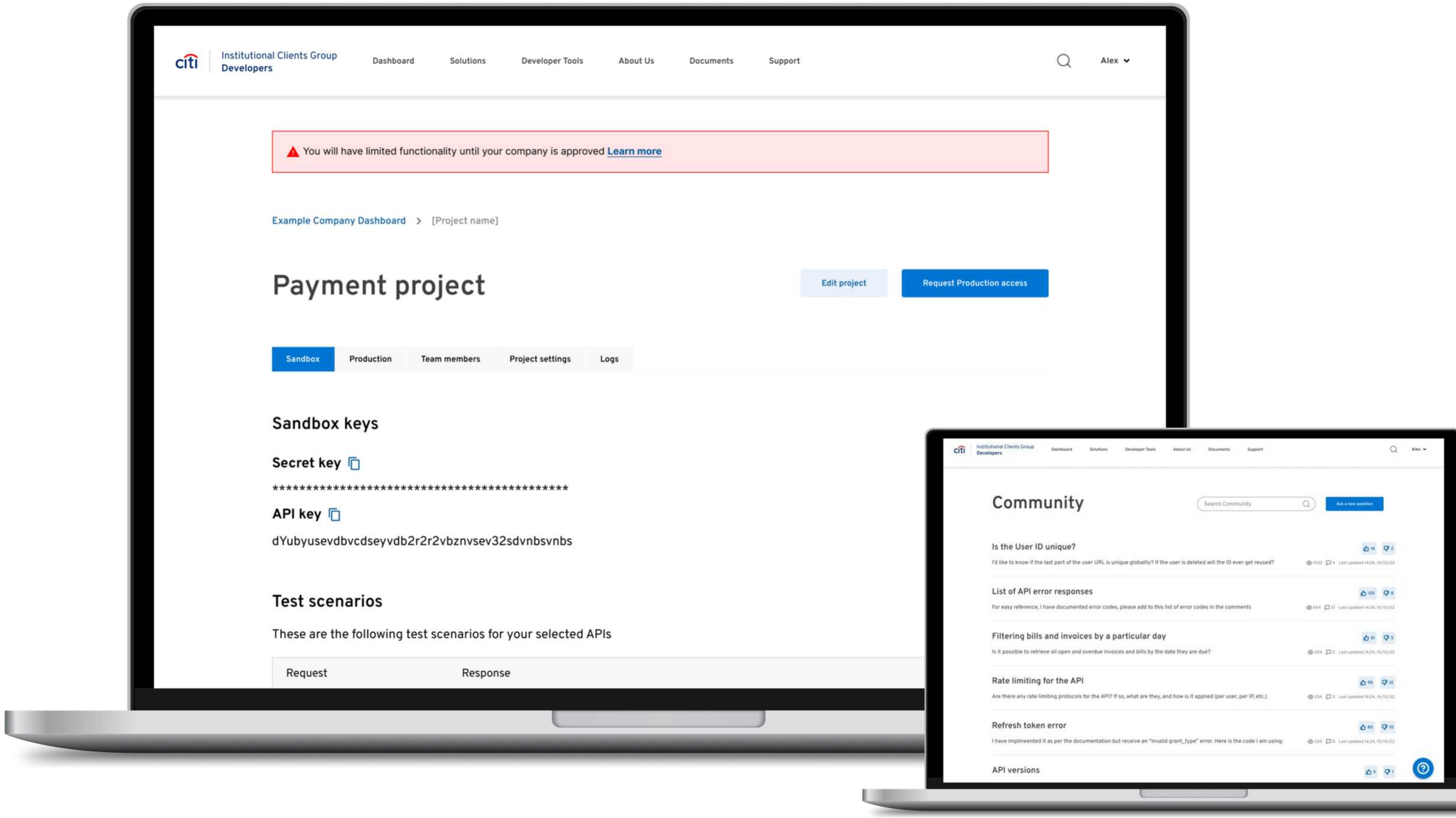
Prototype: Developer Portal

Summary

This is a prototype of the recommended approach to the developer portal. It visualises the create an account journey, and how a client can provide required documents. After setting up a project, the user can use various new features in the project section.

Key recommendations

- Allow **self-service account creation**
- Move Client Discovery Document and certificate sharing to an **online documents section**
- Use a company set-up approach to allow **multiple users** on one account and Client ID
- Create a **support section** with several methods of digital deflection
- Provide a **developer logs** view for clients



[View Prototype](#)

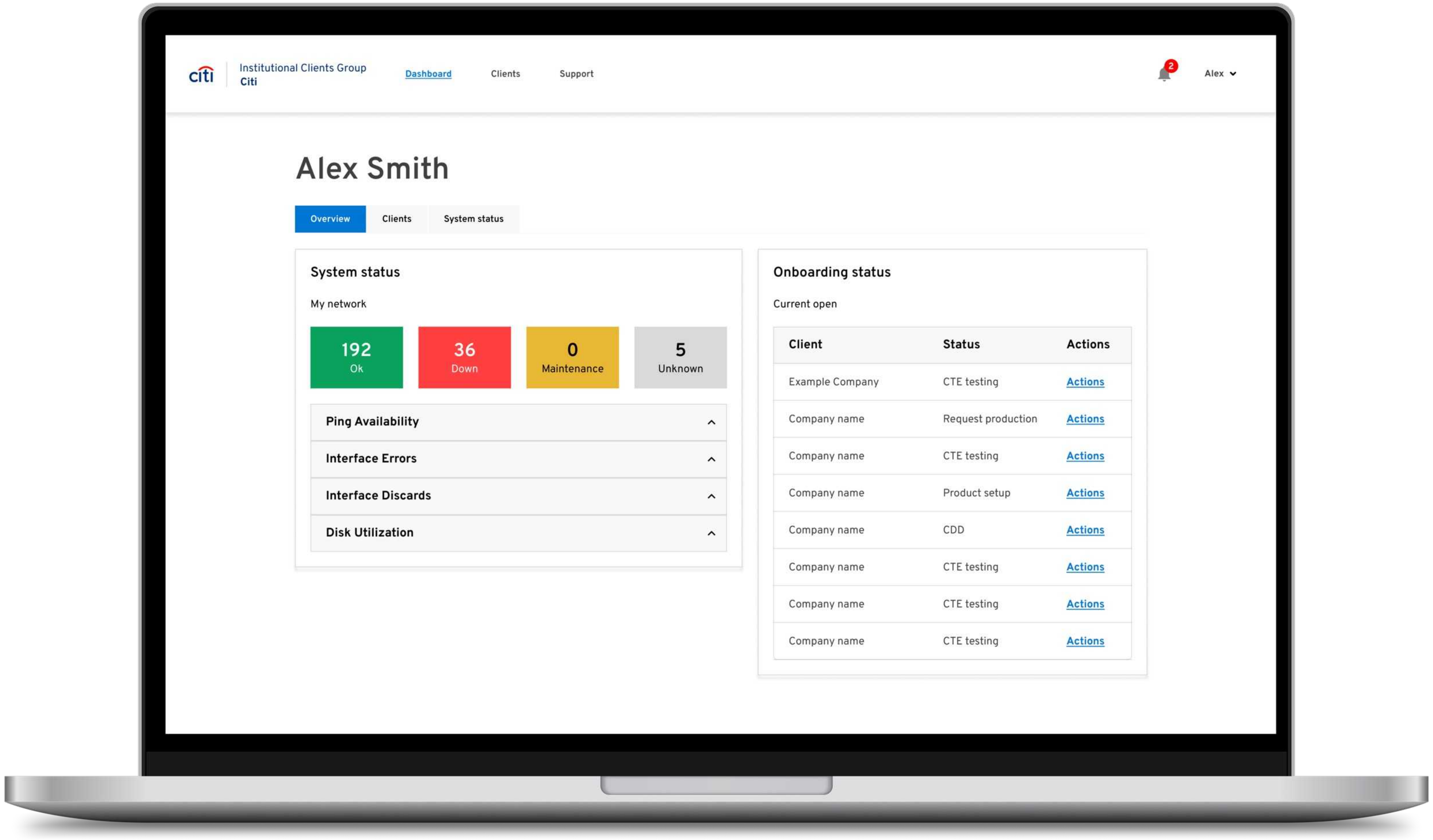
Prototype: TIM dashboard

Summary

Currently TIMs have no visibility throughout the journey. This new dashboard will allow them to track several areas, reducing ongoing manual contact with the clients.

Key recommendations

- Create a **dashboard for TIMs** which will allow oversight into the entire onboarding process for clients
- Provide a **system status panel**
- Show **client testing progress**
- Show **client setup status**



[View Prototype]

Prototype Feedback: **Citi Clients**

The feedback is grouped from the clients into sections of the prototypes shown.
There was a **strong consensus of support for all features recommended**, along with some additional ideas which are highlighted.

Stages

Timescales

2 weeks would be a good timescale, that is the quickest the user has experienced so far

2 weeks would be impressive as a timescale

This would be close to excellence, but Production should be longer, can't take important risks

2 weeks - sounds amazing

In a perfect world, 2 weeks is very ambitious. We rely on 3rd parties that slow things

Account creation

Certificate requirements could be both side of project creation - after selecting APIs, different certs might be needed? Could this all be done on sandbox

API list Section that is shown would be super helpful (A Marketplace), without needed to have full accounts

Project creation

Would like the ability to set user goals – e.g production date required

Searching for APIs on the product creation form might be needed, due to being so many

APIs may need more detail explaining them

It's the way to go, time is wasted in emails and calls

Sandbox page

Would be great to have the ability to add user tests

Would be great to see the history of the project testing

Would like create new keys ability - new and old would both need to work at same time

It would be great to not have to wait on certificate approval, and get straight to testing

Sandbox users vs production users are very different, need a way to manage

Testing

Production would be a separate screen / requirements? Product tab needs to show status of APIs in moving from testing to production "Where are APIs located"

Postman & SDKs - This would be very useful

Postman - This would be useful, would help current issue if different versions

Would be important to view specific APIs for testing, eg Enhanced Payment Enquiry, want to view that in isolation

Support

This would be useful to spot errors made previously and how resolved

FAQs work well if searchable, as likely to have many categories/sub categories

Current docs attachments don't open for mac users - new online docs would resolve this

FAQs / Community needs to be search by APIs as there are a lot to search through

It would be great to have this

Logs

This would be very useful, the filters would benefit

This is useful

This would be useful, would help current issue of different versions

Takeaways

- API list needs expanding with multiple options or a separate screen on project creation flow
- Make sure FAQs / Community is searchable and categorised
- Explore adding a client timescale question/user goals on project creation
- Expand test scenarios block on sandbox - ability to add new scenarios / run time
- Create the "API Marketplace"
- Add filtering/categories to community or FAQs
- Define clear route for documentation
- How does production tab look? Is it needed?
- Design new key creation journey

Product

Pain points **Overview**

Below is a summarised list of paint points discovered during our interviews with the Technical Implementation Managers, and review of the user journeys.

Client Discussion

Client account creation up can take months

Pain points

1. API developer has to google each CA to find the contact details.
2. **The user guide page is in pdf and is not updated.**
3. Many clients submit their certificate with delay. It is mainly because getting certificate is too technical if the client Pm is only a functional PM & has to update their certificate regularly which is too much hassle.
4. Depending on the API's subscribed, various teams are involved in the environment setup like APIM gateway, Citi Direct, Service Now, Citi Market etc.
5. Currently certificates are verified manually and typically takes time b/w 3 hours to 2 days with email exchanges

Summary

This part of the process is very manual and slow due to a lack of automation and digitisation of the client setup

CTE Setups

Setup can take 10 days before clients can test

Pain points

1. **Client has to update their certificate regularly which is too much hassle.**
2. Setting up test environment takes 2 weeks - lots of tickets to raise by the Technical Implementation Manager.

Summary

The setup is slow due to manual tasks required by the Technical Implementation Manager

CTE Testing

Testing takes on average 2 months

Pain points

1. There are only two supported languages in Citi dashboard. The clients with more modern languages like Python, Ruby
2. There is always a delays in reading emails, which adds to time
3. The code comments need to be more descriptive
4. The client PM has no visibility of where the back-end process is and what issues is stopping it
5. **API's often does not have enough test data to test the functionality and sometimes depend on the Prod environment for testing**
6. Support system in place has too many steps (at least 3 chains) for each issue, even small ones.

Summary

Clients are poorly supported during testing with lack of tools, information and visibility throughout

Production cut-over

Production setup takes 2 weeks

Pain points

1. Client has to update their certificate regularly which is too much hassle.
2. **TIM's are required to create multiple IT tickets through ServiceNow and Marketplace**

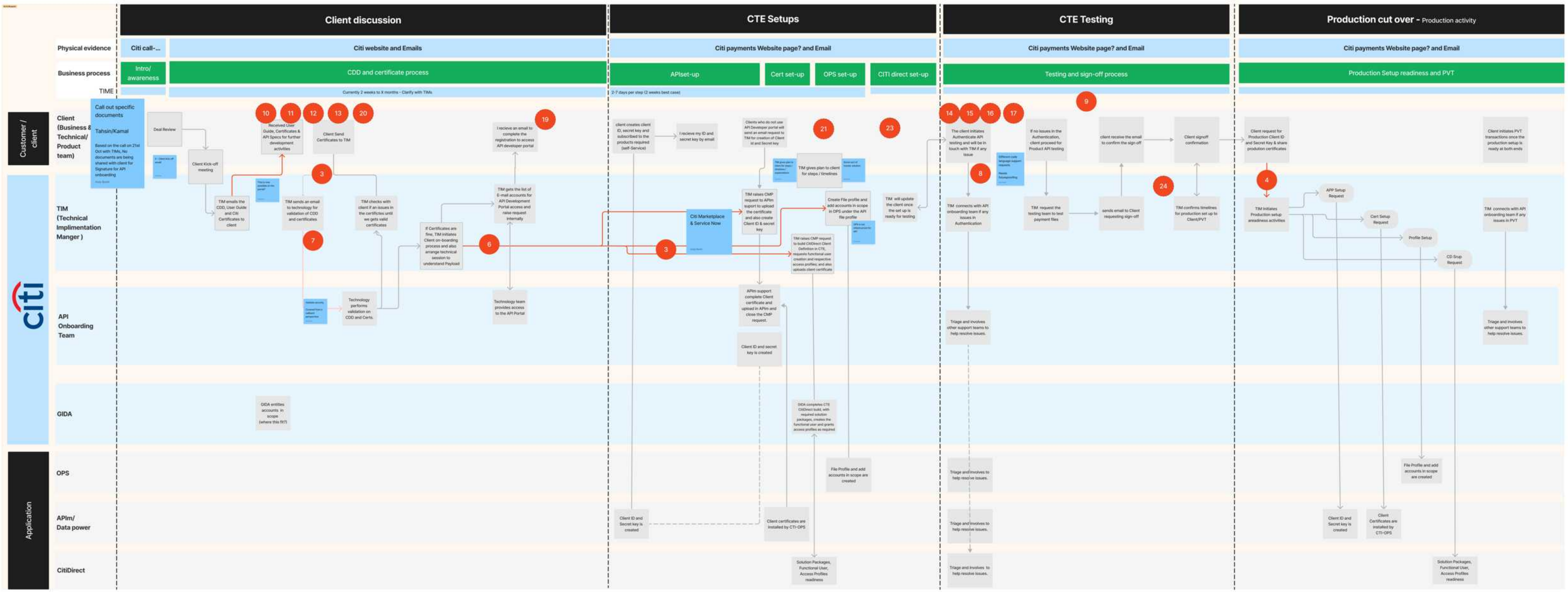
Summary

The setup is slow due to manual tasks required by the Technical Implementation Manager

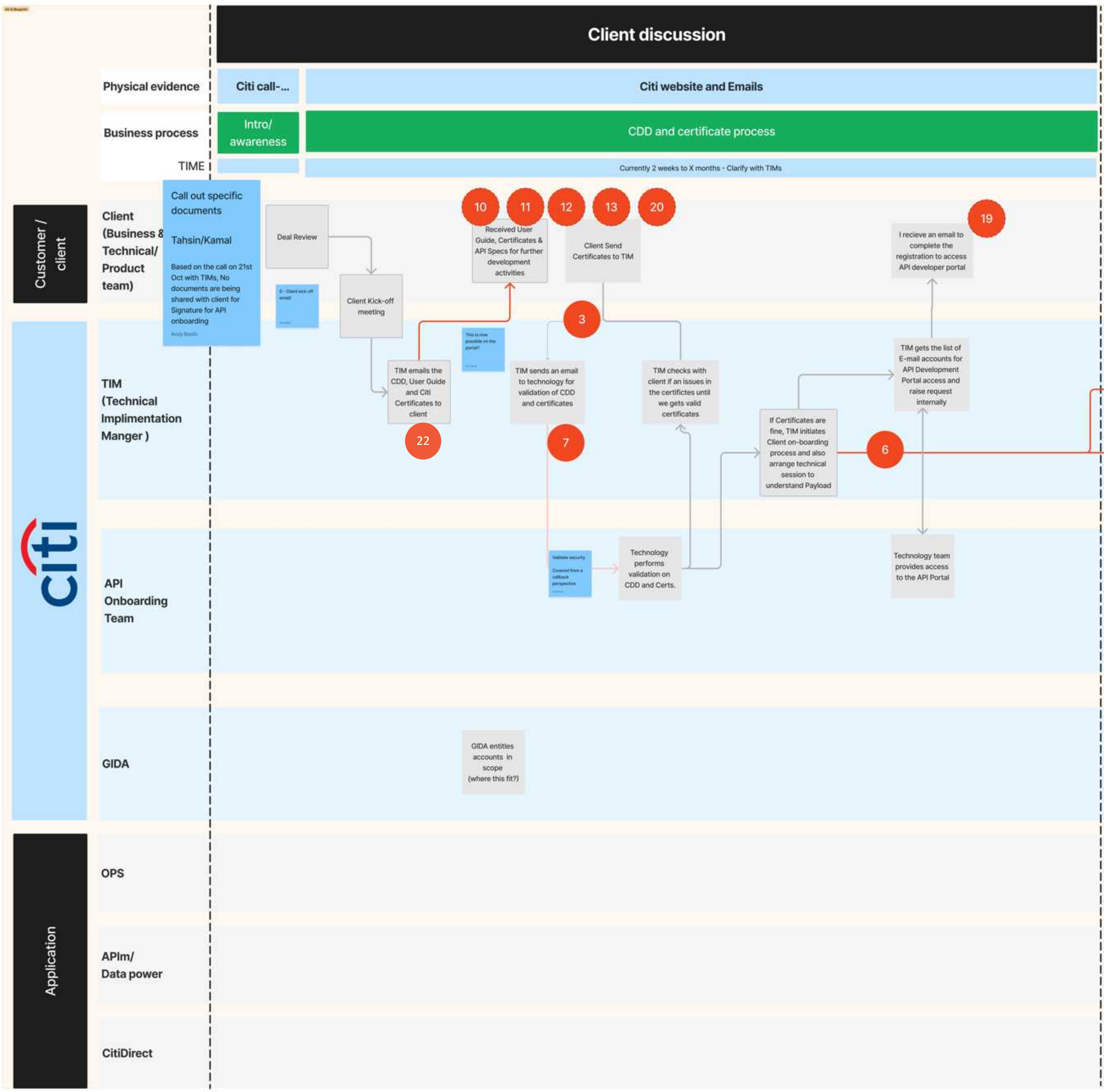
As-is Blueprint

The As-is Blueprint Is a current state analysis tool, mapping the current customer journey and all the business processes involved in the onboarding and implementation of B2B clients at Citi. We mapped out the current journeys for onboarding and testing a B2B client into 4 stages including **Client discussion, CTE setups, CTE testing,** and **Production cutover**.

Through interviewing **Citi's TIMs, Project Stakeholders** and the internal expertise of the team, **24 key issues** were identified which are shown in the image below in numbered red dots. We utilised this Blueprint to brainstorm on ways to resolve or remove the pain points identified including manual service touchpoints, from Technology, Product and Experience points of view.



[Full blueprint can be viewed here]



Client Discussion

Timescale: Currently 2 to 3 weeks as an average. Some of the clients are taking 2 months also to share the certificates

Pain Point 10

API developer has to google each CA to find the contact details.

Pain Point 19

The portal sometimes doesn't appear to open in Chrome. only Internet explorer and Safari are working fine.

Pain Point 11

The user guide page is in pdf and is not updated.

Pain Point 3

Since API development portal is already having these functionalities, but not accessible to all the clients.

Pain Point 12

Many clients submit their certificate with delay. It is mainly because getting certificate is too technical if the client Pm is only a functional PM.

Pain Point 6

Depending on the API's subscribed, various teams are involved in the environment setup like APIM gateway, Citi Direct, Service Now, Citi Market etc.

Pain Point 13

Client has to update their certificate regularly which is too much hassle.

Pain Point 7

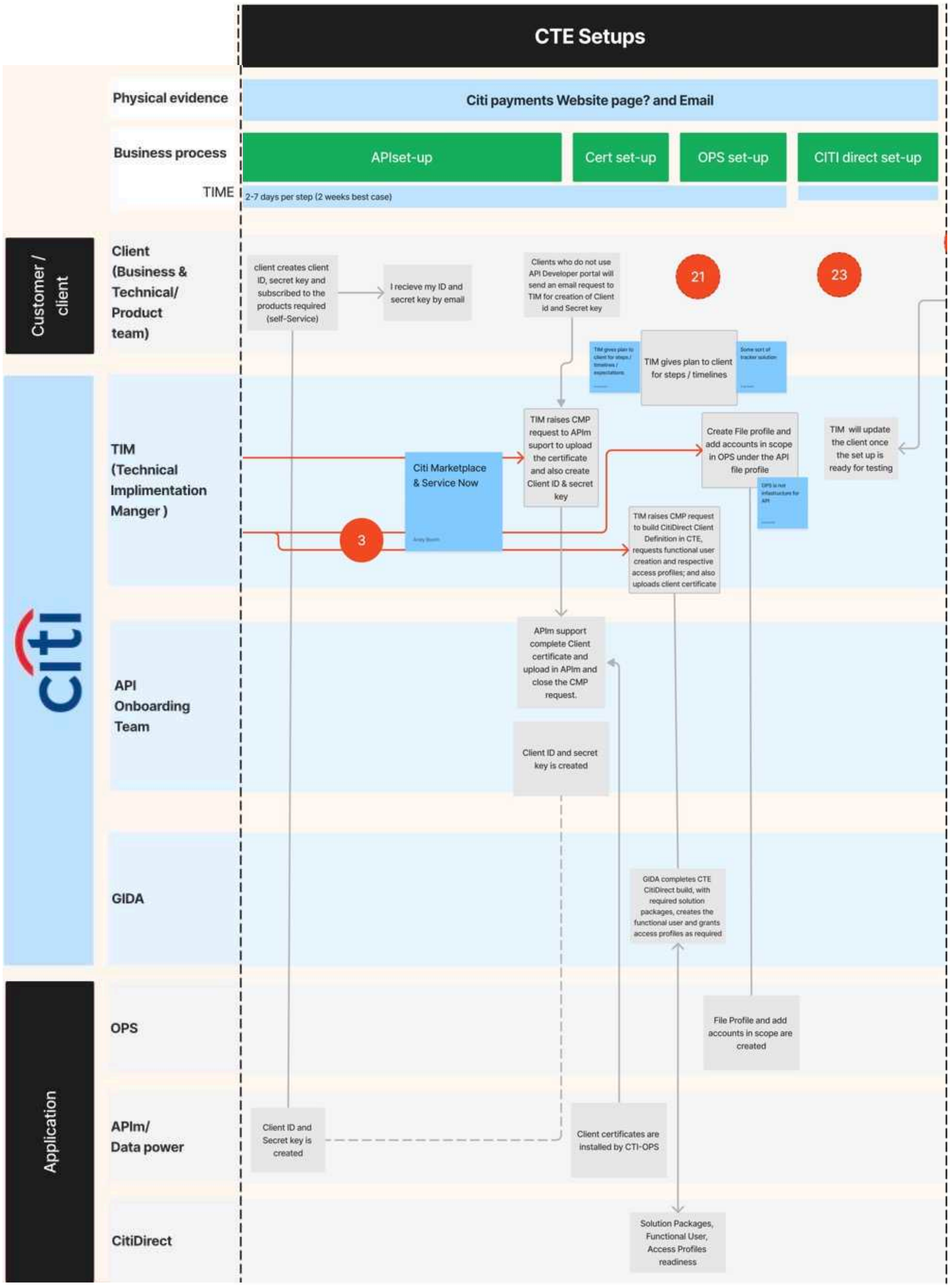
Currently certificates are verified manually and typically takes time b/w 3 hours to 2 days.

Pain Point 20

The portal doesn't open in Chrome only Internet explorer and Safari.

Pain Point 22

TIM sends the document to the clients that are already on the portal because they don't have early access to the portal.



CTE Setups

Timescale: 2 days to 10 days for end-to-end client setup

Pain Point 21

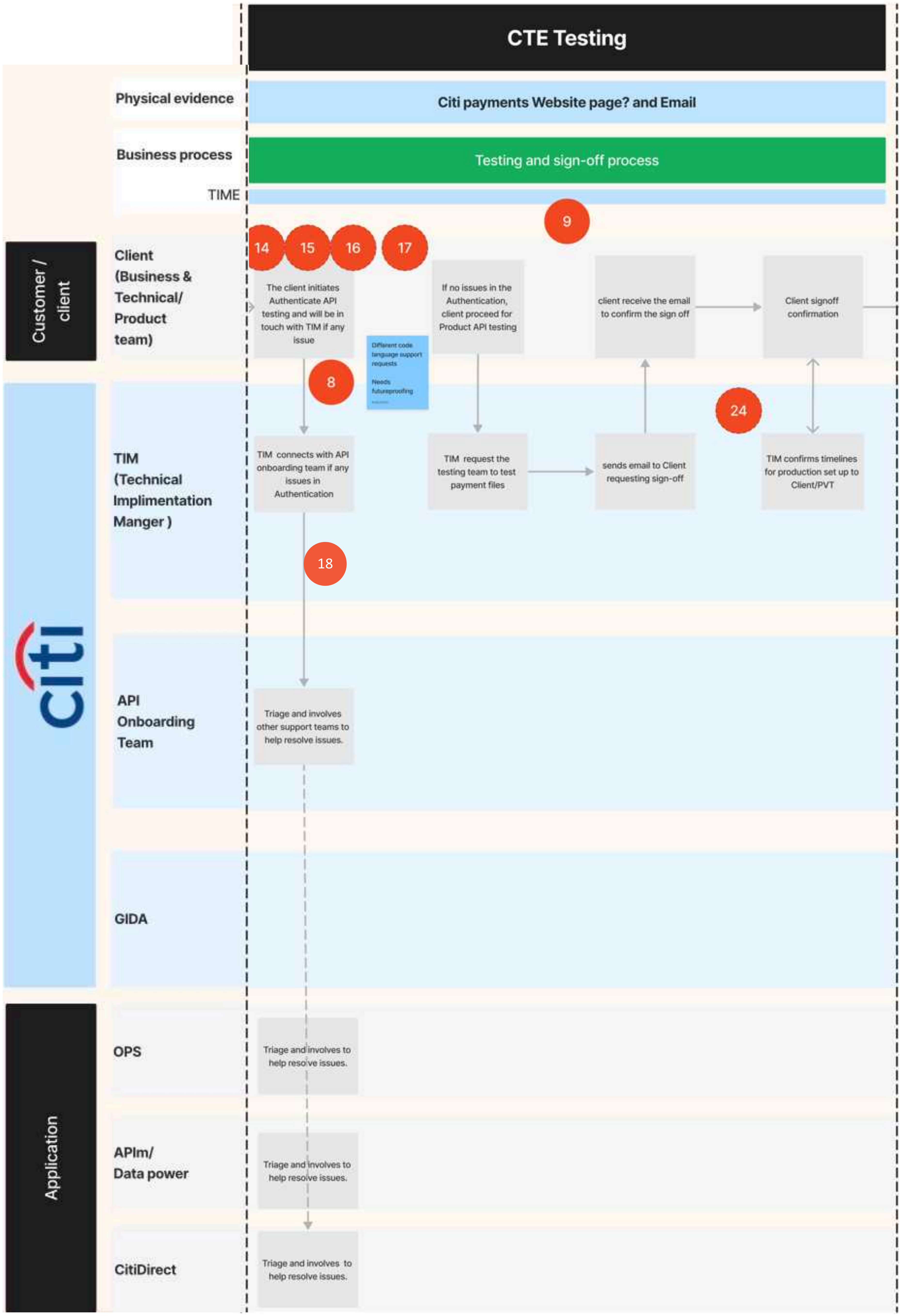
Client has to update their certificate regularly which is too much hassle.

Pain Point 3

Since API development portal is already having these functionalities, but not accessible to all the clients.

Pain Point 23

Setting up test environment takes 2 weeks - lots of tickets to raise.



CTE Testing

Timescale: 2 weeks to 2 months. The majority of the dependency is on client technical capabilities and understanding.

Pain Point 14

There are only two supported languages in Citi dashboard C# and Java. the clients with more modern languages like Python, Ruby. Have to adjust their language first.

Pain Point 15

The code comments can be more descriptive, it is harder to understand rather already complex code.

Pain Point 16

To build the library, the developer need to copy-paste the codes which is time-consuming and may cause an error.

Pain Point 17

The client PM has no visibility of where the back-end process is and what issues is stopping it.

Pain Point 9

Currently Legacy systems support the client setup and are manual in nature.

Pain Point 8

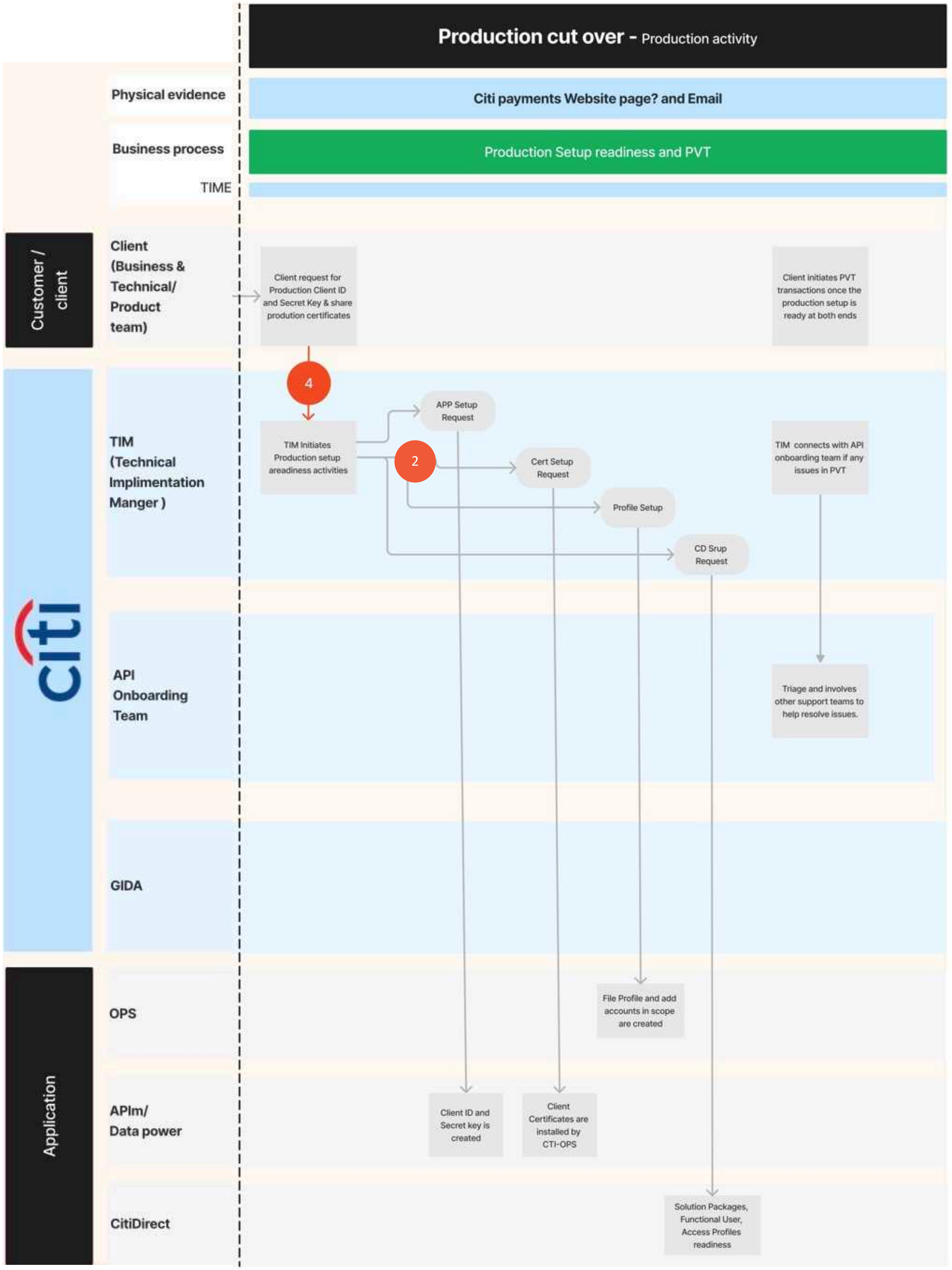
Challenges observed in Testing environment. API's often does not have enough test data to test the functionality and sometimes depend on the Prod environment for testing purpose and conclude the testing activity.

Pain Point 24

There is always a delays in reading emails due to workloads & meetings, which adds to the time it takes for the next step to begin

Pain Point 18

PM is aiming to get the onboarding process done as quick as possible, however the support system in place is too many steps (client developer to the client PM->Client PM to TIM-> TIM to technical support team) and all the way back for each issues even if it is a small ones.



Production Setup

Timescale: Depending on the production readiness timelines agreed between the Client and Citi (Approximately 2 weeks on an average)

Pain Point 4

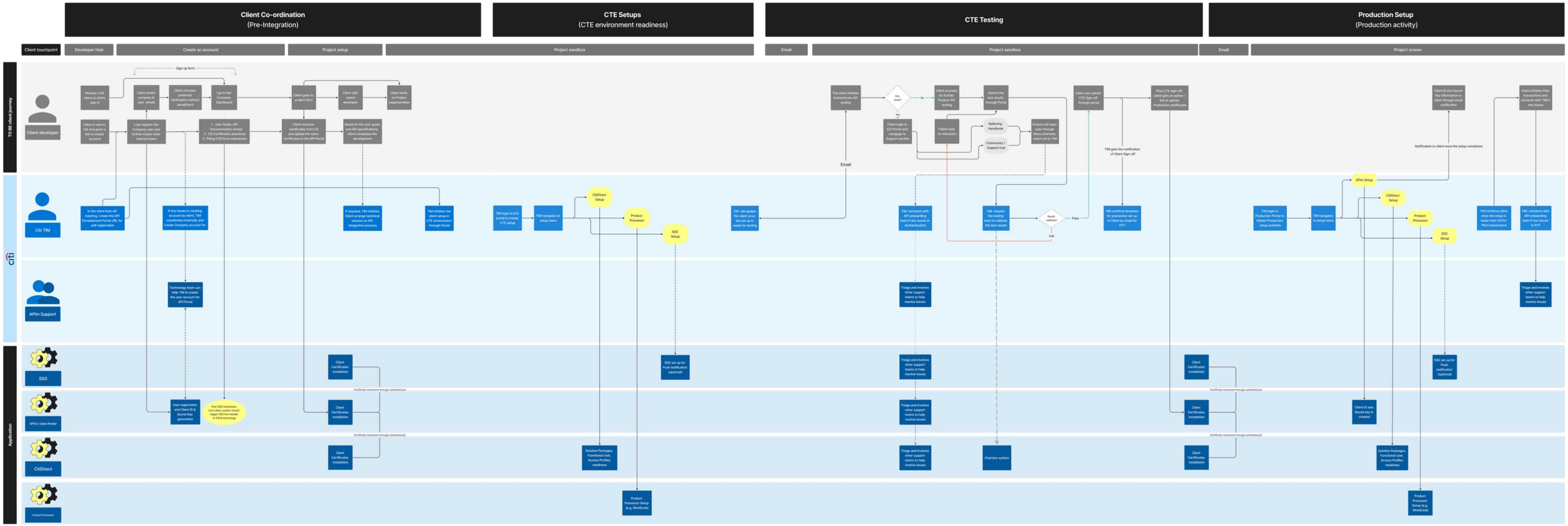
Client has to update their certificate regularly which is too much hassle.

Pain Point 2

TIM’s are required to create multiple IT tickets through ServiceNow and Marketplace

To-be Blueprint

After exploring the recommendations and validating their feasibility with Citi's key stakeholders, the Synechron team **mapped the client journey** for in the To-be Service Blueprint, shown below. The recommended **business processes and technology enablers** were then added to create a holistic view of the future state of Payments Express onboarding. This Blueprint can be used as a **visual mapping tool** with the list of recommendations.



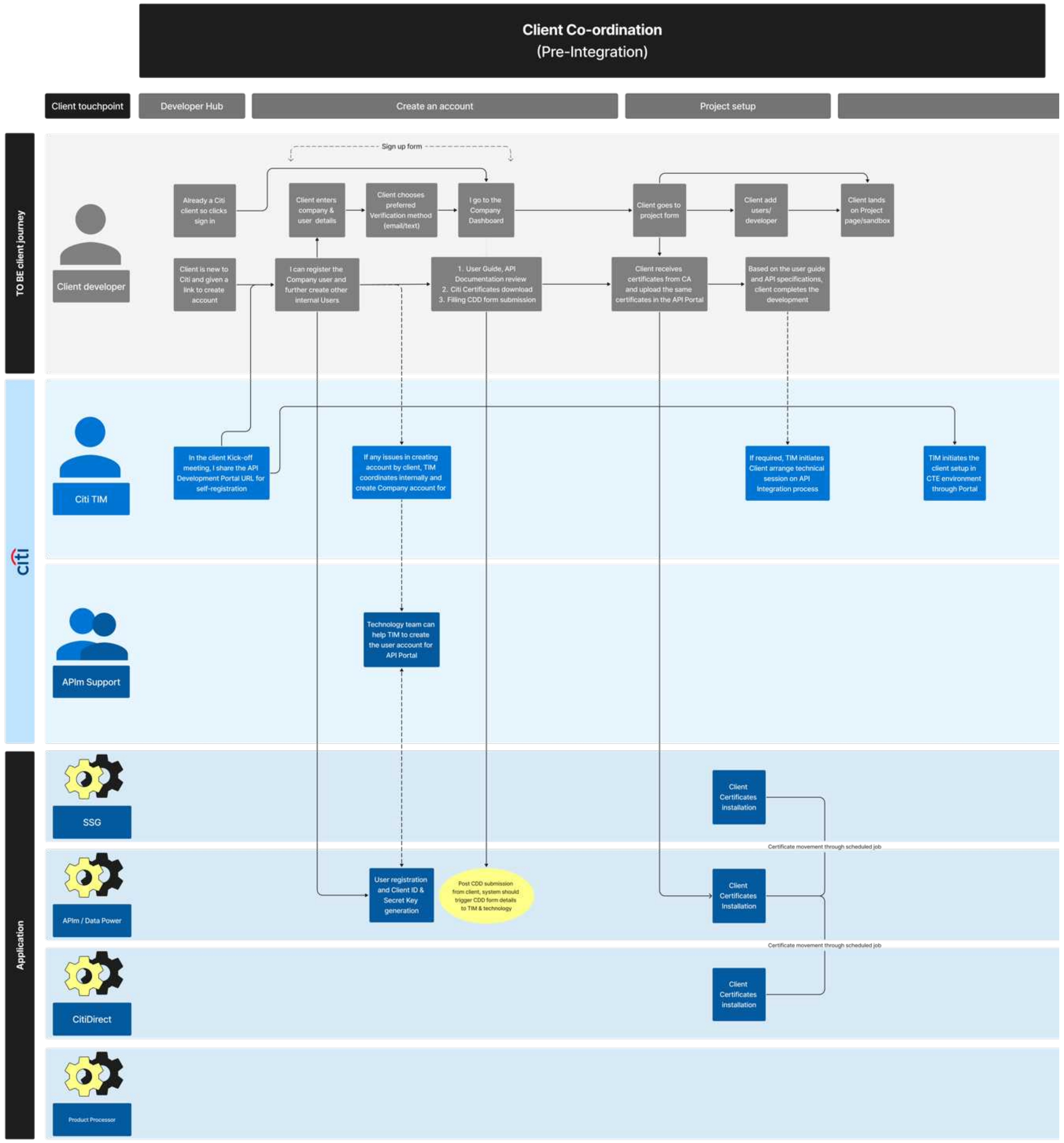
Full blueprint link here

Client Interaction

TIM Interaction

Citi Team Interaction

Automation



[View blueprint here](#)

Client Interaction | TIM Interaction | Citi Team Interaction | Automation

To-be Blueprint

Client Co-ordination

Headline: The new Client Co-ordination stage **no longer requires** email conversations between Client and TIMs. TIM's involvement is greatly reduced at this stage

Timescale: With proposed recommendations, client and TIM can complete these activities in **2 to 3 days maximum**
Note: Certificate procurement from client has the dependency

Recommendation 1

Self Registration (Company Account):
Provision for self company registration to ICG portal. Company user can further create other internal login accounts for the portal based on their roles. This would also help the system to map single Client ID and Secret Keys across all users of single company.

Recommendation 2

CDD Exchange:
The existing process of exchanging CDD form among client and TIM to be digitized by introducing online form through ICG portal
Once client uploads the CDD form, system can trigger an email notification to TIMs to review and take necessary action if needed.

Recommendation 3

Browser Compatibility:
ICG portal functionalities are only working with specific browsers. Since ICG portal is going to become as single point of contact for majority of the onboarding activities, We need to ensure that the portal works with all frequently used browsers like Chrome, Firefox, Safari, Edge, etc.

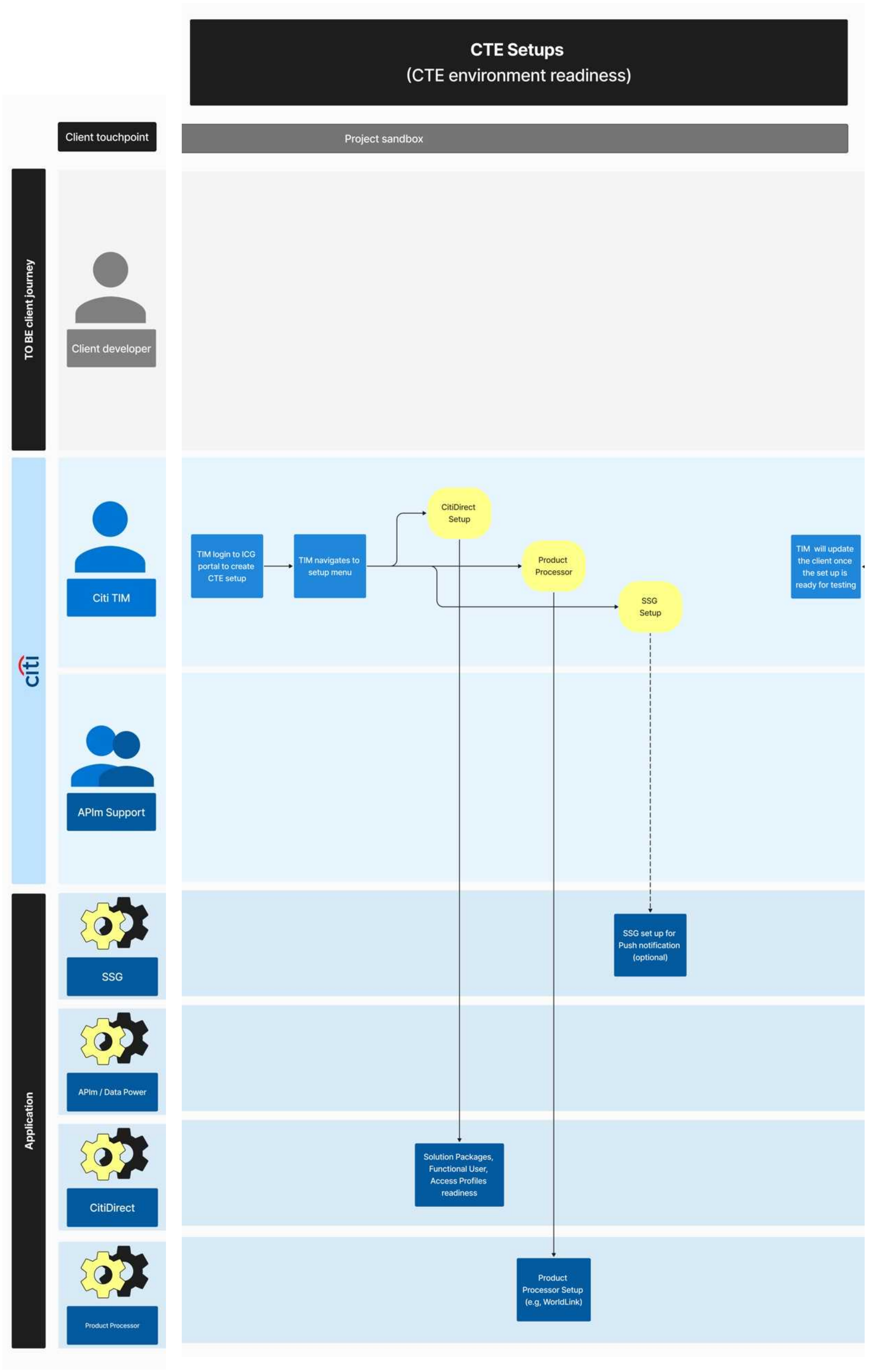
Recommendation 4

User Guide Improvements:
The user guide available in the portal should be updated:
- The screenshots captured are to be latest
- We need to add some kind of information / links regarding the valid Certificate Authorities so that they can refer them to complete the activities related to client certificates

Recommendation 5

ICG Portal access to all clients:
Based on the inputs from TIMs, portal access is not available with all clients across all geographies. We strongly recommend providing the portal access to all clients so that majority of the manual activities from the TIMs perspective would be eliminated

To-be Blueprint



[View blueprint here](#)

Client Interaction | TIM Interaction | Citi Team Interaction | Automation

CTE Setups

Headline: This stage can be automated to **remove all interactions** for Clients, and optional involvement from TIMs

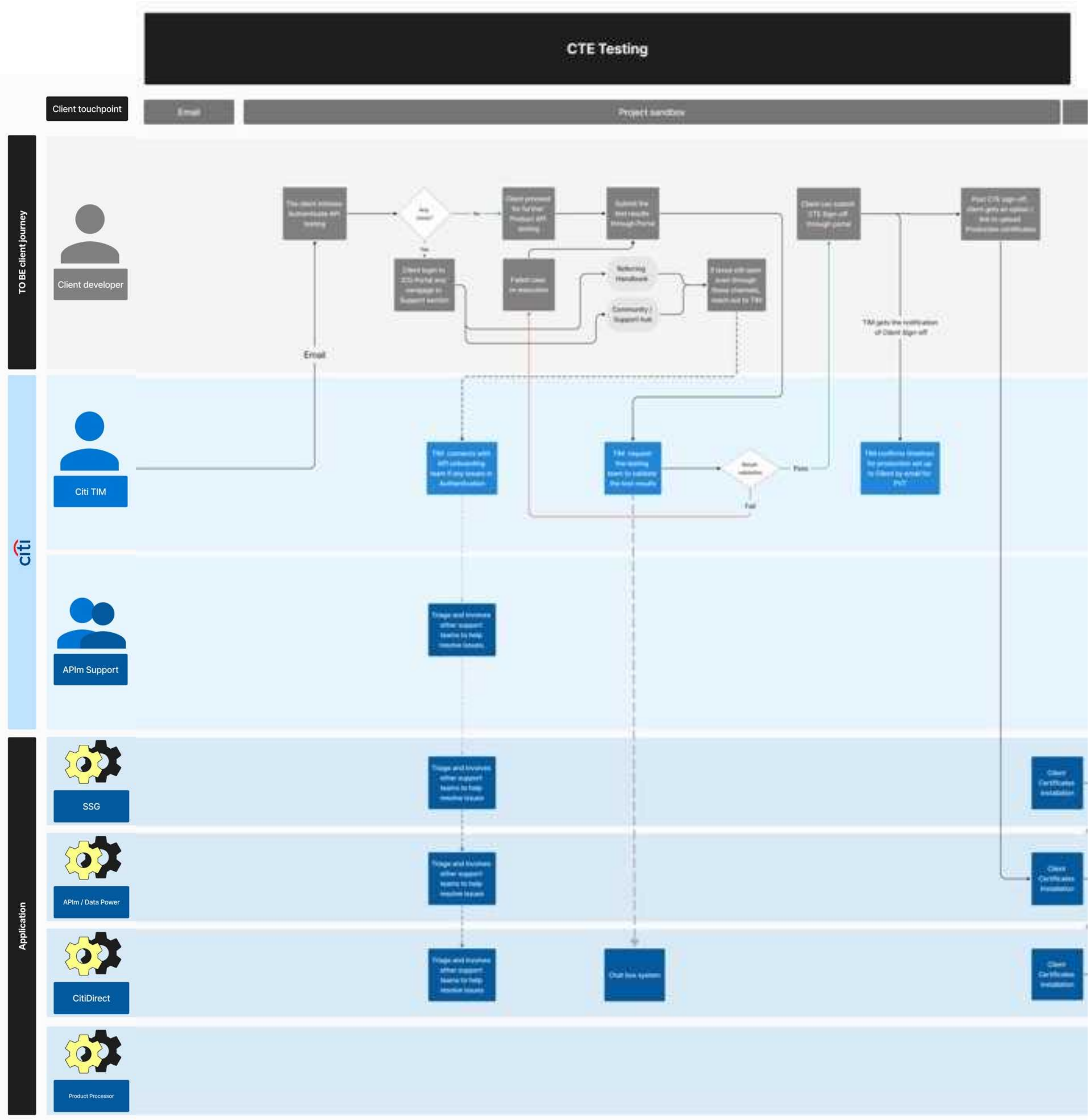
Timescale: Maximum **2 days**

Recommendation 6

CTE Setup Automation:
In the existing scenario, TIMs are raising multiple tickets through ServiceNow / MarketPlace to support teams to complete the setup in the test environment before the client starts the testing. TIMs can be provided with a user interface to initiate and complete this setup process through a few clicks

Recommendation 7

CTE Setup Dashboard:
At present, there is no visibility on the setup readiness and TIMs are maintaining the status of setup readiness manually. We recommend having a dashboard to represent the readiness of each setup so that TIMs can view the end picture and effectively communicate with clients



View blueprint here

Client Interaction | TIM Interaction | Citi Team Interaction | Automation

To-be Blueprint

CTE Testing

Headline: Clients now have a range of **self-service options** to help reduce TIM interactions

Timescale: Once the client completes developments, end to end testing can be complete in **1 to 2 weeks**

Recommendation 8

CTE systems health status:
The health status of each system involved should be available as a dashboard to TIMs so that they can ensure that clients will not face any issues in the testing. This would also eliminate the dependency on support teams

Recommendation 10

Integration Libraries / SDKs:
There are only two supported languages in the Citi dashboard C# and Java. The clients with other frequently used languages like Python, and Ruby. Have to adjust their language first.

SDKs should be available for clients to download and test with minimum configurations

Recommendation 12

Handbook:
We also recommend building a Developer Handbook which details all the possible errors/integration Issues encountered by the client along with details of the resolution.

This will minimize the interaction between clients & TIMs and clients can resolve the integration issues on their own.

Recommendation 14

Developer Logs:
Controlled access to the application logs for developers will remove the dependency on TIM's and equip the developers to resolve the issues in a self-service manner

Recommendation 9

Postman Collection:
Providing a pre-built test suite for all possible scenarios to test the API and are also open to adding more scenarios which the clients can add on.
All product APIs available in the portal can have the standard test case catalogue so that it would help the client to understand the test acceptance criteria for the Sign-off. This would also help the client to handle all mandatory scenarios from a development / Integration perspective

Recommendation 11

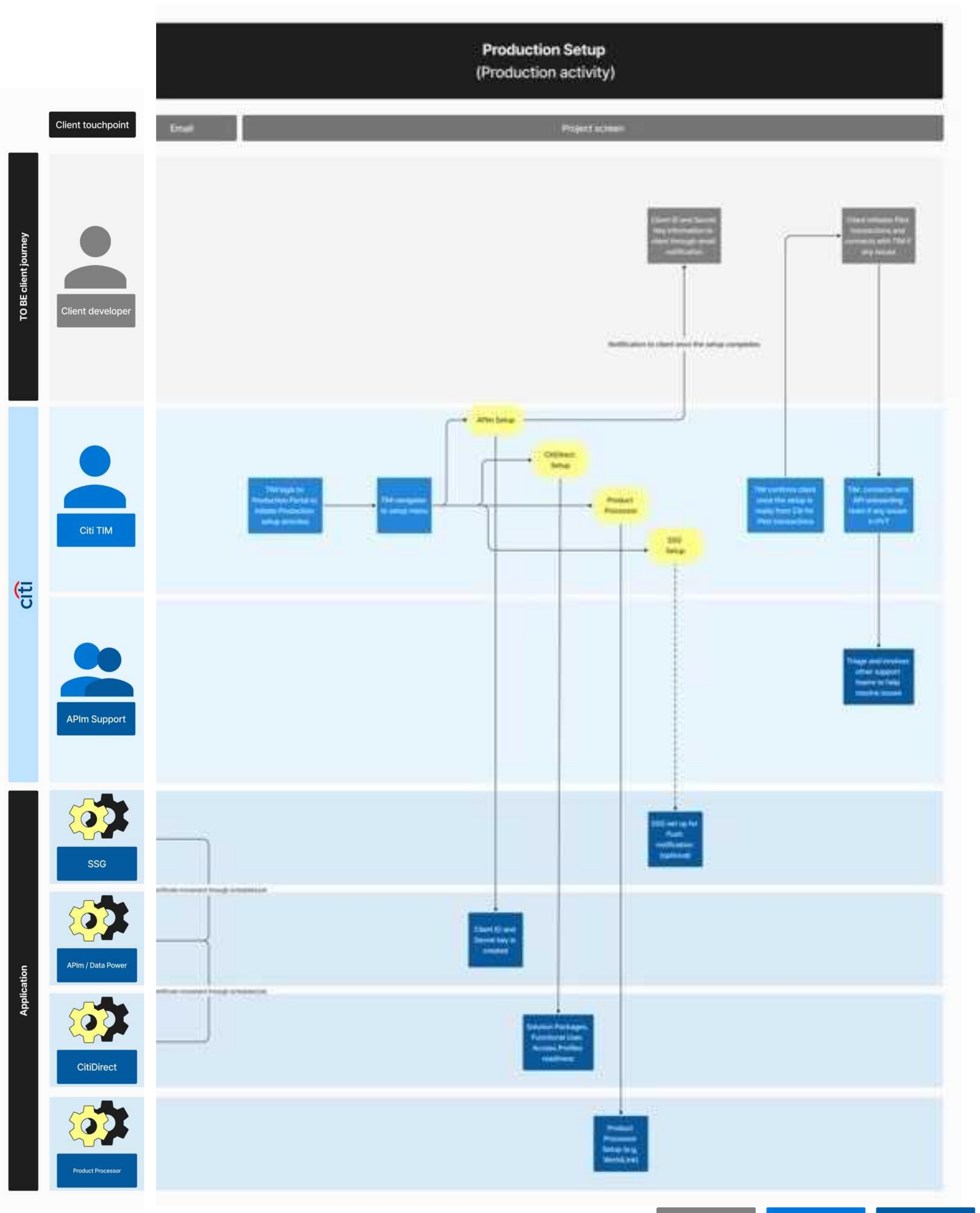
Test Results Dashboard:
The result of the test case execution should be visible to TIMs. This can be used as a data point to provide the Sign-off for API testing

Recommendation 13

Community / Support Hub / Chat bot:
Feature to reach out to the on-call support tech team, build a developer community portal for exchanges/share the experience for issue resolutions, first-level automated chats with a bot

Recommendation 15

CTE Sign-off:
Sign-off option to client through the portal using test results dashboard



[View blueprint here](#)

Client Interaction | TIM Interaction | Citi Team Interaction | Automation

To-be Blueprint

Production Setup

Headline: Production setup can be automated to reduce interactions and time for both Client & TIMs

Timescale: The production readiness activities can be completed in **4 days maximum** (2 days for setup & 2 days for Pilot transaction validation)

Recommendation 16

Production - Client Certificates Upload link:
Link to upload client certificates for Production environment. The system should also validate the certificates uploaded by the client and it should allow only valid file formats

Recommendation 17

Production - Citi Certificates download link:
Citi Production certificates can be made available as downloadable option for clients in similar to the test certificates

Recommendation 18

Production Setup Automation:
In the existing scenario, TIMs are raising multiple tickets through ServiceNow / MarketPlace to support teams to complete the setup in the test environment before the client starts the testing. TIMs can be provided with a user interface to initiate and complete this setup process through a few clicks

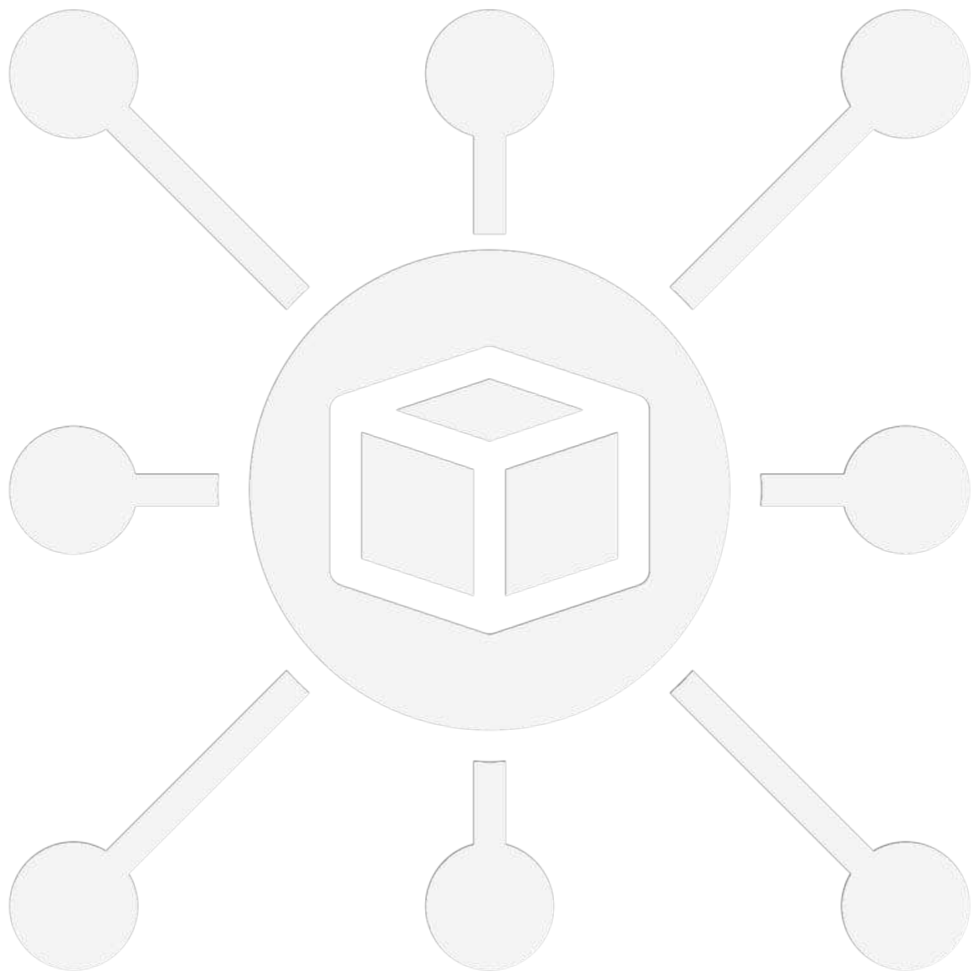
Recommendation 19

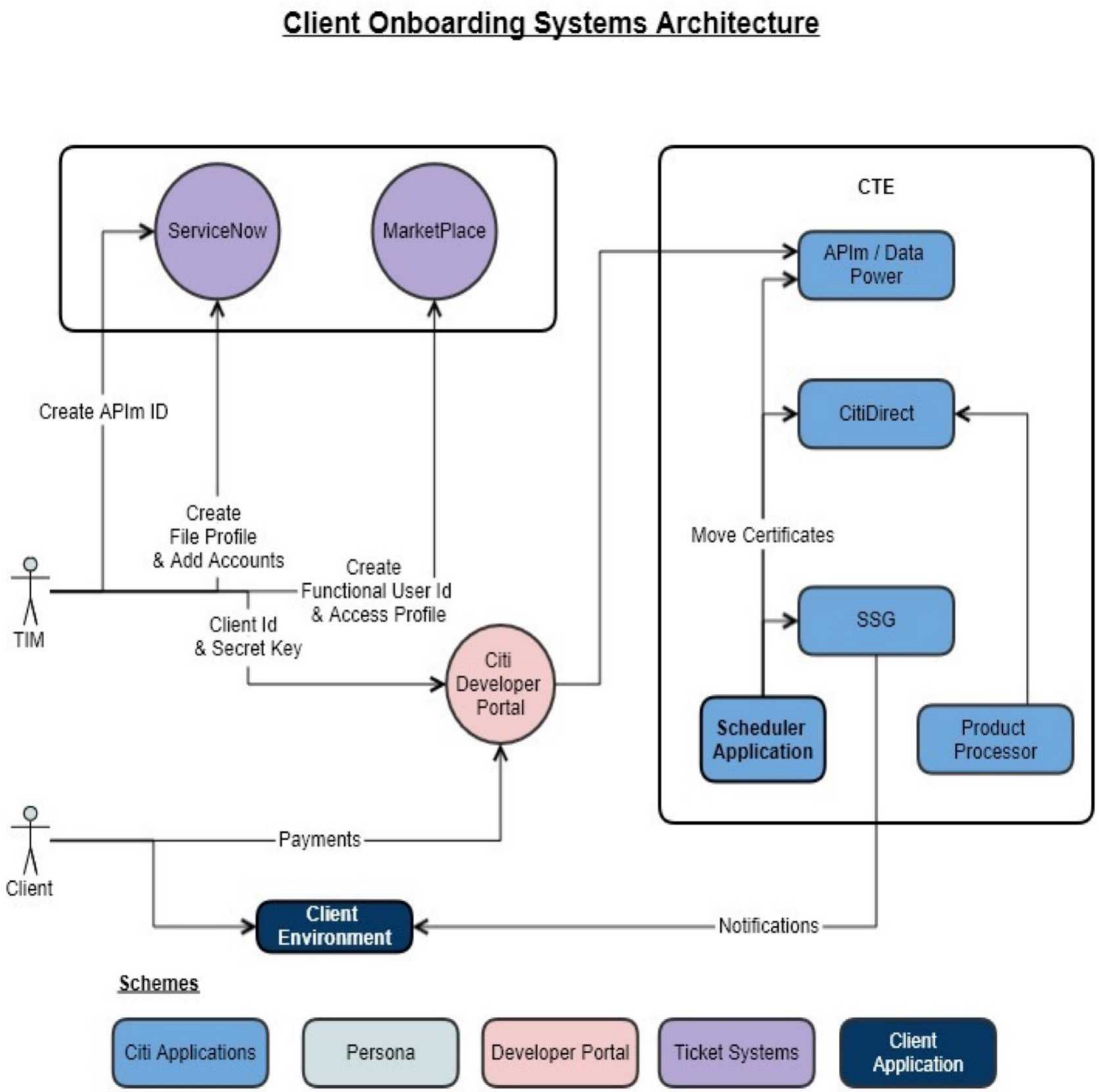
Production Setup Dashboard:
At present there is no visibility on the setup readiness and they are maintaining the status of setup readiness manually. We recommend having a dashboard to represent the readiness of each setup so that TIM can view the end picture and effectively communicate with clients

Recommendation 20

Production System Health Status:
The health status of each system involved should be available in the dashboard to TIMs so that they can ensure that clients will not face any issues in the pilot testing. This would also eliminate the dependency on support teams

Technology





As-is Technical Architecture

Currently Citi's client onboarding is taking anywhere between 4 to 5 weeks and this exercise is to visualize the problems in onboarding journey and provide optimal solutions to Citi which can drastically reduce the Client onboarding time and provide the live status of onboarding for all the stakeholders

What Did We Learn

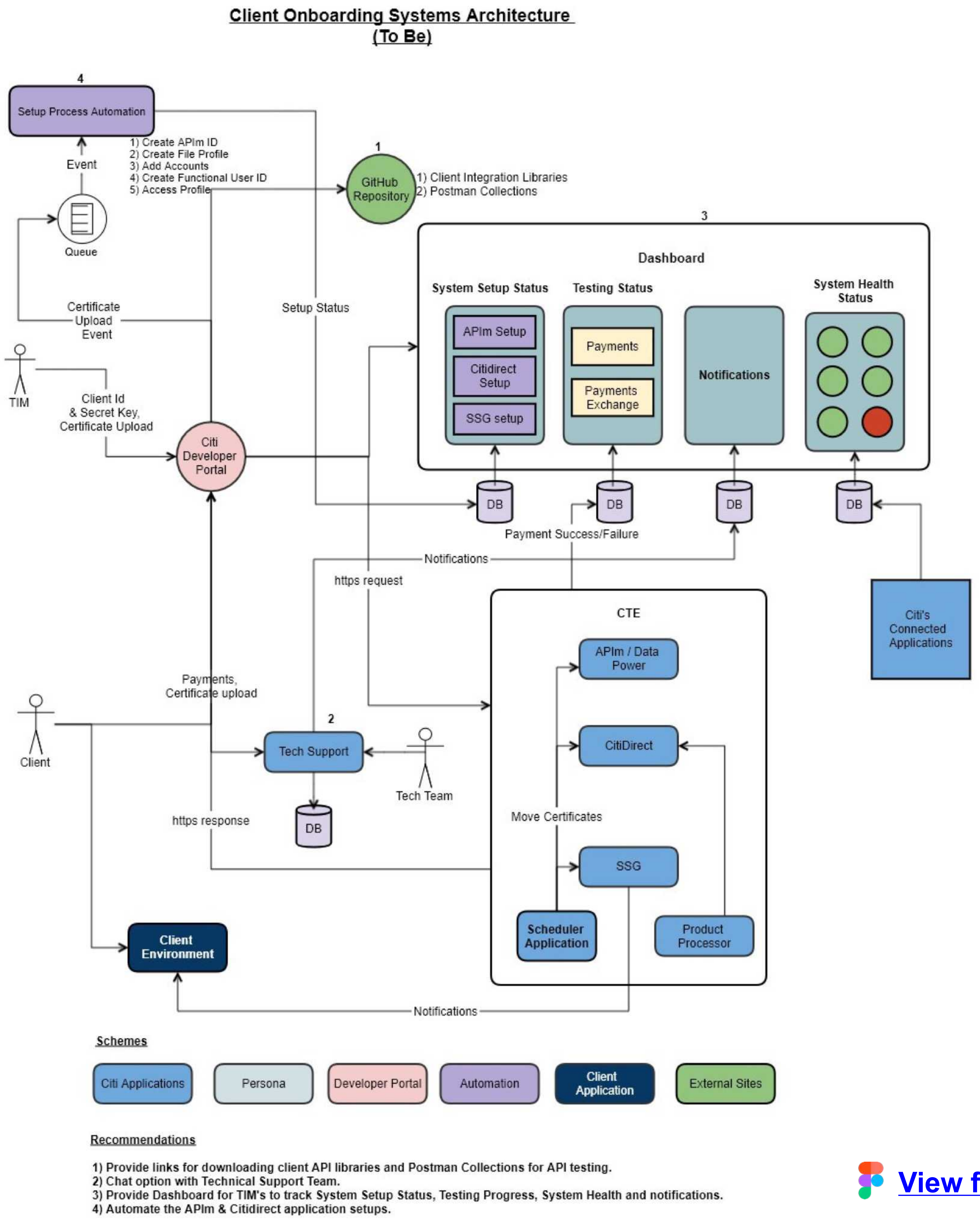
- Various systems, support groups, dependencies between the systems which are involved in the client onboarding activities
- Manual activities performed at various levels
- Multiple IT tickets are required for system setups
- Ticket creations are manual in nature and does not change from client to client
- TIM's manually check the logs for identifying any system issues
- TIM's raise similar tickets for system maintenance
- TIM's does not have the view on progress of testing activity
- TIM's provide end to end support for client starting from certificate requirements, client application integration, support during testing, issue resolution, co-ordinate with support teams

What Can We Start To Think About Improving

- Enhance the portal functionality to integrate with automated processes which are currently in manual
- Identify the bottlenecks quickly which can hamper client testing due to system failures
- Equip TIM's with dashboard which reflect systems health in live
- Provide visibility on client testing progress and avoid

What Are The Next Steps

- Interact with Citi's development team
- Understand the accessibility of CitiDirect, OPS and APIm from a centralized system



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To-be Technical Architecture

Recommendations

- Citi portal to provide links for downloading client API libraries and pre-built Postman collections suite for API testing.
- Chat option with Technical Support Team
- Provide Dashboard for TIM's to track
  - System Setup Status, Testing Progress, System Health, and notifications.
  - System status to indicate the progress on APIm and CitiDirect setup's
  - Test results are captured from the API testing and visualization is provided on the progress
  - System status health is reflected in the dashboard for all the connected systems in CTE and downtimes are easily noticeable
  - Notifications are provided on all the key events related to system health/setup, testing progress, support escalations
- TIM can initiate the Automated system setup in APIm & CitiDirect environment.

User benefits

Client Developers

- Links for downloading client libraries/SDK's, Postman Collection Test Suite
- Easy accessibility for reaching Teach Support & automated escalations for TIM's
- Access to developer handbook and application logs

Client PM

- Visibility on testing progress & verify accepted sign-off criteria, Initiate Sign-off for Production

TIM's

- Dashboard to track the overall onboarding journey
- Initiate Automated system setup's
- Notifications on all important aspects during client onboarding
- Visibility on testing progress & system health, proactively notify client

Citi Tech Support

- Lesser number of IT tickets

Recommendations

To define the recommendations further from the overall blueprint view, we have split them in to **5 categories**.
Each category has its own collective set of **clear benefits** to help build a fully digital onboarding experience. We have validated these recommendations with Technical Implementation managers, Production Support Teams & Multiple Citi Clients.

Account Creation

Recommendations

- Self-service account creation
- CDD Exchange

Key Benefits

- ✓ Removes manual steps
- ✓ Allows clients to access portal features fast
- ✓ Reduces onboarding time by up to 12 days

Impact

Account creation would be instant -

Skills needed to build

- UX design
- Business Analyst
- Backend Developer
- Frontend Developer
- Test Engineer / QA

Developer Self-service & Testing

Recommendations

- CTE setup automation
- User guide improvements
- Postman collections
- Integrations libraries/SDKs

Key Benefits

- ✓ Allows developers self-service during testing
- ✓ Provides automation for testing setup process

Impact

8 days removed from current CTE setup & ability for clients to test faster

Skills needed to build

- UX design
- Frontend Developer
- Business Analyst
- API / Backend Developer
- Test Engineer / QA

Technical Implementation Manager Dashboard

Recommendations

- Test results dashboard
- CTE setup dashboard
- CTE system health status

Key Benefits

- ✓ Visualizes client onboarding progress for TIMs
- ✓ Allows easy identification of issues
- ✓ Reduces manual contact

Impact

Allows TIMs to support clients faster, removing emails

Skills needed to build

- UX Design
- Frontend Developer
- Business Analyst
- Backend Developer
- System / Network Administrator
- Test Engineer / QA

Developer Experience Improvements

Recommendations

- CTE sign off
- Developer logs
- Community & help
- ICG portal access to all clients
- Handbooks
- Browser compatibility

Key Benefits

- ✓ Remove dependencies on TIMs
- ✓ Improve user experience for Clients

Impact

Process goes from 3 weeks to 2 days

Skills needed to build

- UX design
- Implementation Manager
- Frontend Developer
- Backend Developer
- Test Engineer / QA

Production Setup

Recommendations

- Production - Client Certificates Upload/Download
- Production setup Automation
- Production setup dashboard
- Production System Health Status

Key Benefits

- ✓ Automate ticket creation process for TIMs
- ✓ Reduce dependencies on support teams

Impact

11 days removed from current processes

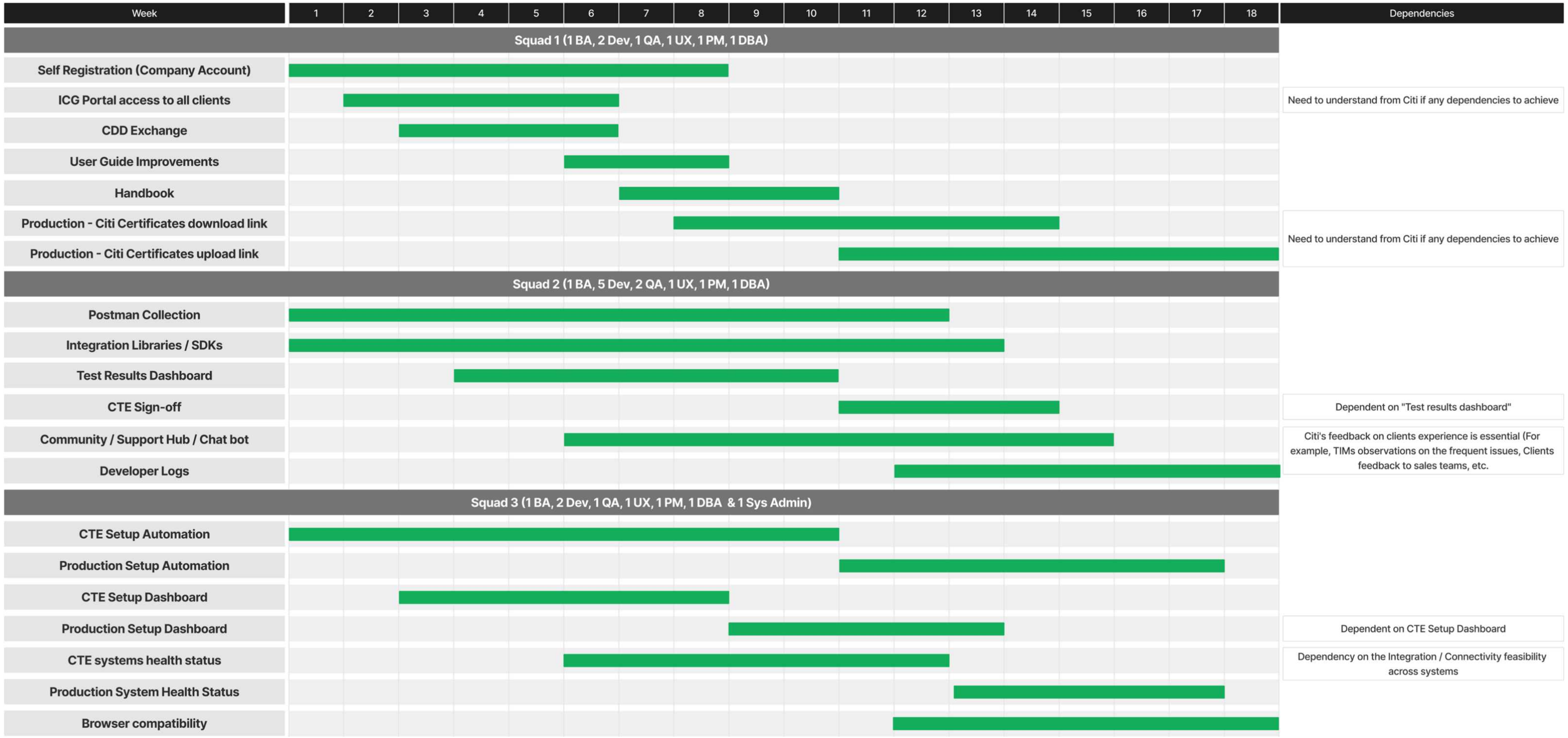
Skills needed to build

- Frontend Developer
- Implementation Manager
- Info Sec Specialist
- Backend Developer
- System / Network Administrator

Next steps: **Proposed Implementation Plan**

Based on the synthesis of the detailed 8-week discovery, we have created an initial proposed release plan for the implementation of a **fully digital onboarding journey** for **Citi**, breaking down the key features into achievable tasks that drive maximum impact

Proposed Release Plan



Assumptions:

1. Timelines may vary post understanding the internal system design and the way components are coupled upon further discovery
2. This is based on the recommendation of "Integration Libraries / SDKs" for three languages (Java, C#, Python). Any additional language SDKs/Libraries readiness would lead to additional efforts
3. This is with an assumption that all 3 squads are available for the delivery, which prevents delays across implementation for the entire digitalisation of onboarding
4. Available skillset: Business Analyst; Project Manager; Full Stack Developer; Test Engineer; UX/UI Designer; System/Network Administrator; Database Administrator; Technical/Solution Architect

Recommendations Appendix

Competitor inspiration:

Self-Registration
(Company account)

User That Benefits
Client developer

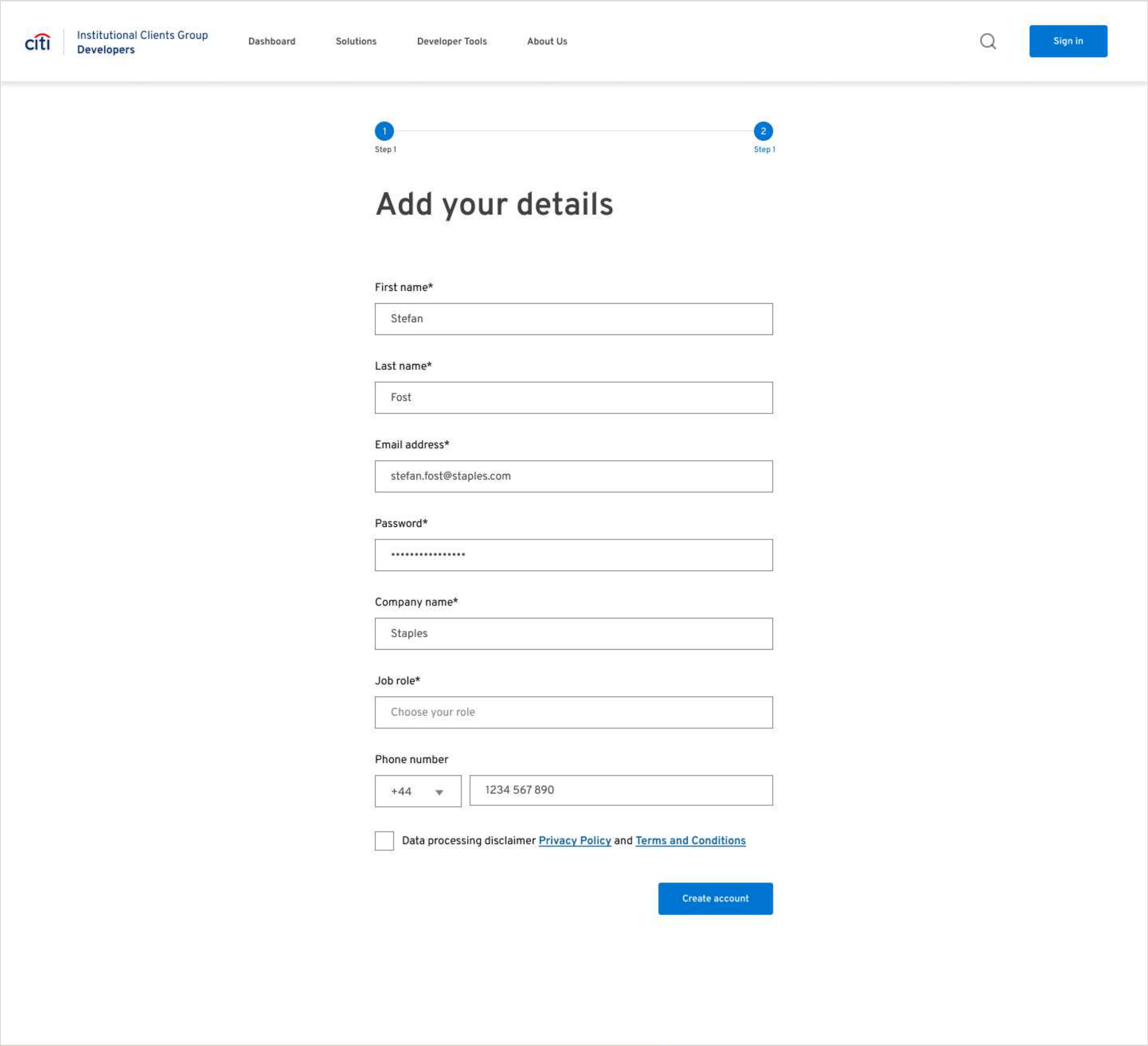
Pain Point
Clients currently can't onboard themselves without slow, manual processes

Solution
- Provide a simple sign-up process that allows users to access the developer portal.

Benefits

- Removal of a manual processes
- Ability for client to self-serve (e.g. CDD doc)
- This will feed into Client ID and Secret Key generation process improvements

Impact
Account creation takes **2 hrs**



User detail form

Competitor inspiration:

CDD Exchange

User That Benefits
Client developer, TIMs

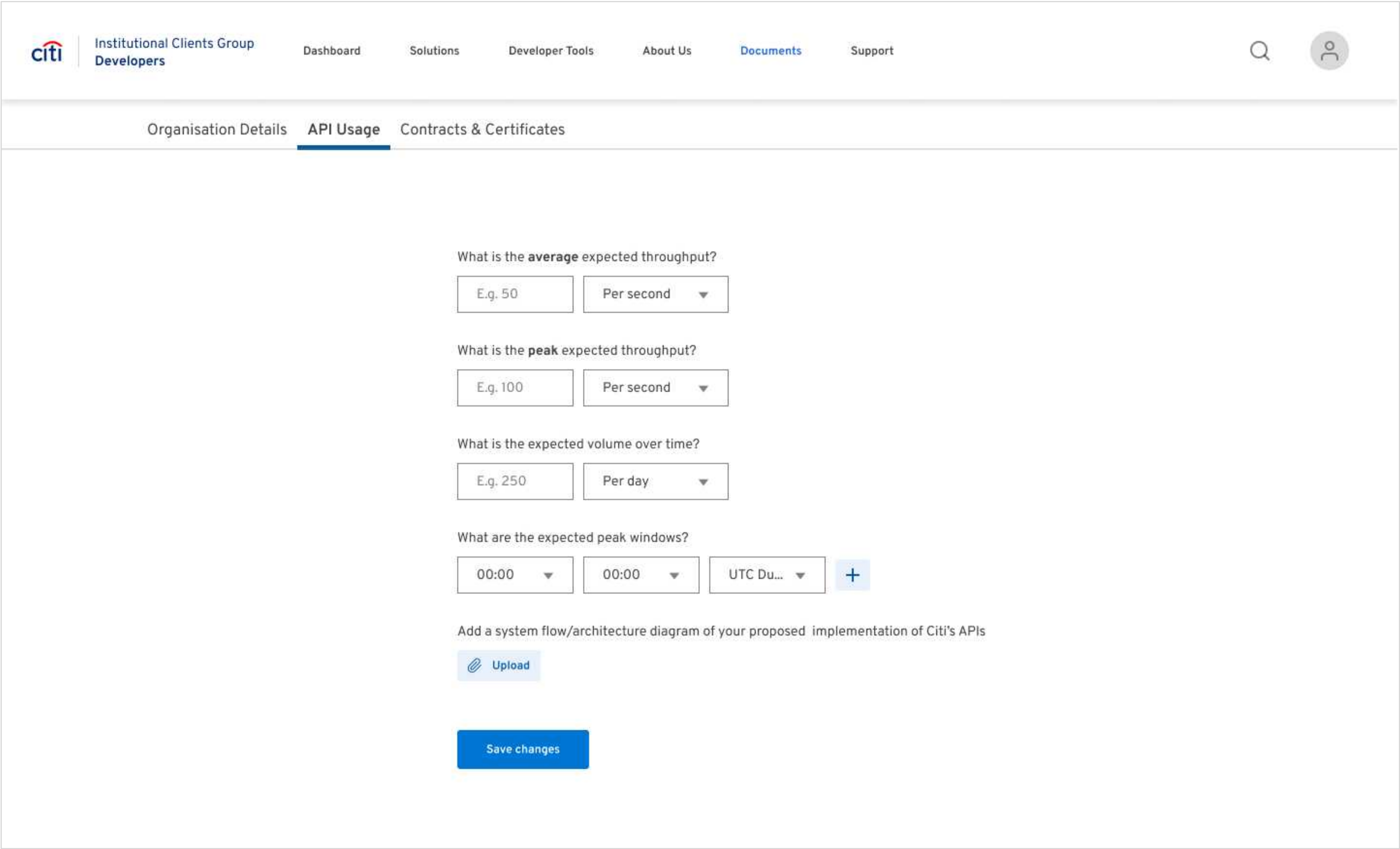
Pain Point
Currently the Client Discovery Document is being shared via email and manually completed in ink

Solution
- API Developer Portal to have one form to capture the information of CDD
- Once the client submits the details, System can trigger the notification to respective teams for validating the data and take necessary action from systems perspective
- TIMs can take necessary action with Product / Technical teams if the details shared by client are abnormal or beyond our existing system capabilities

Benefits

- Manual activity to exchange the client discovery document can be eliminated
- Data submitted by each client can be recorded in system so that technical teams can refer this at any time in future
- Minimum of 1 day time would be saved by automating this activity

Impact
Reduction of **2 days**



Online CDD form

Browser Compatibility

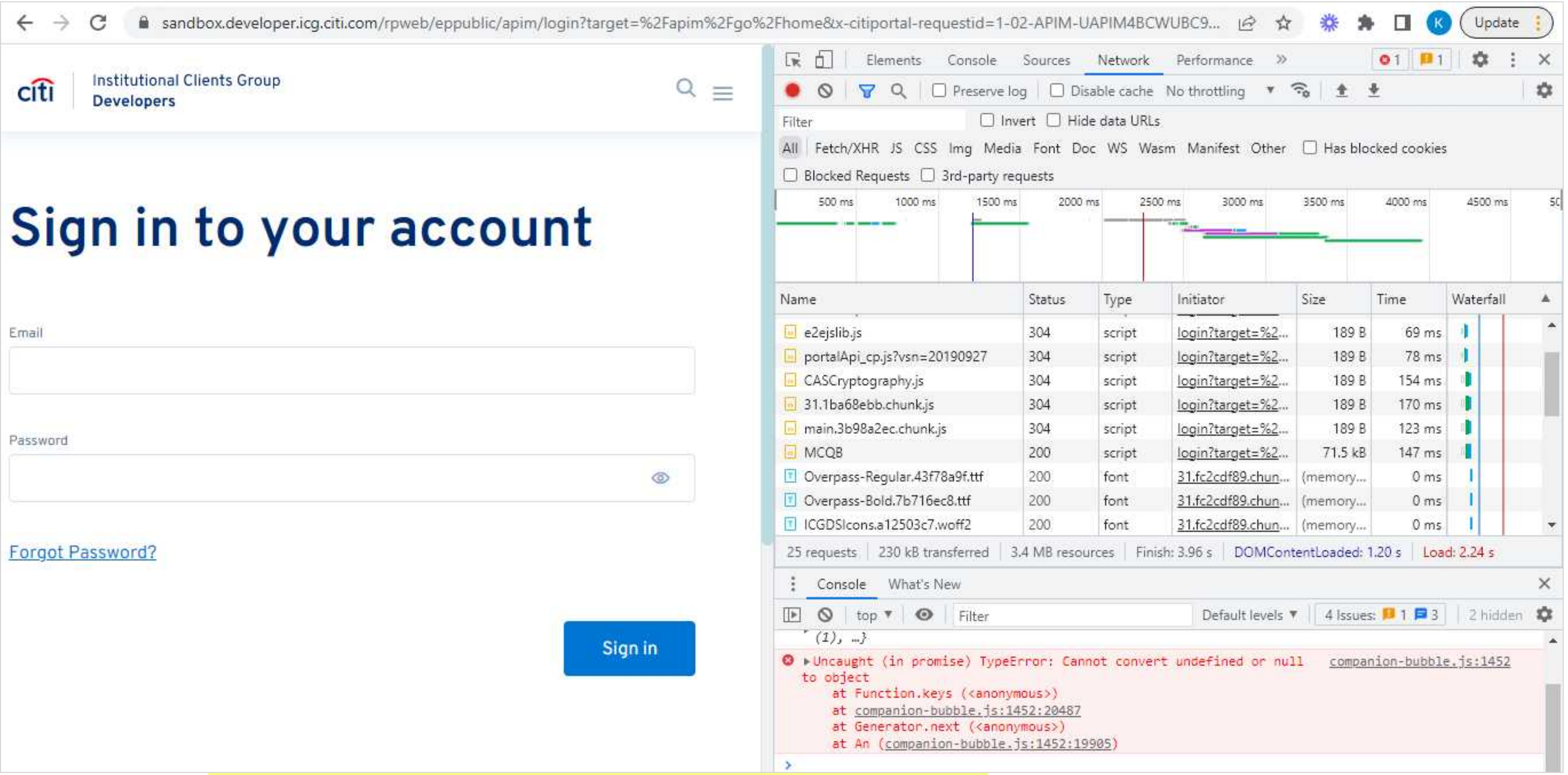
User That Benefits
Client developer

Pain Point
Looks like ICG portal functionalities are working with specific browsers. Since ICG portal is going to become as single point of contact for majority of the onboarding activities,

Solution
- Ensure that the portal works fine with all frequently used browsers like Chrome, Firefox, Safari, Edge, etc.

Benefits

- No browser dependency. Clients can use any browser to look at the functionalities of ICG Portal
- In the existing scenario, Majority versions of Chrome browser are not presenting proper error messages which leads the user to reach out to TIMs manually. This can be avoided



Sample issue screenshot from Chrome browser

Impact
Reduced contact from Clients due to issues

User Guide Improvements

Competitor inspiration: Airwallex stripe

User That Benefits
Client developer

Pain Point
The API user guide through is downloadable in the API Development Portal in PDF form. The screenshots captured in the user guide are looking old and not matching with the latest API development portal

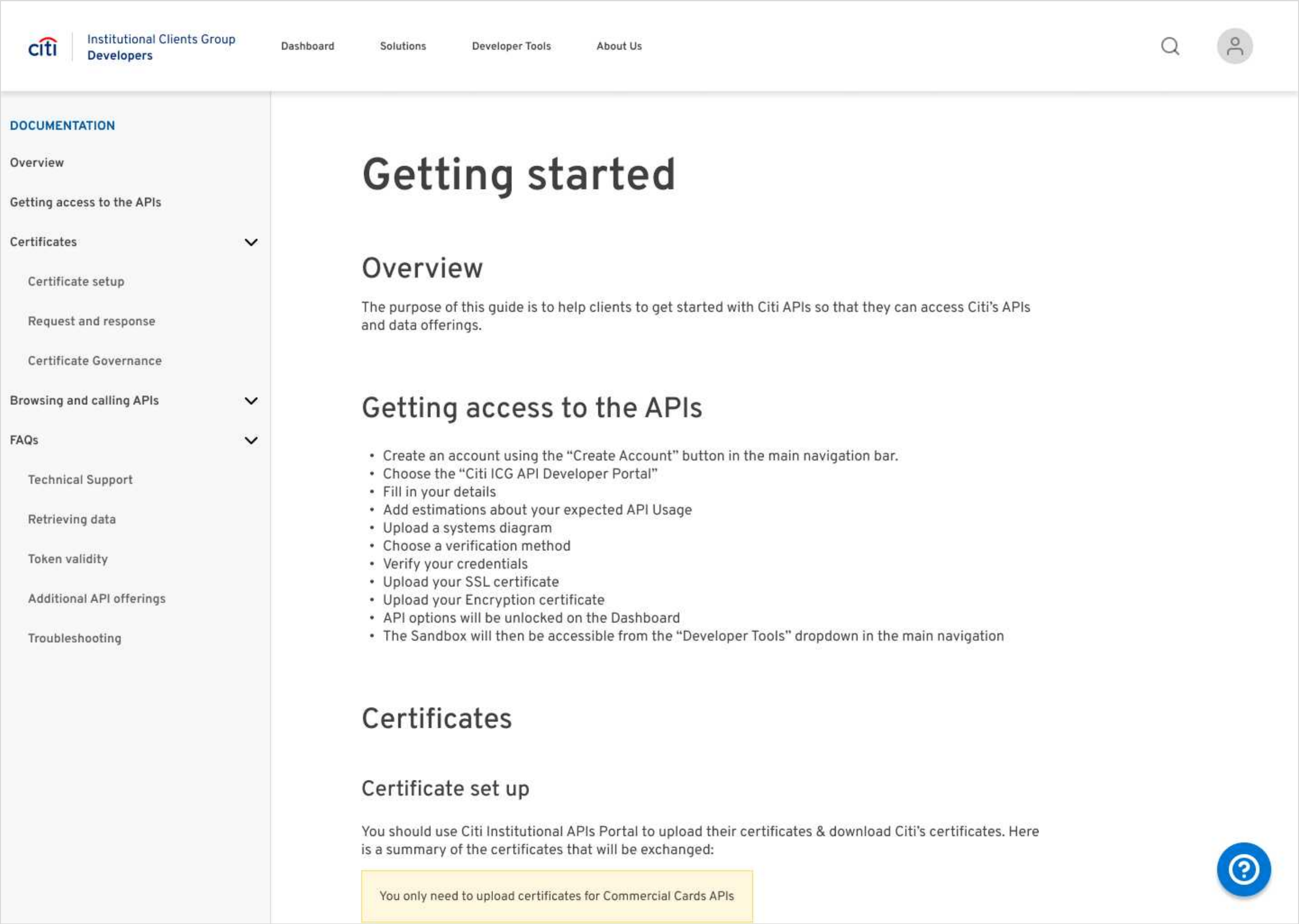
Similarly, all other screenshots captured in the user guide should be revised according to the latest user interface available in the portal for clients.

Solution
- Provide an online version of the handbook
- Provide publicly accessible API docs
- Update guide for latest user interface

Benefits

- Clients can self-serve problems – Digital deflection
- Reduction of call times/onboarding times
- Avoids user confusion on conflicting guides

Impact
Reduction of human support needed



API user guide

Competitor inspiration:

ICG Portal Access To All Clients

User That Benefits
Client developer

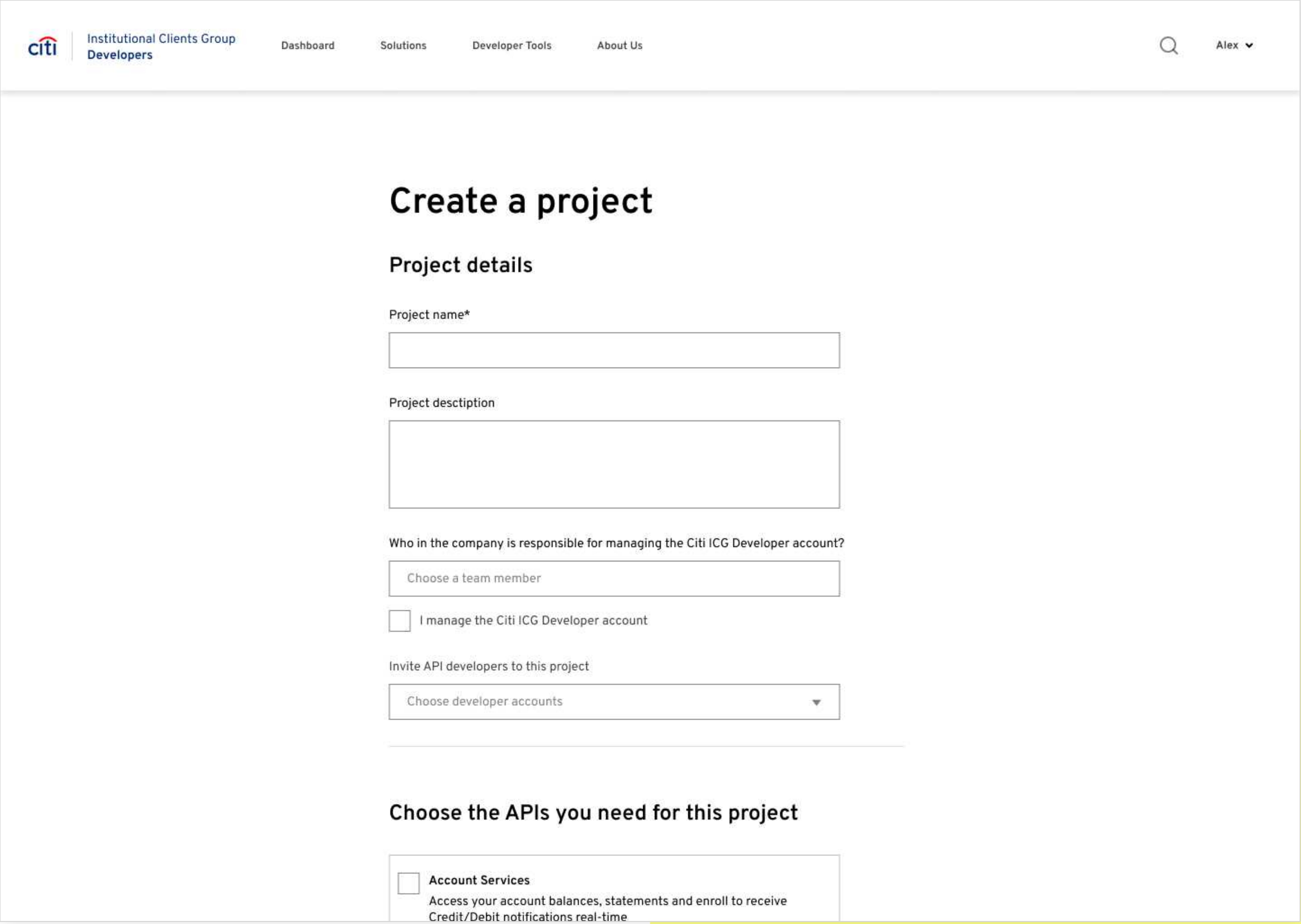
Pain Point
If the client requests Citi to provide portal access to different set of people internally (Business/Product, Technical, Project Managers, Developers, etc.) Citi is creating multiple users, but every user is being mapped with new set of credentials (Client ID & Secret Key). i.e, every user from client has a different set of Client id and keys.

Solution
- API Development portal should have the self-registration option for clients.
- As part of the registration, we can collect the information like username, email, mobile number, role, etc. to send the registration link to user
- Client can use this user account further to create any internal users and all those users should be mapped with this client admin account
- All the users mapped to this client admin should be able to see only one set of credentials (Client ID & Secret Key).

Benefits

- No dependency with TIM to get the API development portal access. Manual interaction between Client and TIM can be eliminated
- Self-registration flexibility from client
- Existing issue of multiple Client ID creation per each client can be avoided

Impact
Process goes from 2 to 3 week to **2 days**



Project and user creation

Automated System Setup (CTE Setup & Production)

User That Benefits
TIMs

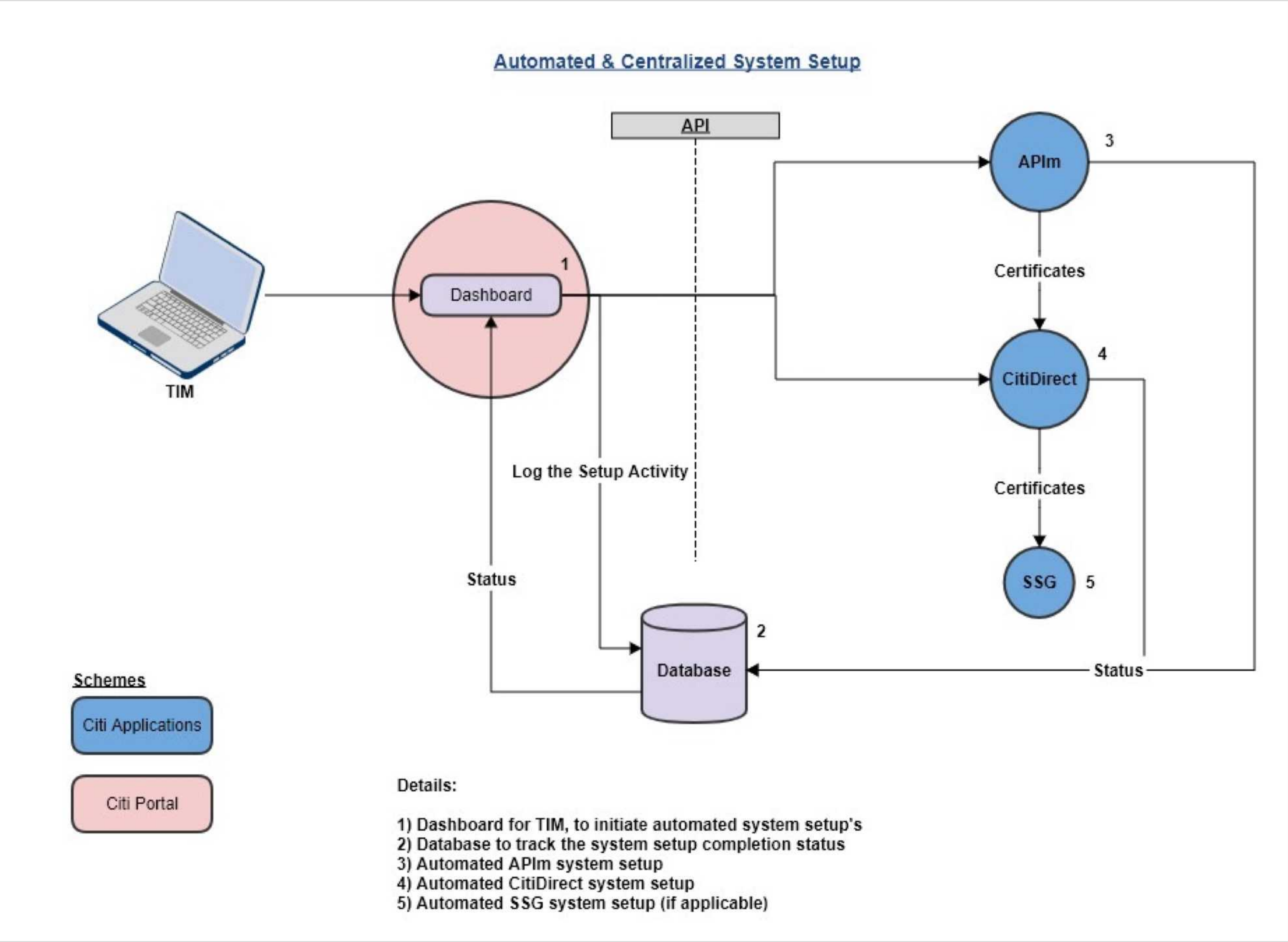
Pain Point
Once the documents are received and verified from the client, Citi must create multiple IT tickets in ServiceNow/Marketplace applications. This process is time-consuming and monotonous in nature and hard to track the progress.

Solution
- Provide a dashboard for TIM to initiate the automated system setups.
- Track the progress of system setup in one place.
- Automatically notify the relevant stakeholders on system setup completion and quickly enable the onboarding activities.

Benefits

- Multiple system setup for a given client can be started simultaneously
- Dependencies can be easily notified and tracked cutting down the delays
- Likely reduction of costs for ticketing tools licensing

Impact
Reduction up to **8 days** on each setup



Recommended setup

CTE & Product Setup Dashboard

User That Benefits

TIMs

Pain Point

TIMs are raising multiple tickets through ServiceNow / MarketPlace to support teams to complete the setup in test environment before client starts the testing.

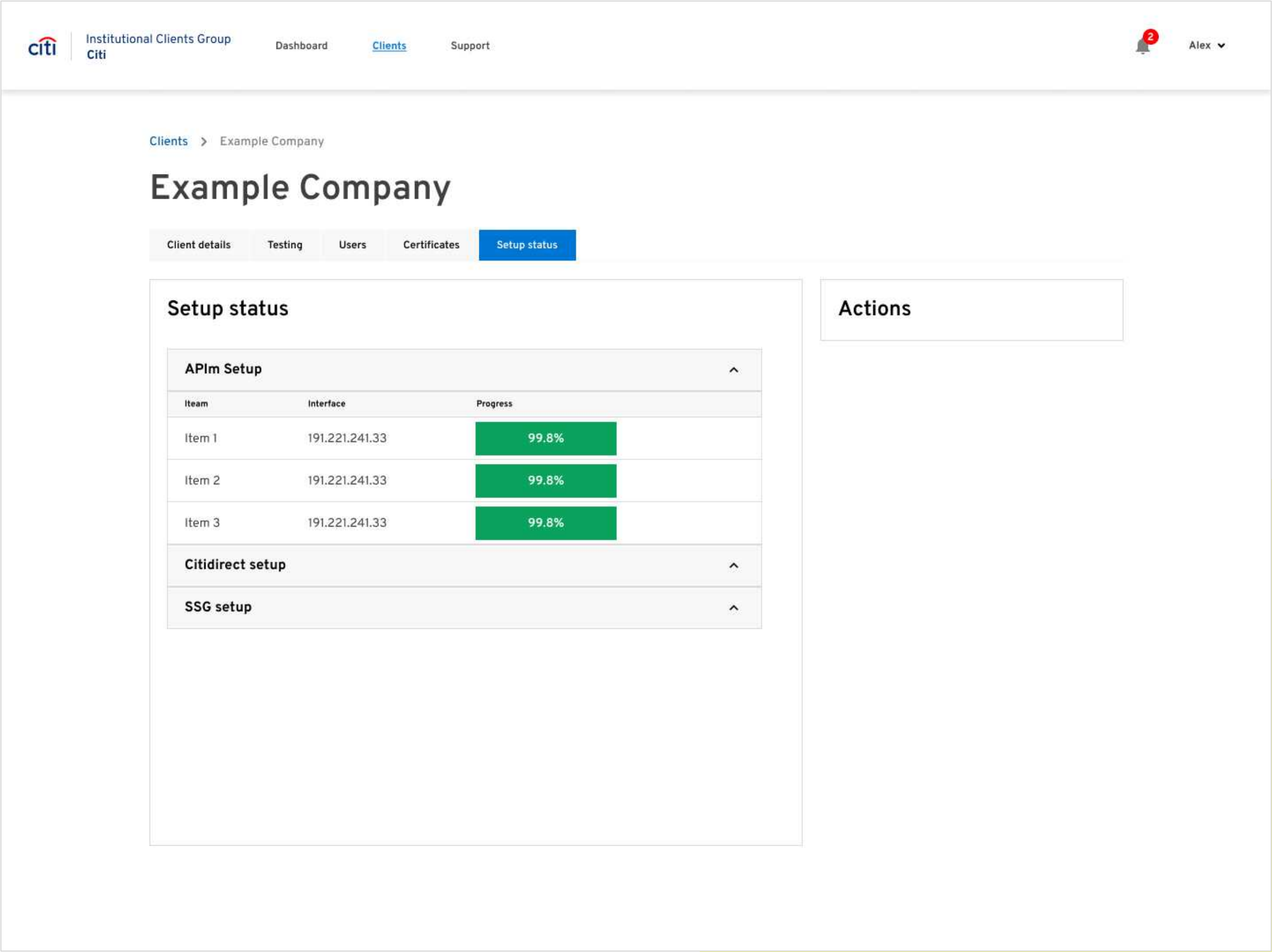
Solution

- TIMs can be provided with a user interface to initiate and complete this setup process through few clicks

Benefits

- TIM can have the visibility on the client setup readiness
- No dependency with internal support teams
- Effective communication & coordination with client with respect to the setup readiness

Impact
Onboarding status visibility for **TIMs**



Option to have visibility status and actions required

CTE & Production System Health Status

User That Benefits

TIMs

Pain Point

Some of the issues noticed in the testing phase are arising due to system stability. TIMs are depending on support team even to identify these kind of system related issues. This is impacting overall API testing timelines

Solution

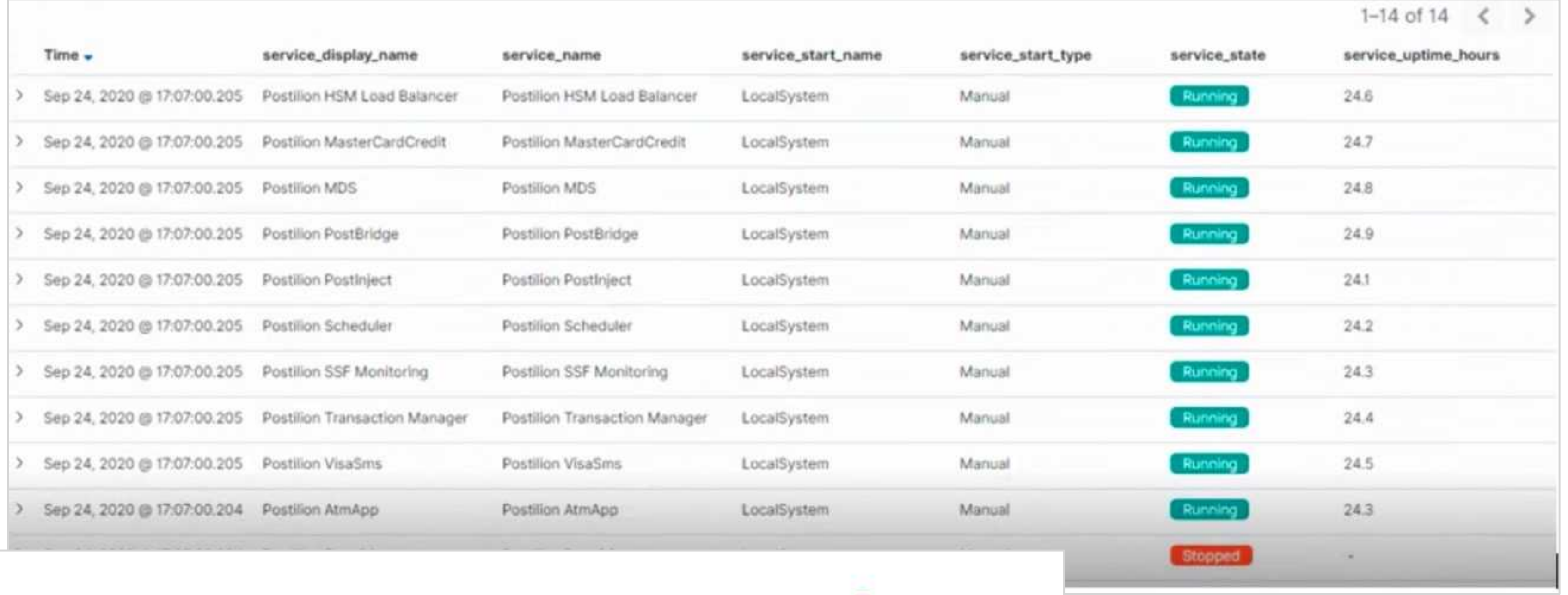
- TIMs can be provided with a user interface to visually check the status of each system involved in the onboarding process

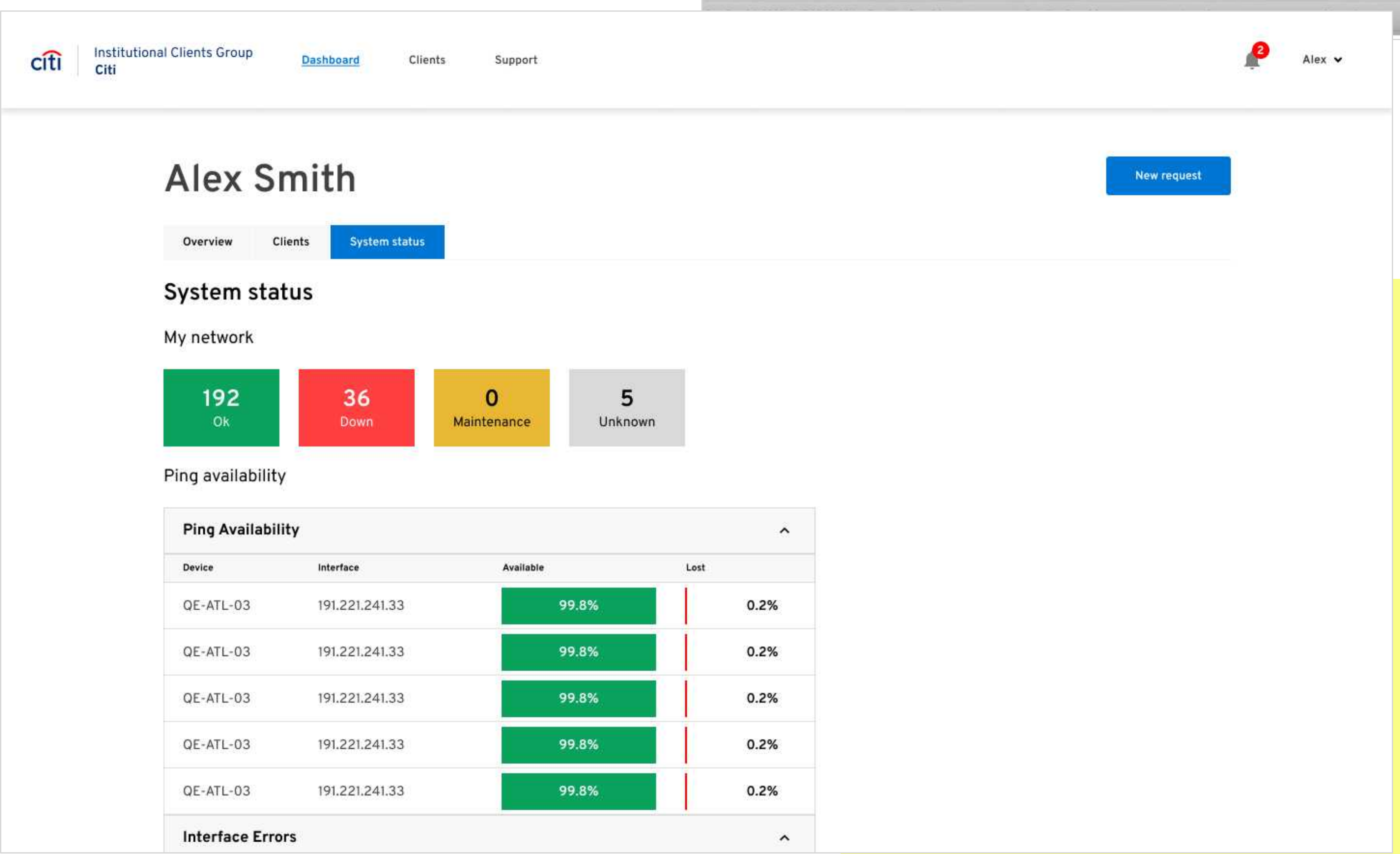
Benefits

- TIM can have the visibility on the system health status
- No dependency with internal support teams to identify the system issue
- Effective communication & coordination with client with respect to the system issues
- TIMs can raise system issues proactively before client raise the issue

Impact
Onboarding status visibility for **TIMs**

Example of health data





Option to have visibility status and actions required

Competitor inspiration: HSBC

Postman Collection

User That Benefits
Client developer, TIM

Pain Point
Currently client builds all the test cases for an endpoint and it is taking longer time to complete the onboarding process. Client must identify all the possible scenario and corner cases to test the endpoint. Depending on the products subscribed the complexity and scope of testing needs will vary significantly.

Solution
- Provide a downloadable Postman collection for product wise testing scenario.
- Endpoint testing to cover all the corner cases.
- All product APIs available in the portal can have the standard test case catalogue

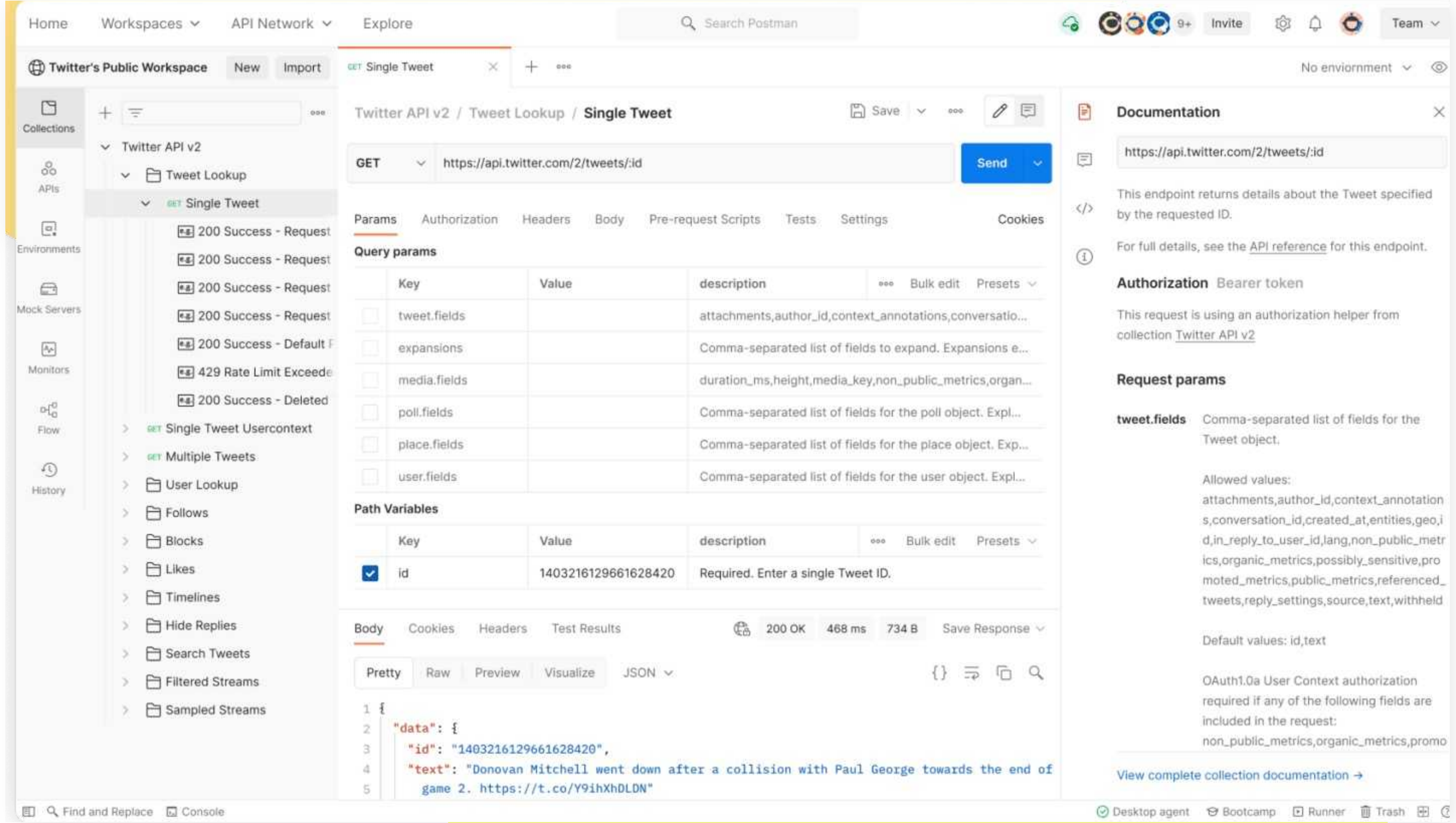
Benefits

Client will have the references for product wise testing scenario.

Resolve the issues on their own and complete the onboarding quickly

Help client to handle all mandatory scenarios from development / Integration perspective

Impact
Clients are able to test **faster**



Postman application

Integration Libraries / SDKs

User

Client developer

Pain Point

Currently the developer who is trying to write a client API to integrate with Citi's API has several challenges.

- Code is manually downloaded & not backed up with a Readme file
- Code does not have enough comments and naming conventions
- When the security upgrades are made on the integration code, the client will have a challenge to upgrade to the latest standards.
- Language support for client is limited to Java/C# and if the client is using different technology, onboarding the client is challenging as there is lack of available resources in Citi's portal.

Solution

- Provide links for downloadable jar files hosted in GitHub repositories.
- Provide repositories in multiple languages.
- Repositories which are backed with ReadMe files and version supports.
- The code is backed with unit tests to cover backward compatibility
- SDKs should be available for clients to download and test with minimum configurations

Benefits

- More clients can be onboarded who are currently restricted by Citi's limited language support
- Support the wide range of developer community from multiple languages
- Huge potential for business expansion

Impact
Better experience for clients testing

				JS	php		GO
Download/install	v1.7.5	v1.4.0	v1.5.0	v1.7.0	v1.4.0	v1.3.1	v1.0.0
View on GitHub	57	17	12	20	13	10	1

Test Results Dashboard

User That Benefits

TIMs & Client

Pain Point

In the current system, there is no visibility on the CTE testing progress neither to client nor to TIMs. Client communicates with TIM through email if any issues in the Authentication API or any other product APIs testing. TIM further communicates with internal support team to understand and troubleshoot the issue

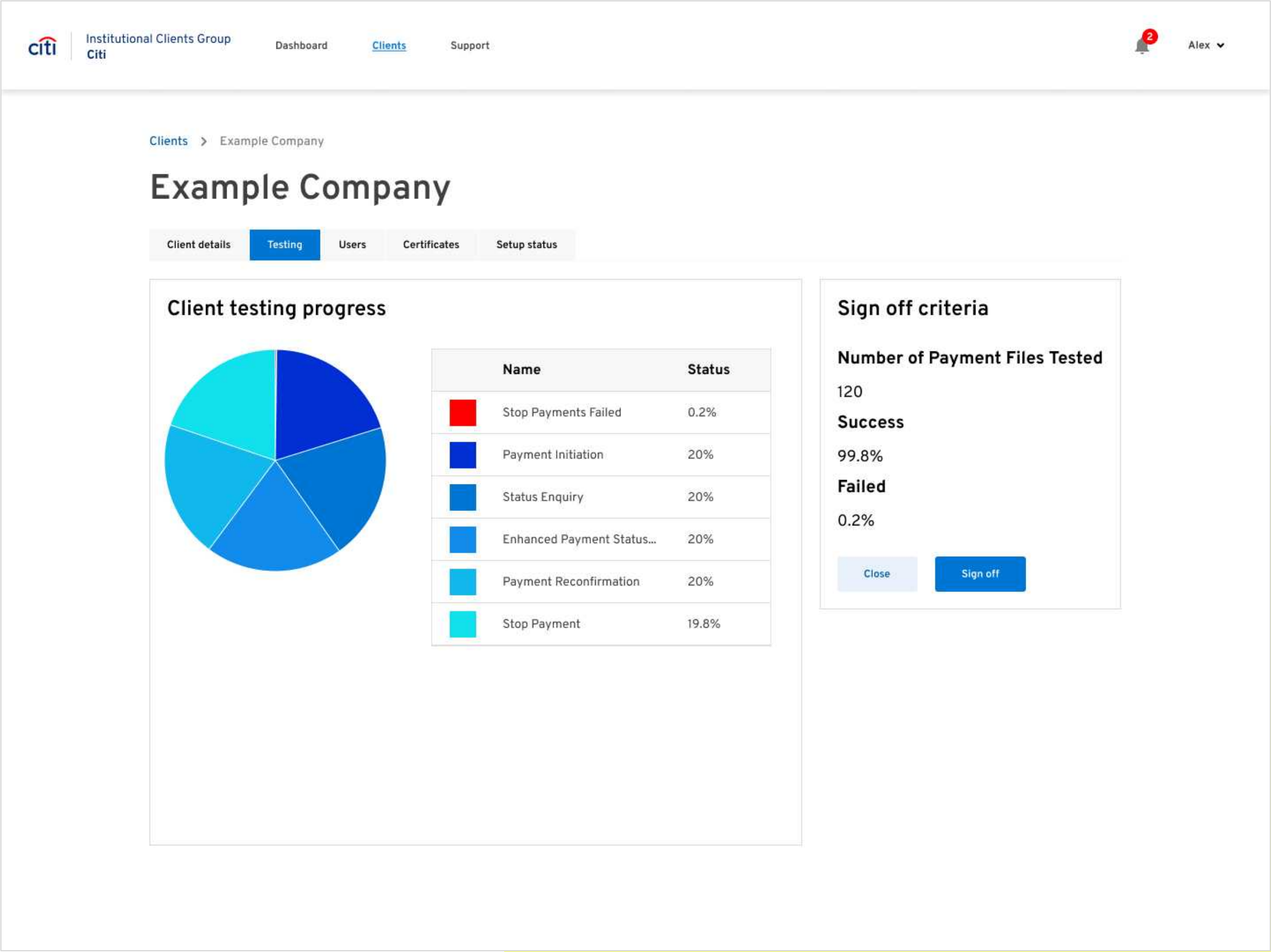
Solution

- TIMs and Client users to be provided with an option to get the visibility on client testing progress. This would help both the team to understand the testing progress and to plan further activities accordingly
- This dashboard can be used as input to enable Sign-off process once all the mandatory test scenarios are successful

Benefits

- Visibility on the testing progress and issues if any
- CTE sign-off process can be automated based on the test results from this dashboard
- This would help clients and TIMs

Impact
Visibility over testing for TIMs



TIM dashboard showing testing results

Competitor inspiration: WesternUnion WU stripe

Support

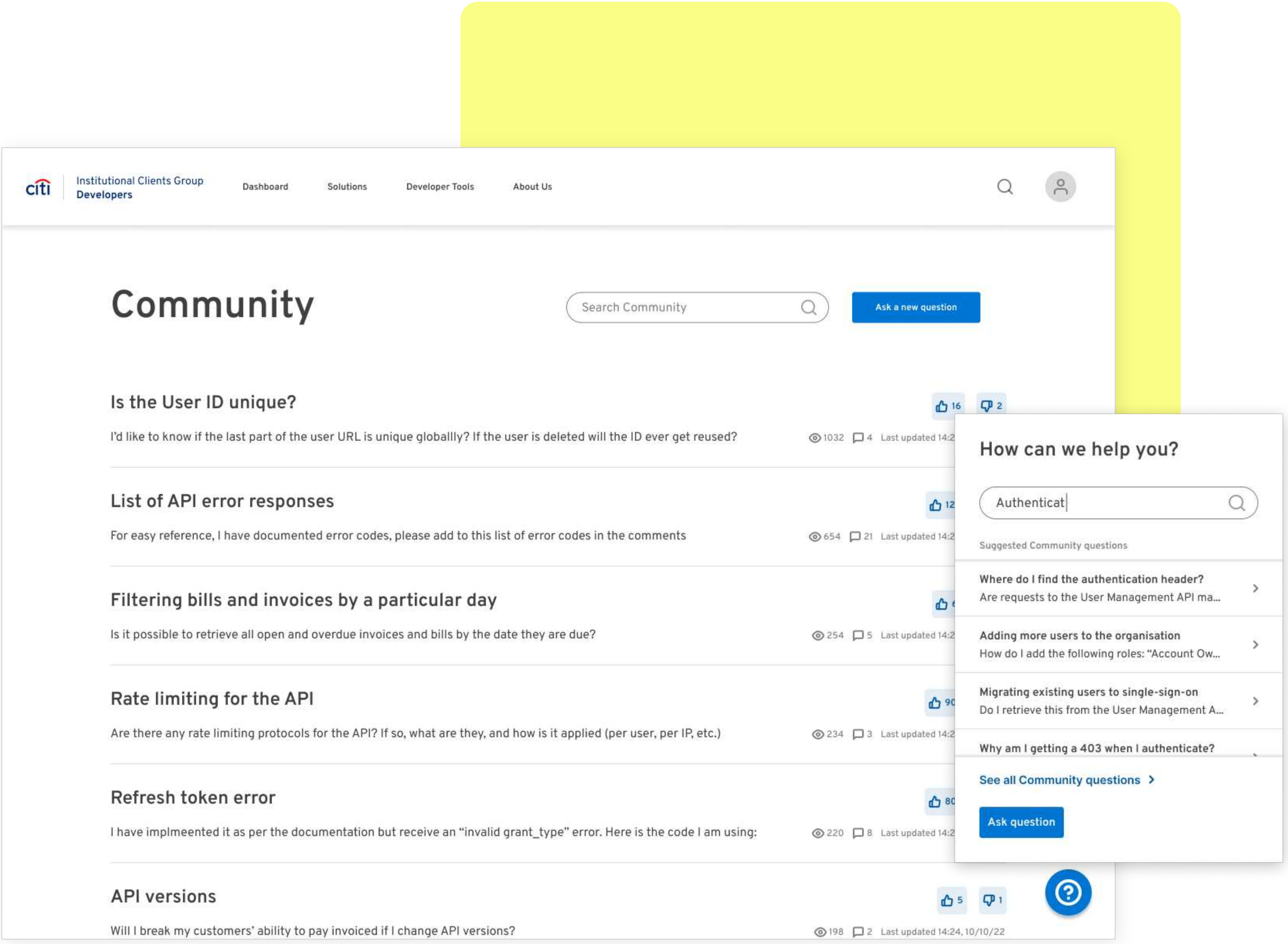
User That Benefits
Client developer, Client PM, TIM

Pain Point
PM is aiming to get the onboarding process done as quick as possible, however the support system in place is too many steps (client developer to the client PM->Client PM to TIM-> TIM to technical support team) and all the way back for each issues even if it is a small ones

Solution
- An online support hub
- Chatbot or live chat feature
- Accessible handbook

Benefits
- Support teams across Citi learn of common issues
- Clients can self-serve problems – Digital deflection
- Reduction of call times/onboarding times

Impact
Ability for Clients to **self serve support**



Community section

Competitor inspiration: NHS

Client Certificates Upload/download

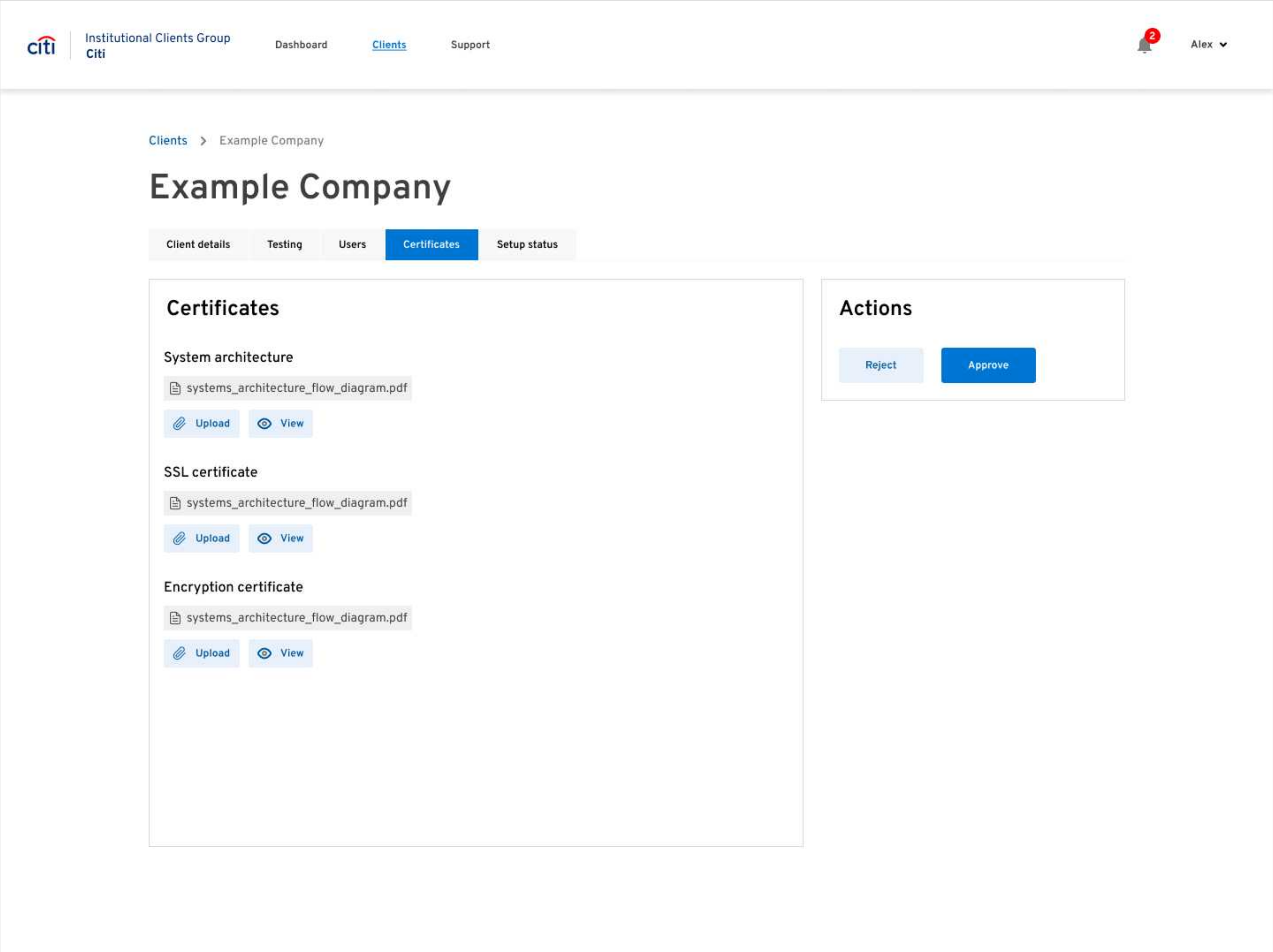
User That Benefits
Client developer, TIM

Pain Point
All the certificates (Client & Citi) are being exchanged manually at present. Once TIM receives the client certificates, TIM coordinates with internal support teams through ticker further to validate and install the certificates into Citi's infrastructure.

Solution
- Link to upload client certificates for Production environment.
- System should also validate the certificates uploaded by client and it should allow only valid file formats
- Citi Production certificates can be made available as downloadable option for clients in similar to the test certificates

Benefits
- Manual interaction between Client and Citi can be eliminated
- System can validate the client certificates automatically before proceeding for the installation
- Internal dependency on support teams for certificate validation and installation can be avoided

Impact
Reduce up to **3 days** of processes



TIM dashboard view of certificates

Competitor inspiration:

Developer Logs

User That Benefits
Client developer

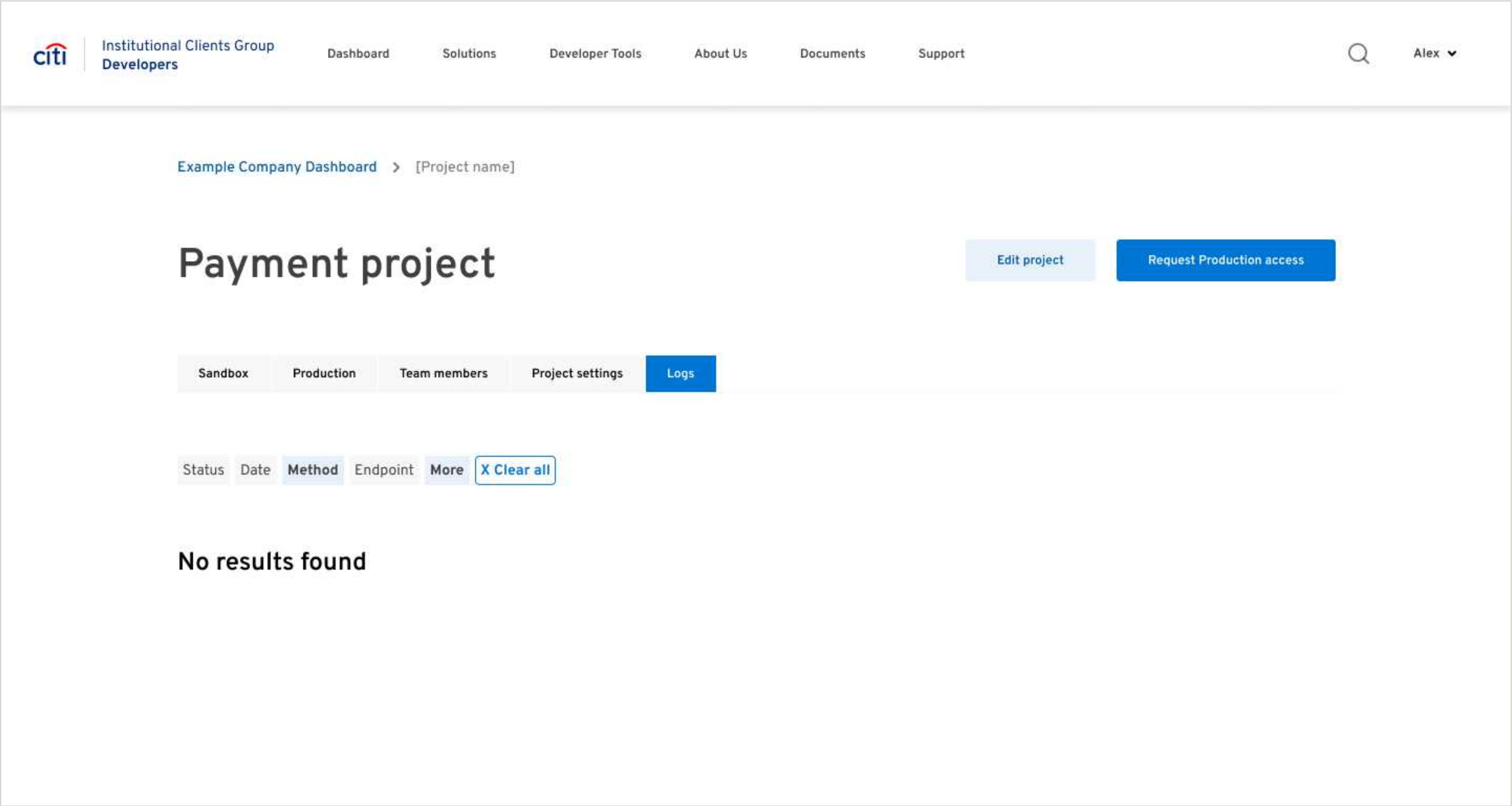
Pain Point
Currently there is no visibility for clients of any issues or errors in the system that may be hindering testing

Solution
Provide controlled access to the application logs for developers will remove the dependency on TIM's and equip the developers to resolve the issues in a self-service manner

Benefits

- Remove the dependency on TIM's and equip the developers to resolve the issues in a self-service manner

Impact
Ability for Clients to **self serve support**



Logs tab on developer portal

Competitor inspiration: stripe

Onboarding Certificate Requirements

User That Benefits
Client developer

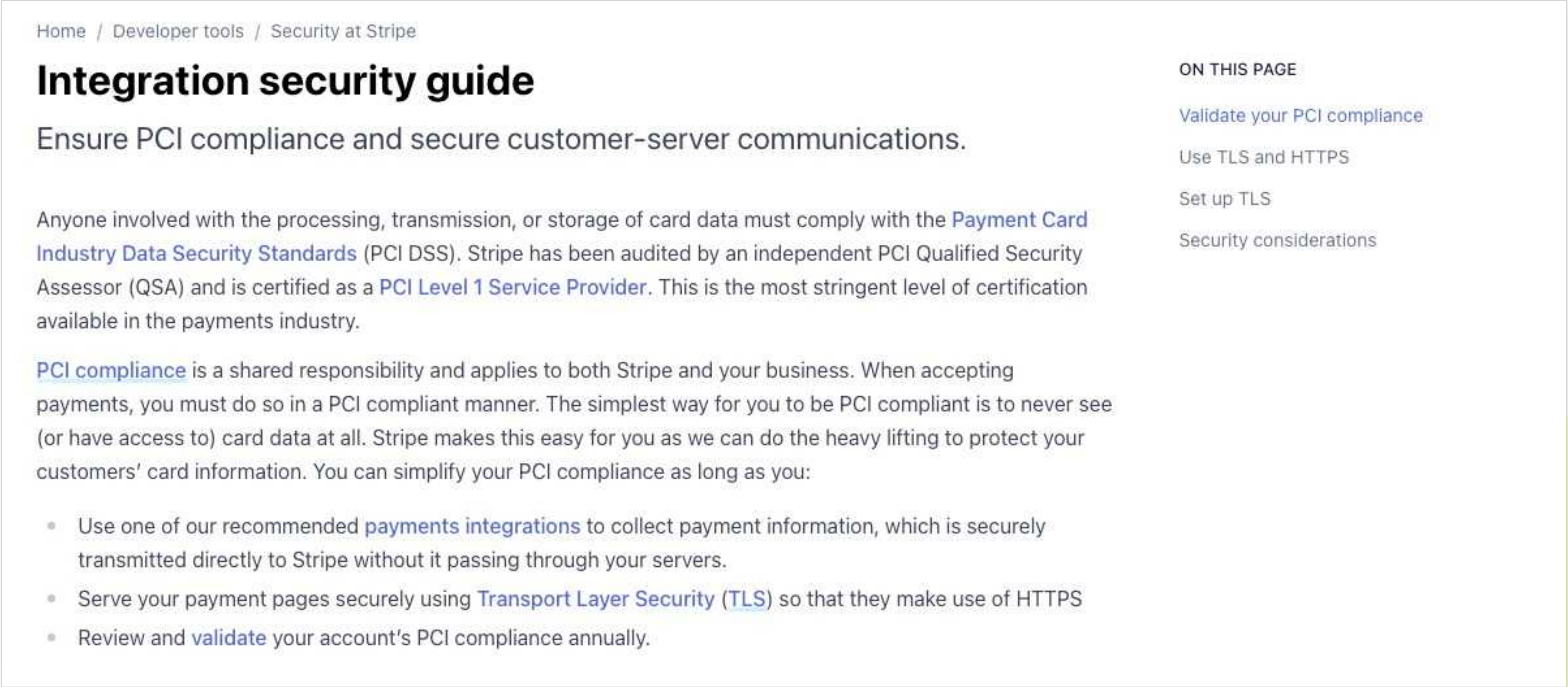
Pain Point
Currently the developer who is trying to integrate with Citi's API must acquire SSL, Encryption and Signing Certificates from a Certified Authority.

The list of preferred CA's (certificate authority) is provided in the Citi's portal but is time-consuming to find or zero-in on one of the CA as there is not enough information available on Citi's portal.

Solution
- Provide links for recommended CA's portal along with contact details
- Share the widely used CA statistics/reviews from your current client base
- Improvise the PDF content for easy understanding which is equipped with possible errors and resolutions while integrating.

Benefits
- Clients without certificate experience will be equipped with more information.
- Developer community will benefit from the previous client's reviews/experiences.
- Complete the certification requirement process quickly

Impact
Ability for Clients to **self serve**


Home / Developer tools / Security at Stripe

Integration security guide

Ensure PCI compliance and secure customer-server communications.

Anyone involved with the processing, transmission, or storage of card data must comply with the Payment Card Industry Data Security Standards (PCI DSS). Stripe has been audited by an independent PCI Qualified Security Assessor (QSA) and is certified as a PCI Level 1 Service Provider. This is the most stringent level of certification available in the payments industry.

PCI compliance is a shared responsibility and applies to both Stripe and your business. When accepting payments, you must do so in a PCI compliant manner. The simplest way for you to be PCI compliant is to never see (or have access to) card data at all. Stripe makes this easy for you as we can do the heavy lifting to protect your customers' card information. You can simplify your PCI compliance as long as you:

- Use one of our recommended payments integrations to collect payment information, which is securely transmitted directly to Stripe without it passing through your servers.
- Serve your payment pages securely using Transport Layer Security (TLS) so that they make use of HTTPS
- Review and validate your account's PCI compliance annually.

ON THIS PAGE

Validate your PCI compliance

Use TLS and HTTPS

Set up TLS

Security considerations

Stripe user guide for compliance

Links

Key design files with assets based on the 8-week discovery outputs.

- New Developer Portal Prototype
- TIM Dashboard Prototype
- FigJam board
- Full Service Blueprint
- Full To-be Technical Architecture Map

The Synechron **Team**

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