



Apex™

SaaS BRIDGE AI

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Table of Contents

1.0 Apex SBT High Level Solution Overview	4
1.1 How it Works.....	4
1.2 Apex SBT Core Technology Stack.....	5
1.3 Database Architecture & Back-End ETL Process	6
1.3.1 Data Extraction (ETL Works)	6
Back-End Database/Database.....	6
1.4 AI Ready Middle Tier	7
1.5 Custom Onboarding & Settings Wizard.....	9
1.6 Front End User Experience.....	10
1.7.1 Saving Time with Intelligent Reporting.....	14
1.7.2 Eliminating Waste with Customer Intelligence	16
1.7.3 Increasing Revenue with Actionable Knowledge	17
2.0 Core Components Overview.....	20
3.0 Web Portal	21
3.1 User Management and Single Sign-On	21
3.1.1 Single Sign-On Integration (SSO).....	22
3.1.2 User Registration.....	22
3.1.3 Authentication	29
3.1.4 Managing User Roles and Permissions	31
3.1.5 Deleting a Customer.....	31
3.1.6 Security	31
3.2 Frontend Architecture & Reusable Components.....	33
3.2.1 Introduction to Angular Framework.....	33
3.2.2 Benefits of Angular for Web Portal Development.....	33
3.2.3 Reusable Components & Dynamic UI Elements.....	34
3.2.4 Data Handling & REST API Integration	40
3.2.5 Methods Overview	40
3.3 Kentico CMS, Web Parts and Dashboard Creation	43
3.3.1 Kentico CMS Overview	43
3.3.2 An Overview of the Kentico CMS Web Parts	47
3.3.3 Integrating Angular Components with Kentico CMS Web Parts	48
3.3.4 Integrating Web Parts into Dashboard Templates.....	49
3.3.5 Kentico Web Parts	50
3.4 Customer Onboarding & Configuration	66
3.4.1 Onboarding Process & Data Flow.....	66
3.4.2 Onboarding Process for Users.....	67

4.0 Database Servers	75
4.1 PostgreSQL 9.1	76
4.1.1 Tables and Mapping	76
4.1.2 Master Views	81
4.1.3 Recommendation Engine	83
4.2 Microsoft SQL Server	84
5.0 Rest API	85
5.1 Overview	85
5.1.1 Key Characteristics:	85
5.2 Rest API Calls	85
6.0 Data Processing	88
6.1 Third-Party Integrations	88
6.1.1 Daxko & Club Automation	88
6.1.2 ABC Financial	89
6.1.3 Club OS	90
6.2 Data Ingestion and Processing	91
6.2 Scheduled Reports	94
6.3 Apex Import API	94
6.3.1 Daxko Vault Integration	94
6.3.2 ABC Financial Integration	95
Key API Methods for Data Retrieval	96
7.0 Index	97
7.1 Member Attributes	97
7.1.1 Gym Membership Data Overview	97
7.1.2 Usage Metrics	98
7.1.3 Active Upsells	98
7.1.4 Loyalty Badge Definitions	100
7.1.5 Recommendations	100
8.0 Apex SBT Research & Development Timeline	101
8.1 Phase 1: Pre-Pandemic (2017-2020)	102
8.2 Phase 2: Pandemic (2020)	104
8.3 Phase 3: Post Pandemic (2021-2024)	105
9.0 Apex SBT Research & Development Investment	107
10.0 Apex SBT Technology Carrying Costs	107
10.1 Apex SBT' Data Ingestion and Its Impact on Cost	108
10.1.1 Infrastructure Costs	109
AWS Postgres Database	110
10.2 Ongoing Carrying Costs	111

Part **One.** Solution **Overview.**

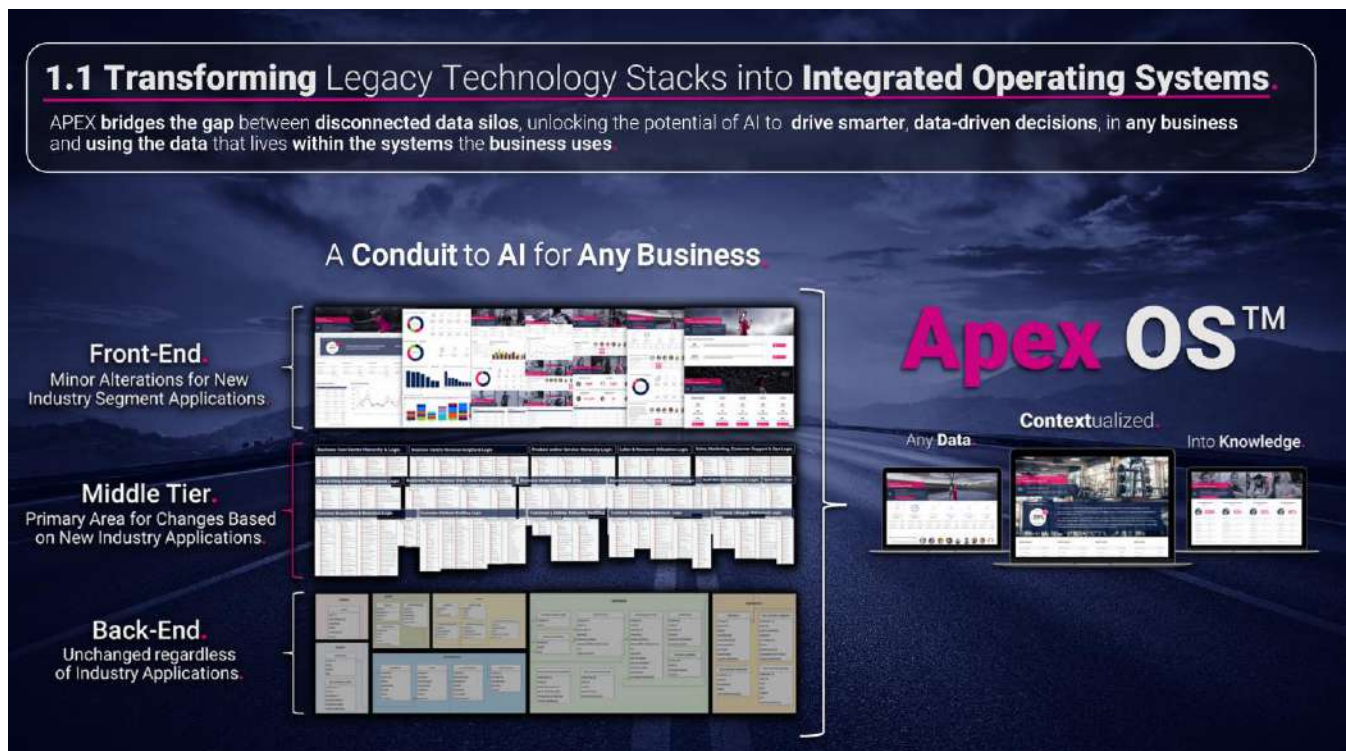
1.0 Apex SBT High Level Solution Overview

Apex SBT acts as both the foundation for legacy SaaS technology stacks and a bridge for the practical deployment of artificial intelligence to businesses, enabling them to maximize the value of their existing data.

This framework not only supports practical AI applications but its back-end architecture and middle tier business logic also has the potential to fully automate the critical daily decisions businesses face.

Built on a proprietary methodology, Apex was designed to standardize effective decision-making by integrating disconnected technologies across business silos.

1.1 How it Works



Here's how Apex unifies existing legacy technology systems and transforms the data living within any business, into actionable intelligence.

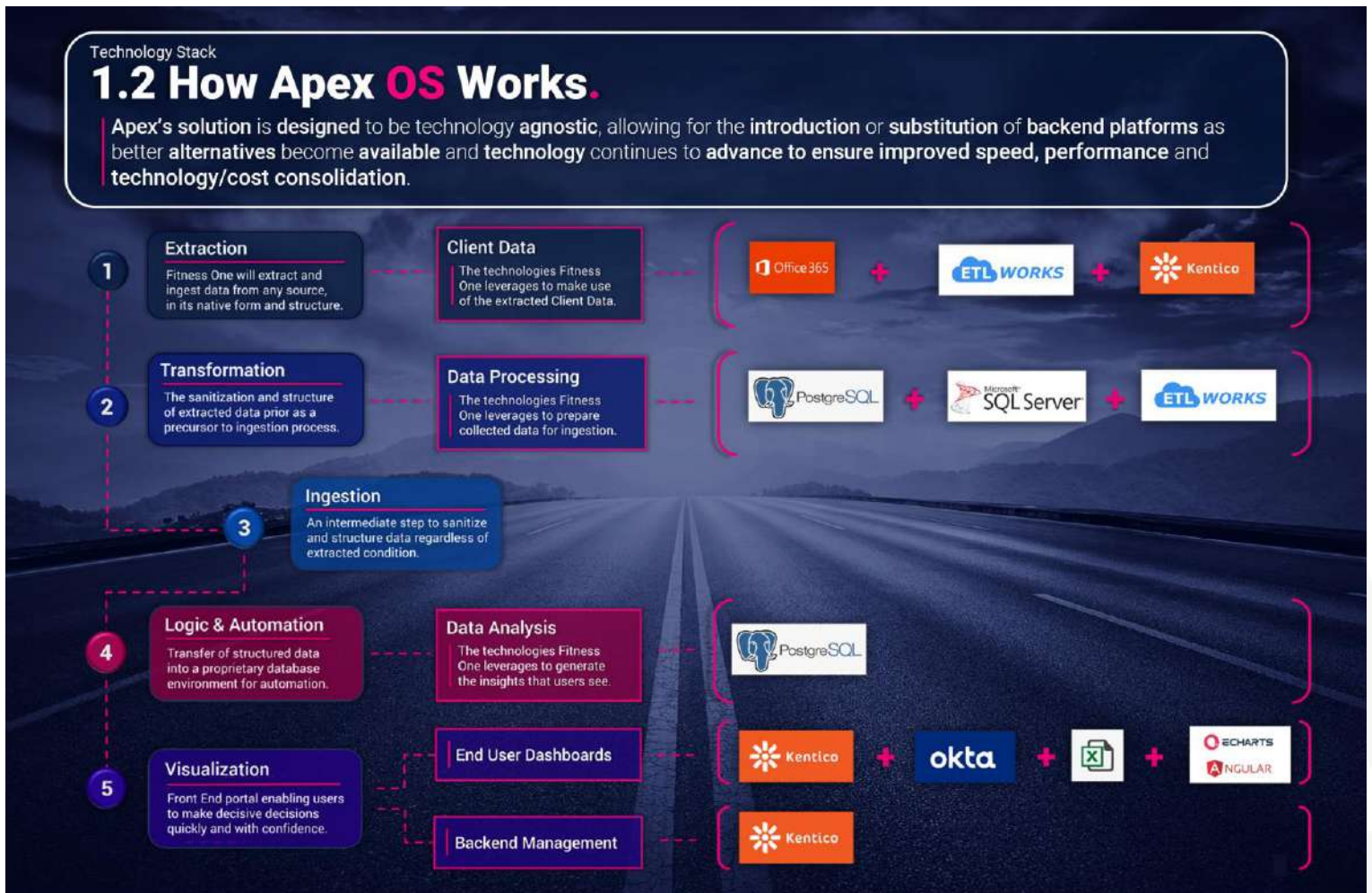
- Apex extracts data from various systems, sanitizes and transforms it into a unified format, storing it within a centralized data warehouse.
- Once the data is organized and stored Apex then applies industry-specific business logic by way of a robust middle tier, containing hundreds of algorithms tailored to anticipate the business needs of its users/specific use case.
- This logic turns raw data into contextualized, actionable insights, presented through a best-in-class scalable, web-based user interface.
- The result is a seamless user experience that highlights key priorities and explains why they matter, empowering businesses to improve performance with clarity and precision.

1.2 Apex SBT Core Technology Stack

Apex SBT provides in-person Fitness Businesses with the opportunity to gain complete understanding of their members by aggregating disparate data from multiple systems and data silos into a single source of truth.

With the focus on building a software engine that aggregates data from the “member” perspective, Apex utilizes a 4-step process to collect, analyze and present information to gym owners in a way that can be consumed and actioned:

- **Data Extraction:** Extract customer data from different data sources
- **Data Processing:** Transform customer data and load into the main warehouse to make it suitable for analytical reporting
- **Data Analysis:** Analyze customer data and build robust member records
- **Data Visualization & Insights:** Visualize customer data and provide insights



Apex's underlying architecture was purposefully designed to be able to connect with any data system and make it a desirable addition to any technological ecosystem. Built to seamlessly integrate into an existing technology stack, Apex sits above all systems, integrating either through Database Sync, API or Scheduled Reporting.

1.3 Database Architecture & Back-End ETL Process

1.3.1 Data Extraction (ETL Works)

The system uses a three- step Extract, Transform, Load (ETL) process to ingest, sanitize and structure data from any data source into a singular environment that maps to how we visualize data and formulate recommendations.

Technology Stack

1.3.1 How Apex SBT Works (Transformation & Ingestion).

Fitness One also leverages ETL Works to transform raw client data into a unified master format through a mapping mechanism to prepare the data for ingestion into the master schema.

Key Highlights

- Scheduled Data Mapping Jobs
- Nested Flows with Customer Variables
 - Database Mapping Flows
 - Customer Parameters
- Master schema

ETL WORKS

The image displays the ETL Works software interface. On the left, a 'Key Highlights' box lists features: Scheduled Data Mapping Jobs, Nested Flows with Customer Variables (including Database Mapping Flows and Customer Parameters), and Master schema. The main area shows a list of data mapping jobs with columns for Name, Status, and Date. A 'Nested flow parameters' dialog is open, showing configuration for a 'Parallel' condition, 'Loop type' set to 'SQL', and a 'Loop Script' containing SQL code for selecting customer data from a database.

Back-End Database/Database

Conduit Innovation's "secret sauce" is performed strictly within the database environment itself making it proprietary to our system and impossible to understand by looking at the software itself:

- The master environment is structured to create a single view of the customer from any angle
- Conduit's SMARTech Convergence Methodology and INNOV8 Process combine to define the customer behavioral attributes which are collected and assembled as well as the complex calculations which are made within the database.
- Daily pulls of incremental data from the systems of origin (customizable to suit any time frame) enable the possibility for timely insights and recommendations that users can act upon, with confidence.

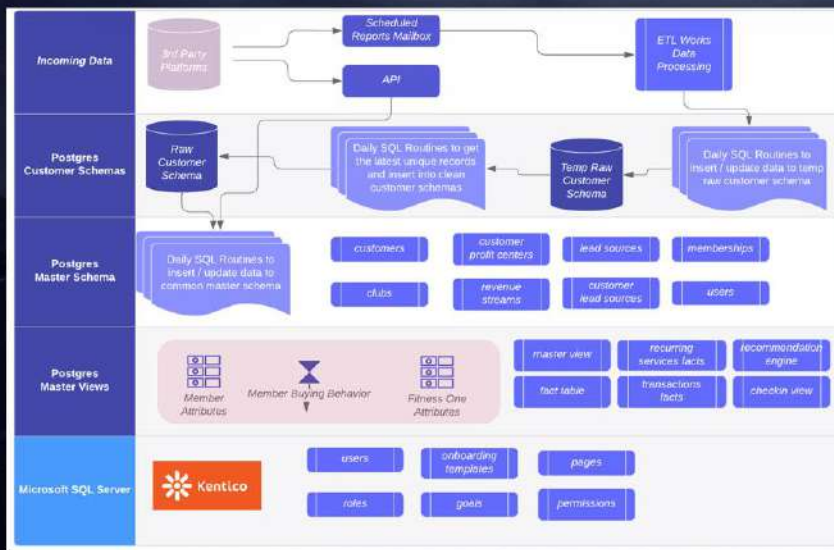
- Customizations on a per-client basis to remove outliers or adjustments in how certain data points are calculated are possible to ensure that the business intelligence that is visualized on the user's front-end display are 100% relevant to their business type and model.

Architecture Diagrams

1.3.2 Database Diagram.

Apex SaaS Bridge maintains its data in two databases:

- PostgreSQL database is responsible for all **incoming** customer data with a multi schema storage process.
- Microsoft SQL Server database is **responsible** for the web **portal management**, Apex OS basic **CRM data** and **customer goals**.



Key Highlights

Application Web Server

- Development Server
- Development Microsoft SQL Database
- Production Server
- Production Microsoft SQL Database

Data Warehouse

- AWS PostgreSQL db.m6i.large

1.4 AI Ready Middle Tier

A well-developed business logic or middle tier is essential for organizations looking to make informed, data-driven decisions. Acting as the "decision-making engine" of the tech stack, this layer applies context, relevance, and business rules to raw data, transforming it into actionable insights.

Without a reliable, scalable business logic decision-makers, despite having access to vast amounts of data will lack the contextualized insights needed to identify trends, understand customer behaviors, or adapt to market shifts. As a result, they often resort to intuition or partial information, which can lead to inefficiencies, reduced growth potential, and missed opportunities.

Many businesses struggle to implement a robust middle tier due to technical expertise gaps, high costs, or the complexity of configuring a system that evolves with their needs.

Smaller businesses may find the initial investment hard to justify, while larger organizations contend with legacy systems and siloed data. However, without this critical foundation, even the most well-planned data strategies fall short, making it difficult to gain a competitive edge in today's fast-paced market.

In the absence of a middle-tier solution, businesses are limited in their ability to respond proactively to changing dynamics and customer needs.

Value Proposition

A SaaS-based middle tier like Apex SBT provides a unique, ready-to-use, insights-driven engine that anticipates and addresses business needs without ongoing manual intervention.

Technology Stack

1.4.1 How Apex SBT Works (Logic & Automation).

Once client data is loaded in the **proprietary Apex OS master schema**, data **calculations** are performed to prepare **fact tables** with the **data** required for **visualizations**. **KPIs, recommendations, custom attributes** and additional calculations are **automated** with a **series of jobs** that are executed **daily**.

Key Highlights

- Scheduled Jobs
- Flows
 - Nested Fact Table Jobs
 - Individual Fact Table Jobs
- SQL Jobs
- Fact Tables
- Calculated Dimensions and Measures
- Recommendation Engine

Powered by the proprietary INNOV8 Process, Apex SBT adapts seamlessly to the specific demands of each industry and business model it supports.

By applying advanced, pre-defined business logic, Apex SBT interprets data in real time, delivering actionable insights instantly.

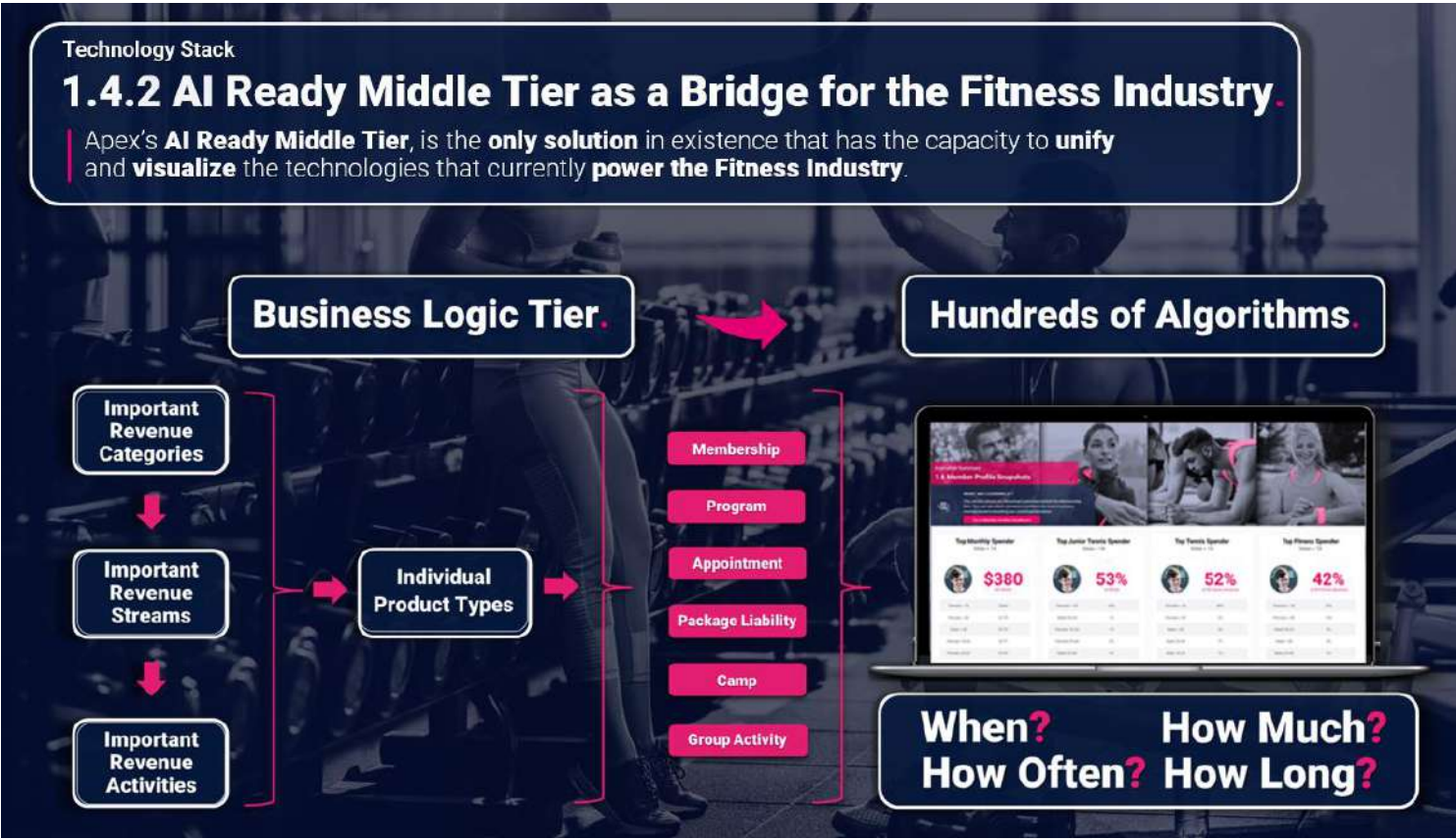
This proactive approach reduces the lag from data acquisition to decision-making, enabling businesses to respond to opportunities and challenges with speed and precision.

A Bridge to AI and New Industries/Use Cases

Additionally, Apex SBT’s middle tier serves as the ideal bridge to bring AI into practical use within a business setting, utilizing the company’s own data for insights tailored specifically to its unique context and goals. Rather than relying on external data sets, which can be generalized and less relevant, Apex SBT leverages internal data flows to generate precise, context-driven insights.

As Apex SBT deploys its solution across multiple industries, each with a middle tier tailored to its specific needs, a powerful benefit emerges: the ability to gain high-level insights into entire industries while maintaining a unified,

master database structure. This cohesive structure enables Apex SBT to analyze trends, behaviors, and performance metrics across businesses within an industry, providing a unique vantage point on how different sectors operate and evolve.



By delivering structured, contextually accurate services across industries, Apex SBT not only refines its platform to better meet the needs of individual businesses but also compiles valuable, anonymized insights into broader market dynamics. This collective intelligence amplifies Apex SBT's value proposition, enabling it to continuously enhance its algorithms, identify cross-industry best practices, and anticipate shifts in market demands.

Consequently, Apex SBT not only empowers individual clients with tailored insights but also builds a dynamic, data-rich resource that informs strategic development and keeps the platform at the cutting edge of industry intelligence.

1.5 Custom Onboarding & Settings Wizard

One major aspect of Fitness One's multi-faceted UVP is the Customer's ability to take delivery of the product, fully configured with a full slate of detailed dashboards and up to hundreds of dynamically generated interior pages.

This capability allows users to start their business intelligence with a global view of their business with the ability to drill down to the most granular of detail, to understand whatever interests them. This concept of "what you see is what you get, on day one, out of the box" was intentional, as our market research suggests that most business owners that buy software, do so thinking that they will "get" what they see in the demo- which is rarely the case (without substantial customization).

Being able to tell potential customers that they will receive exactly what they see in the demo- with their data populating these dashboards- without any investment by them beyond their monthly fee is a game changer.

This value add is made possible by virtue of Fitness One’s proprietary New Customer Settings and Onboarding Wizard.

The Onboarding Wizard was built to walk a non-technical Club Operator through the setup process to ensure that the data which lives within the systems they use in their clubs, is accurately, visually represented within their deployment of Fitness One.

Technology Stack

1.5 Visualization- Customer Settings.

Apex SBT's **customer onboarding** and **customer management** has been built for **non-technical** account managers to **onboard** customers and **manage** information **specific to their gym(s)**.

Onboarding Wizard Video

Click the **thumbnail** on the right to **view** the entire **onboarding process** that will set up a customer within **Fitness One's** backend.

This **entire module** has been **custom developed** and can **scale** regardless of the front-end interface (chatbot or otherwise).

1.6 Front End User Experience

Front-End Overview

Our front-end interface is a web-based interface that allows flexibility and control that standard reporting software does not. The difference between most reporting solutions and ours is that we prioritize the user experience to ensure it is intuitive, easy, elegant and helpful.

Today’s users of the software are typically non-technical in nature but are now required to rely on data and software for their day-to-day job functions. We know this and focus on solving for lack of understanding or frustrations that arise with deep learning curves when users are forced to suddenly become “data scientists”.

The product is designed to serve as a conduit between the users on the front lines responsible for making business decisions, and real insights that get them closer to the truth.

Front-End User Experience

1.6 Visualization & End User Dashboards.

The **user interface** provides **customers** with a set of **predefined dashboards**, populated with **their data**.
The **web portal** built with **Kentico CMS** is easily **managed, integrated**, and **ensures security** of the web application.

Any **Data**.

Contextualized.

Into **Knowledge**.

Key Highlights

- ASP.NET C# Application built on Kentico 11 CMS
- Latest Angular Framework
- Responsive Design
- Single Sign On
- Prebuilt Dashboards
- Insights & AI Narration
- Quick Wins with Recommendations
- Filtering by Club(s) and Member Profiles

Apex was built around the premise that it's users should not need to be technologists or data scientists to see the value of having the solution as part of their business. Apex's Target Customer Persona are business people who realize that they need to better utilize the data that lives in the systems that orbit them to be successful.

80% of Fitness One's functionality and features scale across every business type because, in the end, we are talking about the following key things which never change:

- Revenue & Profit Margin (Money)
- Revenue Streams (What they Sell)
- Product Types (The Forms in Which Things Are Sold)
- Customers (and the Attributes that Define Them)
- Staff (Everyone that Orbits the Customer Relationship)

Regardless of any business type, leaders within these businesses are looking at the following things:

- How is the Business Performing?
- What are the Reasons for the Performance I See?
- Who or What is Responsible for this Performance?
- What are they Doing/Not Doing that Contributes to Overall Performance?
- What Should I Do About It?

In pursuing the answers to these questions, business people will invariably want to understand how to:

- Reverse Failure
- Manufacture Success
- Scale that Success in a Predictable Way.

This will require them to understand the complex relationships between the elements that come together to produce the top line Revenue and Net Profit that they are managing to.

These relationships are consistent across any business:

- Relationships between Revenue Streams
- Relationships between Product Types

Which then, allows you to contextualize those relationships by understanding:

- The Relationships between Customers and Revenue Streams
- The Relationships between Customers and Product Types

Once that is known, you layer on the final layer of contextualization which is:

- The Influence of Staff on the Relationships that Customers have with Revenue Streams and Product Types

This is all made possible by structuring data in a uniform way so that we have the capability to drill down to the most granular level, at any time, on-demand, to understand:

- Which customers to prioritize when attempting to grow a given revenue stream.
- Which product types within that revenue stream stand to provide you with the business result that you are looking for.
- Which customer is most likely to buy those product types within that revenue stream.
- Which staff members are most successful at supporting those customers in their decision to buy.

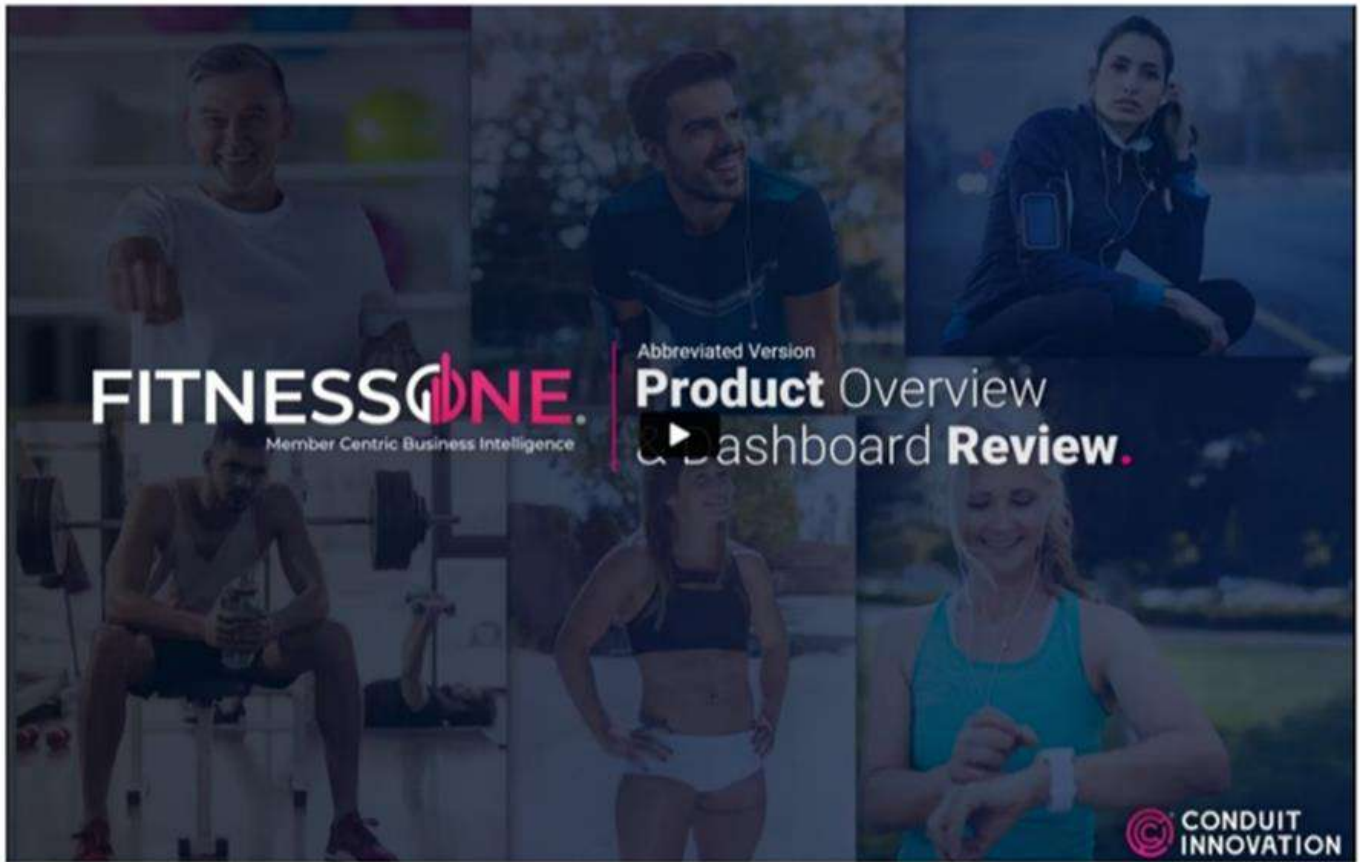
By breaking the performance of a business into its core components, we can use this to fuel simple marketing messaging that will help the potential customers immediately understanding what they are getting, and appreciate that.

As businesses strive to keep up with the demands of a competitive marketplace, the need for efficient, data-driven decision-making has never been greater.

As a result, Conduit Innovation leveraged the SMARTech Convergence and INNOV8 IP to design a core set of dashboards that are organized to tell a progressively more granular story, about what is really going on in the business of its users.

A framework that is designed to empower organizations to save time, eliminate waste, and increase revenue through actionable insights.

The video below provides a walkthrough of some of the core dashboards for the Fitness deployment of the Apex technology.



Despite the use case being industry centric, if one focuses on the purpose of each dashboard, it's easy to see how these can be retrofitted to different industries or use cases with minimal incremental work compared to the time, effort and money it took to create the core solution itself.

1.7 Visualization Features and Overall Value Proposition

1.7.1 Saving Time with Intelligent Reporting

In the pursuit of **saving time**, Apex's framework offers Intelligent Reporting that gives companies a bird's-eye view of their operations. It starts with the Executive Summary, a high-level snapshot of organizational health that reveals the essential metrics needed to gauge overall performance.

Intelligent Reporting → Save Time.

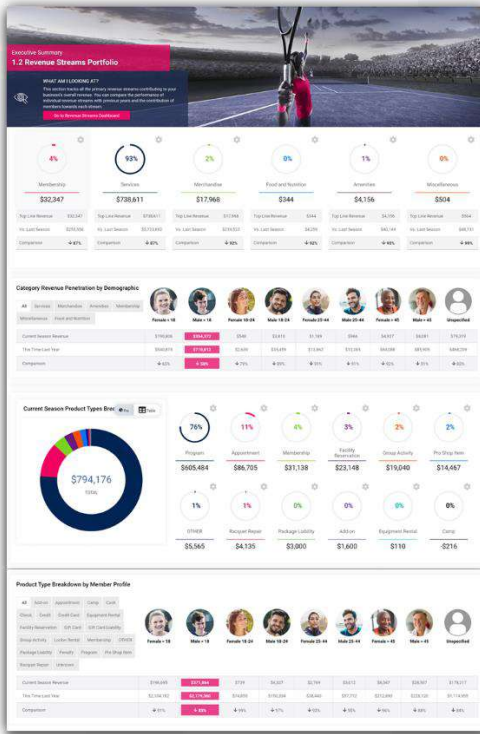
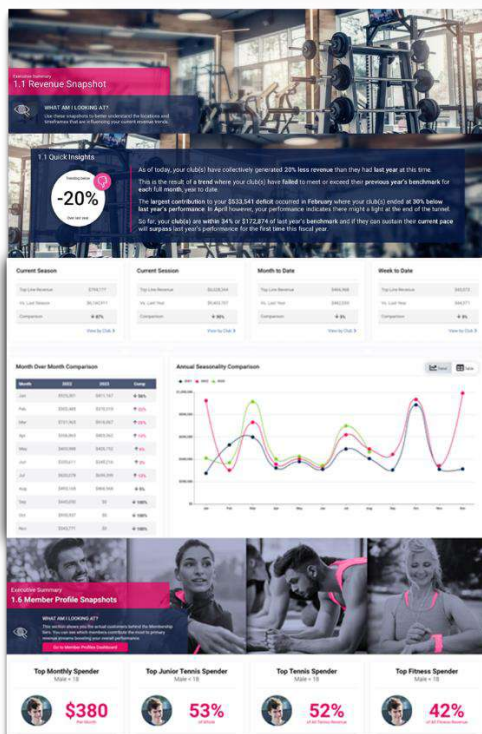
1 Executive Summary. 2 Contextual Revenue Analysis 3 Customer Attribute Modeling

- A holistic view organizational health featuring the highest-level key metrics business use to evaluate performance.
- Immediate insights to the key areas behind performance revealing the "how" and "why" behind past and current business trends.
- An In-depth contextual analysis on the volume, frequency and adoption patterns of the products you sell and the customers who buy them.
- Product level seasonality forecasts by Customer Type over an average 12-month period.
- Exploring the types of customers that comprise the basis of your business.
- Comparison/contrast how different types of customers utilize your brand/products/services.

Imagine having a clear window into the past and present of your business, uncovering the "how" and "why" behind trends that impact success. This insight allows leaders to make informed decisions quickly, avoiding the need for time-consuming data dives.

Apex's *Executive Summary* Dashboard Samples

Save Time with Intelligent Reporting A Comprehensive Executive Summary.



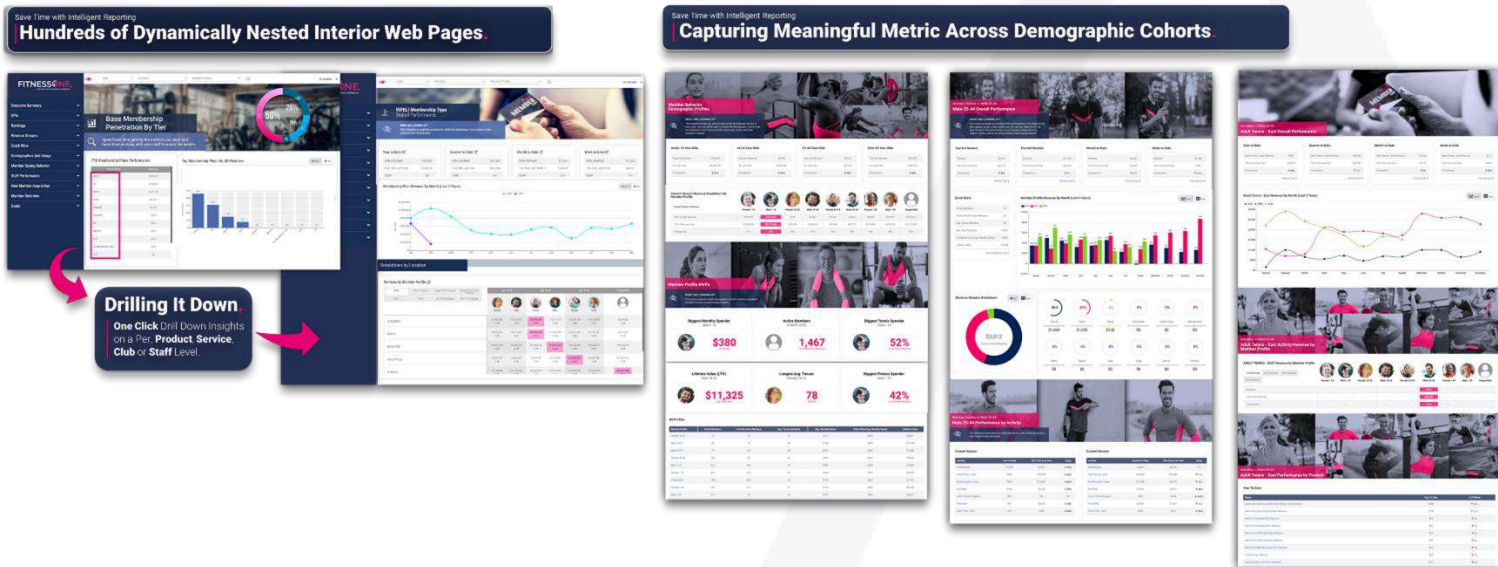
Going deeper, Contextual Revenue Analysis reveals patterns in customer buying behavior—how often customers purchase, which products they prefer, and the seasonality of demand. Businesses gain clarity on when and what their customers are likely to buy, allowing them to plan more effectively.

Apex's Contextual Revenue Dashboard Samples



Finally, Customer Attribute Modeling gives organizations the ability to dissect their customer base. By understanding the unique profiles of their audience, businesses can craft targeted strategies, ensuring they serve each type of customer in a way that resonates best.

Apex's Customer Attribute Modeling Dashboard Samples



Together, these tools in Intelligent Reporting become a roadmap for efficient, targeted action.

1.7.2 Eliminating Waste with Customer Intelligence

The next step in the journey is Customer Intelligence, a powerful tool for eliminating waste by refining how businesses view their customers. At its core, it's about understanding what drives people to buy.

Apex's *Customer Intelligence* Reporting Dashboards

Customer Intelligence → Eliminate Waste.

- 1 Member Buying Behaviors**
 - Exploring the people behind the KPIs that drive your business forward.
 - A clear, granular view of which people invest in the programs, products and packages that drive the revenue you need to succeed.
- 2 Customer Acquisition**
 - Tracking the performance of your organization through the entire sales and new membership process.
 - Establishing connections between your company, staff and their success rate working with specific member segments.
 - Helping you match the right people with the right member for maximum results.
- 3 Retention Performance**
 - A deep dive into your organization's success rate when it comes to keeping your members engaged and a believer in your product/services.
 - Gaining a better understanding of how your sales organizational performs vs. their peers in retaining specific types of members.

Through Customer buying behaviors, companies can see who invests in their programs and products, identifying the true revenue drivers. This detailed insight transforms members from mere statistics into dynamic contributors to success, clarifying which offerings resonate most with different customer groups.

Apex's *Customer Buying Behavior* Dashboard Samples



But capturing attention is only the first step; sustaining it is key. That is where Customer Acquisition Performance comes in, tracking the entire sales and onboarding journey. This feature uncovers which sales approaches work best for various segments, helping organizations match the right members with the right products.

Once members are on board, Retention Performance ensures they stay engaged. It allows businesses to see how well they are retaining customers and reveals how their retention strategies measure up to those of their peers. Through this lens, companies gain a deeper understanding of what makes their members loyal, ensuring that efforts are focused on sustaining those relationships.

Apex's Customer Intelligence Dashboard Samples



1.7.3 Increasing Revenue with Actionable Knowledge

Finally, the journey reaches Actionable Knowledge, the driver of increased revenue. In a business landscape where every dollar counts, it's essential to know which locations/regions/areas and teams are performing best.

Apex's Actionable Knowledge Dashboards

Actionable Knowledge ➔ **Increase Revenue.**

1 Region Ranking & Analysis

- Region Performance Rankings and Analysis to evaluate how your Sales Org stacks up against their peers on the KPI's that matter.
- Exploring how regions perform with specific Member Profile Types whose dollars drive the KPI's themselves.

2 Staff Performance Rankings

- Looking more deeply at the individual contributors most responsible for the success rates of regions/locations.
- Understanding who contributes most to product, category sales across each revenue stream.

3 Quick Wins

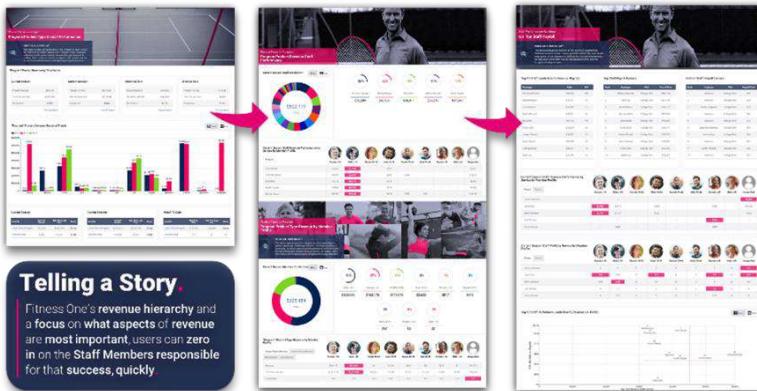
- Immediate, actionable insights to grow every revenue stream in your business.
- Attract more new members, gain a larger share of their wallet.
- Early warning signs of potential attrition so your staff can prevent it before it happens.

Region Ranking & Analysis compares sales performance across locations, identifying where revenue is strongest and highlighting standout teams. This feature enables companies to recognize and replicate successful strategies across regions.

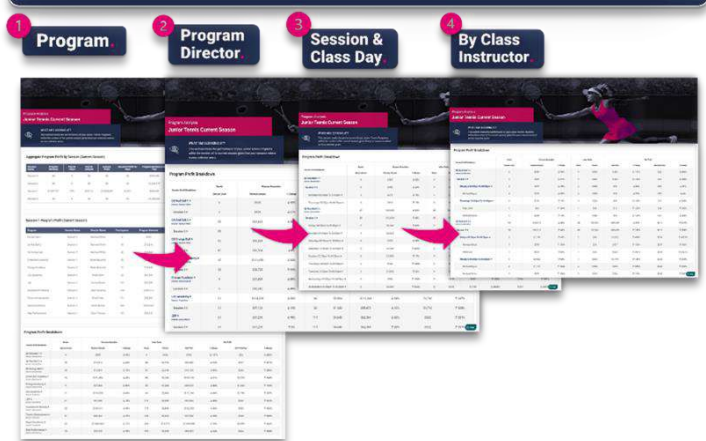
Staff Performance Rankings dig into individual contributions, revealing which team members have the highest success rates and where their efforts pay off most. By spotlighting top performers, businesses can build stronger teams and deploy resources effectively.

Apex's Staff Performance Dashboard Samples

Increase Revenue with Actionable Knowledge Tracking & Quantifying the Impact of Staff.



Increase Revenue with Actionable Knowledge Evaluating the Performance of Revenue/Cost Center Owners.

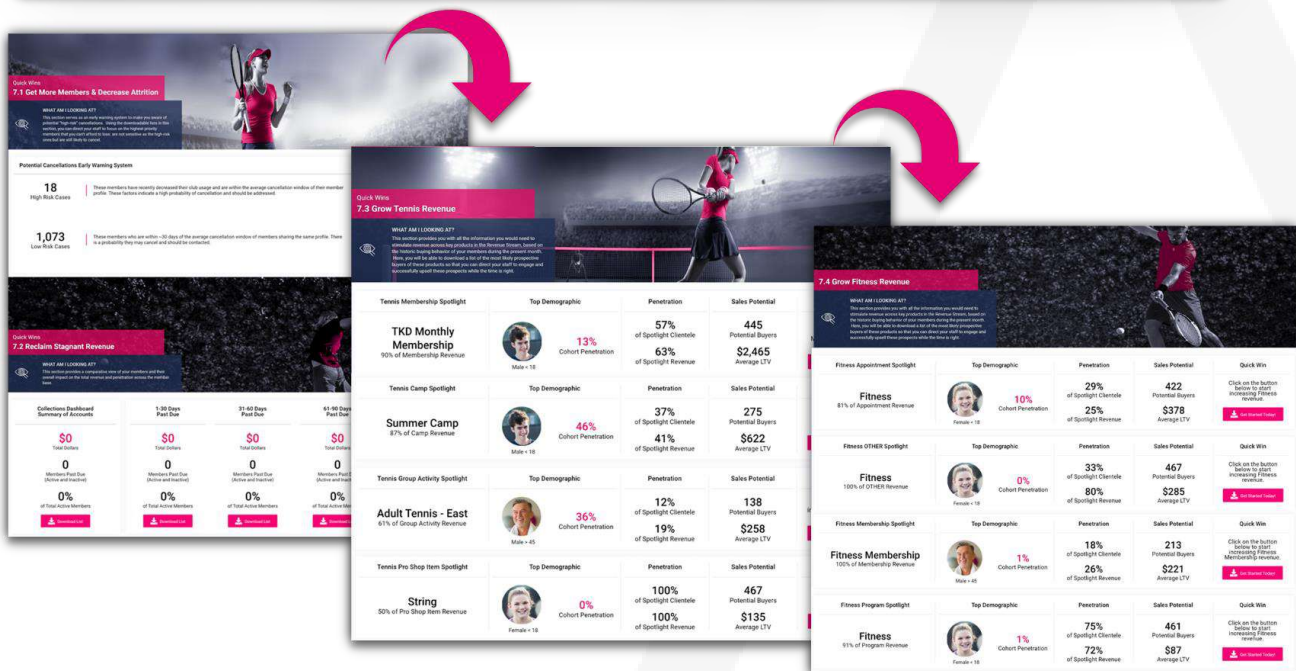


Lastly, Quick Wins offers rapid insights that connect the right staff with the right customers. These small yet impactful adjustments can drive immediate revenue growth, attract new members, and even alert staff to potential issues before they escalate.

Apex's Quick Wins Dashboard Samples

Increase Revenue with Actionable Knowledge

Quick Wins to Empower Laser Focused Sales & Marketing Efforts.



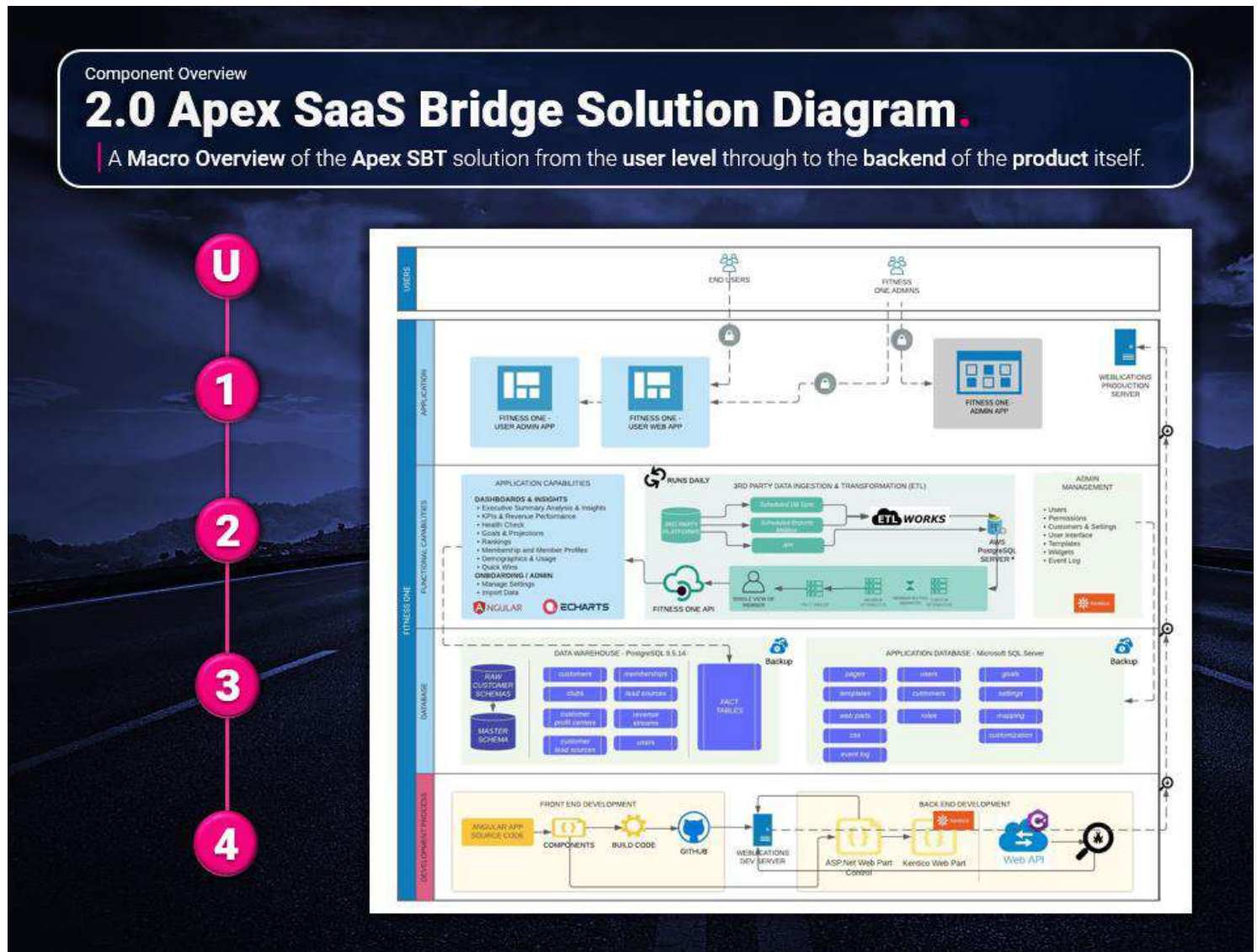
Apex's front-end visualization framework not only brings order and clarity to business data but transforms it into a strategic asset, helping businesses save time, reduce inefficiencies, and ultimately, boost their bottom line. With every insight and recommendation, organizations are equipped to make smarter, faster decisions that move them closer to sustainable growth.

Part **Two.**

In Depth **Component Overview.**

2.0 Core Components Overview

Apex is built with a technology stack that enables both success and speed to market while ensuring quality and intent.



Adhering to a hub and spoke framework, Apex consolidates its proprietary intellectual property and data analysis capabilities, which differentiate the software, within its own infrastructure. Simultaneously, it leverages industry-leading third-party software solutions to fulfill other essential functions.

While Apex is not a fully custom developed software, the systems used within the stack provide the empty framework and require expertise and full configuration custom to the desired use case.

3.0 Web Portal

The Apex Web Portal offers a comprehensive suite of features that enable seamless deployment, management, integration, and robust security for the web application.

Key Components:

- User Management:** The Web Portal includes comprehensive user management capabilities, allowing administrators to efficiently manage user access and permissions.
- Single Sign-On Integration:** Seamless integration with Single Sign-On (SSO) systems enhances user convenience and simplifies authentication processes.
- Angular Front-End Framework:** The Web Portal utilizes the Angular framework, a powerful front-end development platform, to create reusable components and enhance the user interface.
- ASP.NET C# Application:** The Web Portal is developed using the Kentico 11 CMS, leveraging the power and flexibility of ASP.NET C#.
- User-Friendly Backend:** The portal provides a user-friendly backend interface designed to empower non-technical editors with the ability to efficiently manage content.
- Scheduled Jobs:** Apex incorporates scheduled jobs to automate recurring tasks and optimize system performance.
- JavaScript / CSS:** The portal employs JavaScript and CSS technologies to enhance user interactivity, create dynamic effects, and ensure engaging user experiences, complementing the functionality provided by Angular components.

With its robust features and secure framework, the Apex Web Portal delivers a powerful control hub for effective management and utilization of the platform.

3.1 User Management and Single Sign-On

The lifecycle of an Apex customer consists of the following states:

Status	Description
Onboarding	This status is used during the creation of the customer record while not all of the data is available in the database to avoid errors.
QA	This status means the historical data has been imported and the dashboards are ready for QA, but the trial has not been active yet.
Trials	This status means all of the historical data has been imported, ongoing jobs are set up and running and the client has access to the dashboards.
Active	This status means all the historical data has been imported, ongoing jobs are set up and running, the client has passed the trial period and is now paying for a subscription.
Inactive	This status means the client no longer has active credentials to access the dashboards.

3.1.1 Single Sign-On Integration (SSO)

The integration of Single Sign-On (SSO) in Apex ensures a seamless and user-friendly authentication experience across multiple systems. SSO allows users to log in with a single set of credentials and gain access to various interconnected software systems without the need for separate logins.

Previously, Apex required users to log in separately to both Kentico and Tableau, which resulted in a fragmented user experience. To address this, Apex incorporated Okta, a leading SSO provider, to serve as a middleware facilitating a unified sign-on experience that seamlessly integrates with Tableau.

<https://www.okta.com/products/single-sign-on/>

Since the deprecation of Tableau, Apex now solely relies on Kentico as the tool that requires user authentication. However, the decision was made to retain Okta as the Single Sign-On (SSO) provider in the system. This choice ensures that Apex remains adaptable and ready to integrate with other tools or systems in the future, should the need arise.

3.1.2 User Registration

The user creation process for Apex involves two scenarios depending on whether the customer account is new or already exists. The following outlines the steps to be followed in each scenario:

Scenario 1: New Customer Account

Prerequisites:

1. *Daxko team must grant access to the Vault and Club Automation database data and tables for the customer and provide the "Club Key" for this customer on their end from the Vault.*
2. *Customer record must be created in APEX's Database*

When creating a new customer account, if the user is the first user for that account, the representative should follow this link:

<https://fitnessoneapp.com/onboarding/?section=master-user>

The link will direct the representative to the onboarding wizard's Master User section, where they can create the initial user for the new customer account.

Step 1: User Information

Step 1 of 4



CREATE YOUR FITNESS ONE **USER**

Please enter information below:

First Name

Last Name

Email Address

Phone Number

Continue

Step 2: Customer Assignment:

The second step will require the representative to choose the Customer for this user. If the Customer record has not been created, this will need to be created in the database first.

Step 2 of 4



WHAT IS THE NAME OF **YOUR ORGANIZATION?**

Customer Name

Back

Continue

Step 3: Club Management Keys:

The representative has to input provided Club Key and Database Schema Name.

Step 3 of 4



CLUB MANAGEMENT KEYS

Please enter the custom club management keys provided by the Vault administrator

External Customer Key

External Database Schema Name

Back

Continue

Step 4: Create Account

Next, you will see a “Create User” button on the screen, once the button is clicked a confirmation screen will appear letting the user know that the new account is ready to be created. Once the representative completes the user creation process in the Master User section, the initial user for the new customer account will be successfully created.

While this process is seamless to the user, there are a series of processes which are occurring behind the scenes in APEX that make the creation of new accounts possible within the system itself. The visual below depicts these backend processes along with the relevant systems where those activities occur.

Account Controller <i>/api/account/users/new</i>	
Kentico User	1. A new user is created in Kentico and assigned to website 2. Roles are assigned a. FitnessOne_Permissions_Owner b. FitnessOne-User-Onboarding c. FitnessOneOnboardingCustomer 3. Custom Settings are set a. Customer ID b. Customer External Key c. Customer External DB Schema Name d. Privilege Level is set to “None” 4. Kentico User ID returned
Master Database User	A new user is created in the “users” table with the given Kentico User Id
Okta User	A new user is created in Okta with the same password as the Kentico user
Welcome Email	A welcome email is sent to the user from Okta

Scenario 2: Existing Customer Account

If the customer account already exists and additional users need to be added to that account, the representative should access the Customer Settings and Onboarding Wizard.

Technology Stack

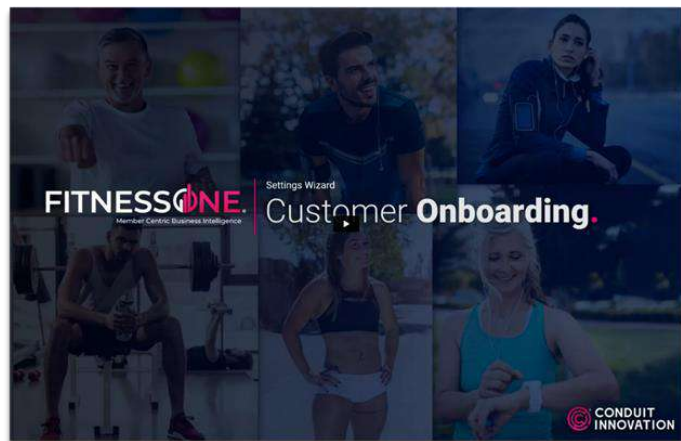
Customer Onboarding & Settings Wizard.

Fitness One's customer onboarding and customer management has been built for non-technical account managers to onboard customers and manage information specific to their gym(s).

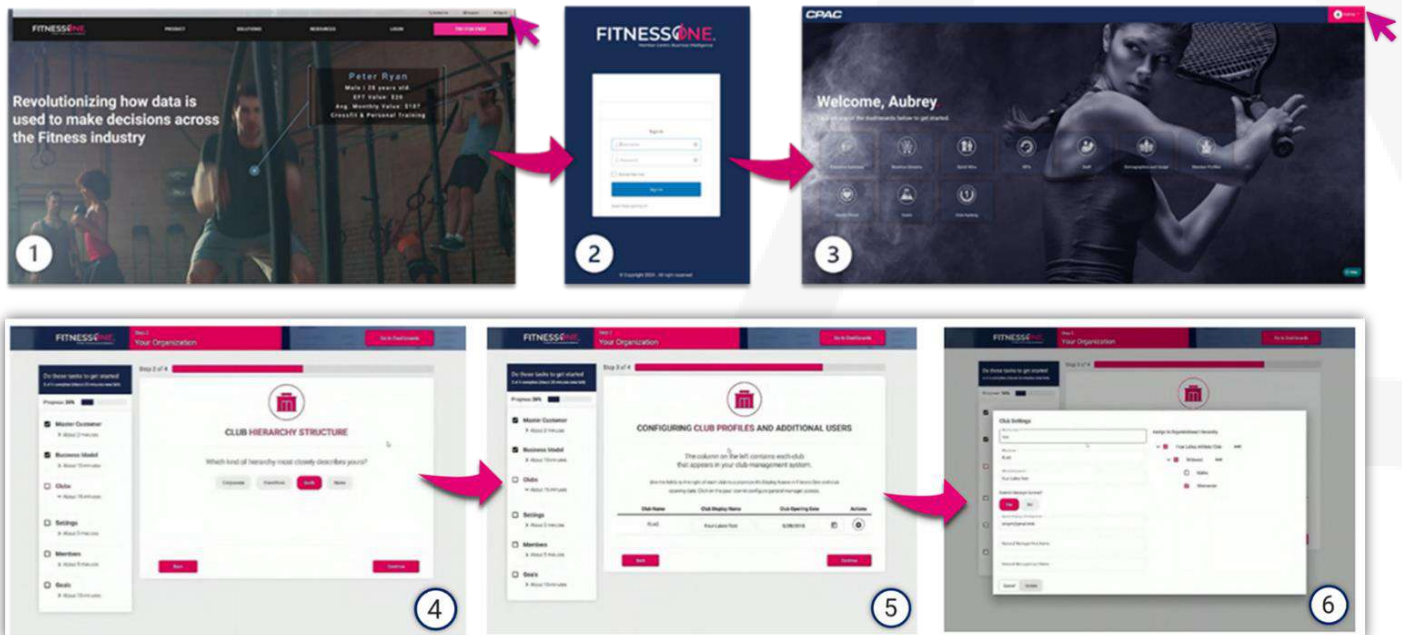
Onboarding Wizard Video

Click the thumbnail on the right to view the entire onboarding process that will set up a customer within Fitness One's backend.

This entire module has been custom developed and can scale regardless of the front-end interface (chatbot or otherwise).



The Onboarding Wizard was built to walk non-technical users through the setup process to ensure that the data which lives within the systems they use in their clubs is accurately, visually represented within their deployment of Apex .



Step 1: In the onboarding wizard, navigate to the “Clubs” section specifically designed for managing clubs and users. Click though the steps until the “CONFIGURING USERS AND ROLES” section and click “Add New” button.

Step 4 of 4



CONFIGURING **USERS** AND **ROLES**

Below you will find each of the user accounts that were established for your Fitness One deployment. For each user you have established, click on the gear icon to complete the configuration of that user.

Name	Role	Email	Actions
Benj Ecker	Owner	benje@cpacweb.com	

+ Add New

Back

Continue

Step 2: Within the Users section, the representative can add the necessary user details, including full name, email, phone, job title and role.

User Settings

Input User Details:

First Name

Last Name

Email Address

Phone Number

Job Title

Role

Cancel

Create

Please select which clubs the user has access to:

A user in the "Owner" role has access to all clubs.

College Park

Step 3: Click “Create” to create the new user and follow the prompts which are provided by the Onboarding and Settings Wizard. Upon completion of this process, new users will be successfully added to the existing customer account.

As in Scenario 1, there are a series of processes which are occurring behind the scenes in APEX that make the creation of additional users possible. The visual below depicts these backend processes along with the relevant systems where those activities occur.

Account Controller /api/account/users/new	
Kentico User	1. A new user is created in Kentico and assigned to website 2. Roles are assigned a. If Owner - FitnessOne_Permissions_Owner b. If General Manager - FitnessOne_Permissions_GeneralManager 3. Custom Settings are set a. Customer ID b. Customer External Key c. Customer External DB Schema Name d. Privilege Level is set to “None” 4. Kentico User ID returned
Master Database User	A new user is created in the “users” table with the given Kentico User Id
Okta User	A new user is created in Okta with the same password as the Kentico user
Welcome Email	A welcome email is sent to the user from Okta

3.1.3 Authentication

Within the Apex system, the integration of Okta with Kentico enables a seamless authentication experience for users. When a user attempts to log in, Kentico leverages an embedded widget provided by Okta to handle the authentication process.

The slide features a dark blue background with a road leading into the distance. On the left, the Okta logo is displayed above a box titled 'Key Highlights' which describes 'Okta Single Sign On' as a secure cloud solution. On the right, a screenshot of the FitnessOne login page is shown, featuring an embedded Okta sign-in widget with email and password fields, a 'Remember me' checkbox, and a 'Sign in' button. A large pink bracket connects the 'Key Highlights' box to the login widget in the screenshot.

Authentication

3.1.3 Authentication.

Apex's **user management** provides a **seamless customer login experience** while **integrating multiple systems** in the back end ensuring **security** and **valid permissions** by **leveraging** an industry leading **single sign on solution – Okta**.

Okta

Key Highlights

- Okta Single Sign On**
A secure cloud single sign-on solution that IT, security, and users will love.

FITNESSONE
Member Centric Business Intelligence

Sign in

☐ Remember me

Need help signing in?

Here's how the authentication flow works:

1. Kentico displays an embedded widget from Okta on the login page. This widget acts as a gateway, directing all authentication activity through Okta's secure infrastructure.
2. When a user enters their credentials and submits the login form, Okta authenticates the user's information against the configured authentication providers and validates their identity.
3. If the authentication process is completed successfully by Okta, a custom API callback function within Kentico comes into play. This function utilizes the Kentico API to initiate a behind-the-scenes login for the user within the Kentico system.
4. The custom API callback function handles the necessary steps to authenticate the user in Kentico, including verifying the user's existence, setting the appropriate session parameters, and managing the login process without requiring the user to re-enter their credentials

The custom code is managed in the “Login” page layout.

```

<script>
  var signIn = new OktaSignIn({ baseUrl: 'https://theoneconduit2019.okta.com' });
  signIn.renderEl({
    el: '#widget-container'
  }, function success(res) {
    if (res.status === 'SUCCESS') {
      var login = res.user.profile.login;
      $.get('/api/user/auth', { id: login }, function(data) {
        console.log(data);
        res.session.setCookieAndRedirect(location.origin + data.redirectUrl);
      });

    } else {
    }
  });
</script>

```

The visual seen below depicts these backend processes along with the relevant systems where those activities occur.

User Controller: /api/user/auth

Kentico API	Responsibility
GetUser	Returns a user by Kentico ID
AuthenticateUser	Authenticates a user by email address provided as id - Checks that the user exists - If yes, authenticates the user, password is not needed since Okta has validated the login credentials already. - Sets the cookie expiration time

3.1.4 Managing User Roles and Permissions

Role Name	Function
<i>FitnessOne Active Customer</i>	Ensures the user has an active account and grants access to the web portal
<i>FitnessOne Onboarding Customer</i>	If the customer has not completed the onboarding process, they are automatically in this role and are redirected to the onboarding wizard. They cannot see their dashboards while in this role.
<i>FitnessOne - Single Location Account</i>	If the customer only has a single location, choose this role to hide non-relevant sections.
<i>FitnessOne - Multi Location Account</i>	If the customer has more than 1 location, choose this role to show all sections including multi-location only sections.

3.1.5 Deleting a Customer

To delete a customer, the following steps should be taken:

1. Remove “Apex Active Customer” role from the user
2. Change customer status to “Inactive”
3. Delete the user from Okta

3.1.6 Security

Ensuring the security of customer accounts, user access, and data integrity within the Apex system is a top priority. The platform implements multiple layers of security across authentication, authorization, and data handling.

Authentication and Identity Management

- **Okta Integration:** All user authentication is managed through Okta, providing secure, industry-standard Single Sign-On (SSO) and Multi-Factor Authentication (MFA) capabilities.
- **Token-Based Authentication:** Apex uses secure token-based authentication for all API calls, ensuring encrypted and validated access.
- **Session Management:** User sessions are managed via secure cookies with appropriate expiration policies to prevent unauthorized access.

Data Security and Compliance

- Data Encryption: All user credentials and sensitive data are stored in encrypted formats within Kentico and Okta.
- Secure API Communication: All data exchanges between the system components (Kentico, Okta, Master Database) are encrypted using HTTPS with TLS 1.2+.
- Audit Logs: Authentication and role modification events are logged for security monitoring and compliance.

Account Protection and Monitoring

- Failed Login Attempts Handling: Multiple failed login attempts trigger account lockout policies to prevent brute-force attacks.
- User Activity Logging: System administrators can monitor user access and activity logs for potential security threats.
- Okta Security Policies: Okta enforces security policies, such as password complexity requirements and session timeouts.

By implementing these security measures, Apex ensures a secure environment for customer accounts while maintaining compliance with industry best practices.

Security

3.1.6 Authorization.

Apex is configured to allow Administrators the capability of granting tiered access to Users or additional Administrators based on their role to optimize the end user interface so that it is tailored to their role(s), priorities and focus areas.

General

Password

Settings

Custom fields

Sites

Roles

Categories

Subscriptions

The user is member of the following roles:

Action	Roles	Valid to
☐	FitnessOne - Customer - Fit Factory	
☐	FitnessOne ACT Plan Customer	
☐	FitnessOne Active Customer	
☐	FitnessOne ANALYZE Plan Customer	
☐	FitnessOne PREDICT Plan Customer	

Default

Web part control ID: MemberSnapshot

Web part title: Member Snapshot

Visibility

Visible: ☒

Hide on subpages: ☐

Show for page type: Select Clear

Display to roles: FitnessOneACTPlanCustomer Select Clear

Key Highlights

Global Customer Keys & Systems Roles

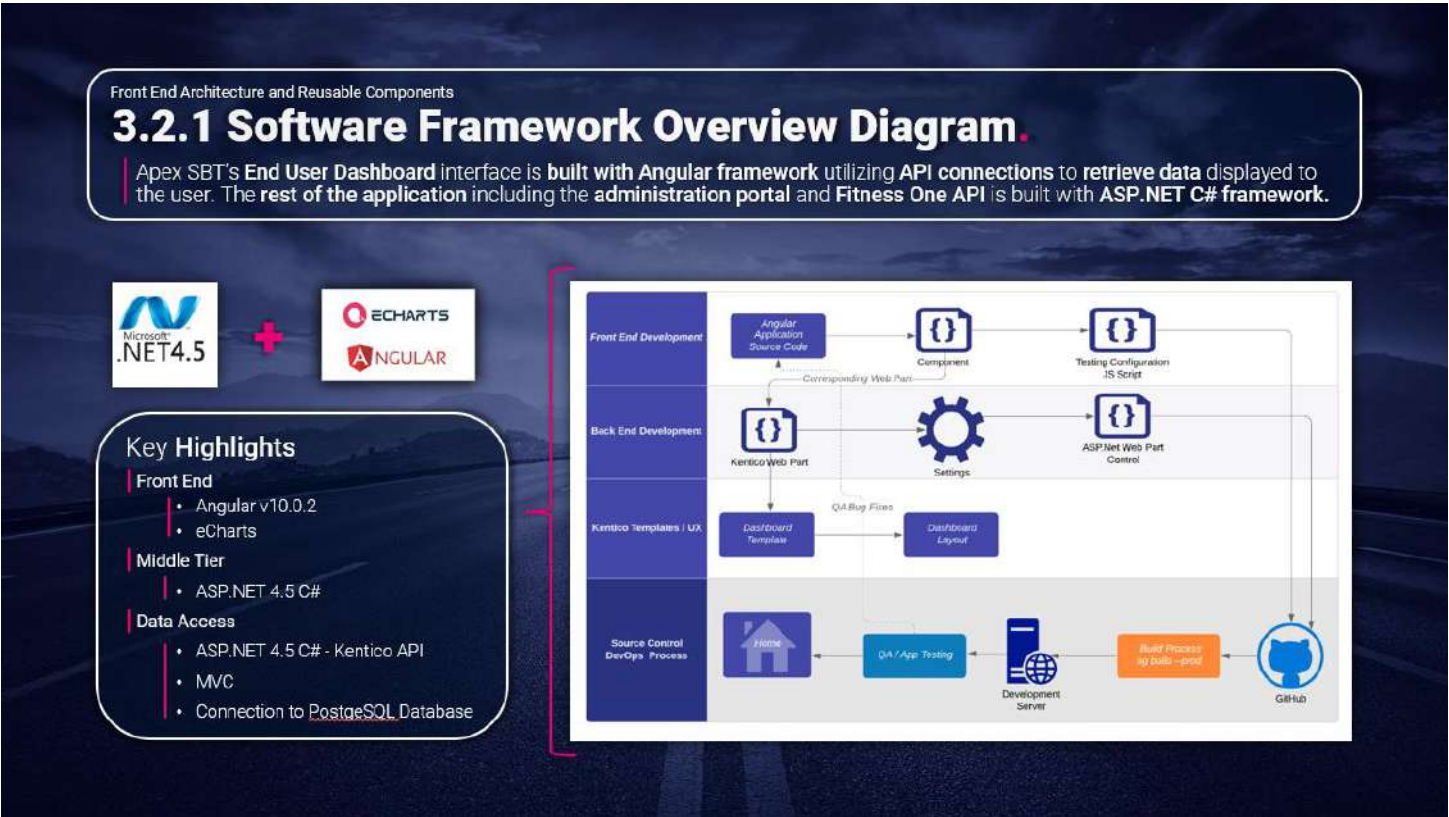
- Active Customer
- Plan Specific Customer
- Customer Role for Any Customer Specific Customizations

Dashboards

- Data Access Control by Club
- Dashboard Access
- Zones and Widgets Based on Role
- Zones and Widgets Based on Plan
- Menu Items Visibility

3.2 Frontend Architecture & Reusable Components

3.2.1 Introduction to Angular Framework



The front-end application of the web portal is developed using Angular.js, a powerful JavaScript framework. The development process involves the following steps:

- Component Development:** The application is divided into reusable components, each responsible for specific functionality.
- Component Testing:** Rigorous testing is conducted to ensure the components work as intended.
- Production Build:** The final application is built for production, optimizing performance and resource usage.

Frameworks and Libraries:

- Angular.js
- Echarts.js
- Bootstrap.js
- SCSS (Stylesheet)

3.2.2 Benefits of Angular for Web Portal Development

When it comes to developing a web portal, leveraging the Angular framework offers numerous benefits that contribute to the efficiency and effectiveness of the development process. Here are some key advantages of using Angular for web portal development:

- **Modular and Reusable Components:** Angular promotes a component-based architecture, allowing developers to break down the web portal into modular and reusable components. These components can be easily managed, tested, and maintained, enabling faster development and facilitating code reusability across different parts of the portal.
- **Enhanced Developer Productivity:** Angular's extensive set of features, tools, and libraries empowers developers to work more efficiently. The framework provides a clear structure and well-defined guidelines, reducing the time and effort required for development tasks. Additionally, Angular's built-in functionalities such as data binding, dependency injection, and TypeScript support enable developers to write clean, concise, and maintainable code.
- **Robust and Scalable:** Angular is designed to handle complex web applications, making it an ideal choice for building scalable web portals. The framework incorporates features like lazy loading, which loads only the necessary components and modules when required, optimizing performance and reducing the initial load time of the portal. Angular's ability to handle large-scale applications ensures that the web portal can accommodate future growth and expansion.
- **Seamless Integration with Backend Services:** Angular seamlessly integrates with various backend technologies and APIs, enabling us to connect the web portal with Apex REST API. This facilitates data retrieval, storage, and manipulation, ensuring smooth communication between the frontend and backend systems.
- **Cross-Platform Compatibility:** With Angular, developers can build web portals that are compatible with various platforms and devices. Angular's responsive design capabilities, along with its support for progressive web applications (PWAs), enable the portal to adapt seamlessly to different screen sizes and devices, ensuring consistent user experiences across desktops, tablets, and mobile devices.

3.2.3 Reusable Components & Dynamic UI Elements

Interfaces – Structure Baseline

Interfaces in TypeScript provide a mechanism to enforce consistent structure across components during application development. By defining the properties and their types that an object must have, interfaces ensure adherence to a specific structure or shape. In other words, an interface outlines the required properties and their types for an object to be considered as implementing that interface.

The visuals below represent the various interfaces developed for/in Apex SBT:

Interface	Description
<i>ITableModels</i>	Describes the structure of a table model, consisting of header and rows.

Interface	Description
IAIParams	Defines various parameters for a component, such as token, profile, sort, style, appMenu, logo, global settings, logOutHref, and banner.
IGlobalSetting	Represents global settings used on every dashboard page with properties like token, profile, sort, style, appMenu, logo, banner, filter, additionalFilter, and filterEnabled.
ICommonHeaderFields	Defines common header fields for a component, including controls, headerId, type, title, description, dropdown, filter, additionalFilter, showHelpButton, showHeaderImage, subtitle, and introduction.
ICommonWidgetFields	Specifies common widget fields like viewId, innerViews, headerId, columnNames, columnTypes, initialData, headers, rows, mainData, layout, additionalFilter, and subQueryViewId.
IInnerView	Describes an inner view with properties such as name, viewId, columnNames, pivotDimension, pivotMeasure, pivotCompTabMeasure, and chartOptions.
IColumnName	Represents a column structure with properties like id, name, title, decimalPlaces, border, currencySymbol, symbolPosition, rankColumn, highlight, highlightValue, showChange, source, scenarioFilter, insightLabel, link, and linkQueryField.
IMemberProfileResult	Defines a member profile result with properties profile and value.
IDynamicHighlightBox WithTrendComponent	Describes a dynamic highlight box with trend component, including style, text, values, cache, and image.
IMultiComponent	Represents a multi-component with properties like styles, type, types, activeType, title, quarter, quarterCol, tablePanelEnable, tableSettings, chartOptions, initialData, customFilter, height, reverseValues, showLargeLabelSize, and legendViewId.
IStaticTablesComponent	Specifies a static tables component with properties like styles, tableHead, title, pager, showTitle, startRowEven, innerViewData, type, style, tablePanelEnable, tableSettings, pivotDimension, pivotMeasure, dynamicViewNameDimension, dynamicCompViewName, dynamicCompViewMeasure, sortRules, sortColumn, types, chartOptions, cache, and rankings.
ISingleItemComponent	Specifies a single item component with properties like sortRules, sortColumn, type, title, subTitle, img, profile, profileColumn, value, valueColumn, valueFormat, postfics, rankColumn, postficsColumn, colorColumn, position1 to position6, link, linkQueryField, and useLargeDisplay.
IChart	Describes a chart component with properties like type, labels, columnsTypes, seriesOptions, seriesNameColumnTypeDateFormatInput, seriesNameColumnTypeDateFormatOutput, seriesName.

Re-Usable Components

Naming Convention

Each component must adhere to the following naming convention to be used in the application:

```
<app-cXXX id="ComponentCodeName_UniquelId">
```

- **<app-cXXX>**: Represents the prefix indicating a Apex component with a unique number replacing XXX. A page can contain up to 200 different components.
- **id**: Specifies the unique identifier for component, combining the Component Code Name and a unique ID.

Configuration

When configuring a component, the following guidelines should be followed:

- **View ID**: Each component must have a valid View ID associated with it. This ID is used to retrieve the relevant data from REST API and display it within the web part.
- **Additional Filter**: Components may include an optional additional filter for the REST API. This filter allows for receiving a subset of data from the same View ID, enabling customized data presentation based on specific criteria.

The following components have been created to be used in the Apex Web Portal to render data in custom designed format or a charting framework, called Apache eCharts (<https://echarts.apache.org/en/index.html>).

Component	Description
header	The header is a reusable component responsible for displaying a header component in the web portal. This component is used to break up the sections on page. It provides a header section with various layout options and interactive elements such as titles, help buttons, and descriptions.
filter-form	Dashboard filter container that allows the user to filter the page component's data based on their selection for club location and member profile.
dynamic-highlight-box-with-trend	• Style: "comparison": Renders a white highlight box with a title and two values that are compared to show percentage increase or decrease indicator • Style: "comparison-card" • Style: "percentage" • Style: "rank": Provides a trophy image for position 02 if available.

Component	Description
Example Case: Club Usage <pre> <app-c053 id="DynamicHighlightBoxWithTrendComponent_AppointmentClients"></app-c053> <script>window.DynamicHighlightBoxWithTrendComponent_AppointmentClients = { viewId: 'F74FF07A-F616-406D-8BCC-32BB609AEE49', apiVersion: 'v2', headerId: 'HeaderComponent_01', style: 'rank', additionalFilter: 'vf_rank_power_score_appointment_member_count-1', footer: { link: '/platformv2/modals/configuration/upsell', icon: 'cog' }, image: { url: '/FitnessOnePlatform/media/FitnessOne/Icons/Trophy.png' }, secondFonts: '', layout: { position01: { text: '1:1 Tennis Lesson Clients by Program' }, position02: { colName: 'program_name', format: 'string' }, position03: { colName: 'appointment_member_count', format: '' }, position04: { text: 'This Year' }, position05: { colName: 'appointment_member_count_current_program_last_year', format: '' }, position06: { text: 'Last Year' } } }</script> </pre>	
footer-link	Subcomponent used to show a link to a modal screen or disclaimer text
menu	The menu component provides a hierarchical structure with expandable and collapsible sub-menus, allowing for navigation and customization of menu items based on the provided data in the global Setting script on the page. The menu may display hard-coded links as well as dynamic set of links generated from an API end point.
(menu Example Case): Static Links <pre> appMenu: { enable: true, logo: true, links: [{ icon: 'Dashboard-Target', text: 'Executive Summary', expand: false, sub: [{ link: '/platformv2/dashboards/executive-summary#revenue-snapshot', text: 'Revenue Snapshot' }, { link: '/platformv2/dashboards/executive-summary#revenue-streams-portfolio', text: 'Revenue Streams Portfolio' }] }] } </pre>	

Component	Description
menu	An example of a case for dynamic links can be found in the space below.
<i>(menu Example Case): Dynamic Links</i> <pre> { icon: 'Dashboard-Icons-02', text: 'Product Types', expand: false, sub: [{ link: '/platformv2/dashboards/revenue-streams/product-types', text: 'Product Types Analysis' }, { link: '', text: 'Product Types List', expand: false, sub: [{ endpoint: 'https://fitnessoneapp.com/api/account/customers/producttypes?customerId=CUSTOMER_ID', link: '/platformv2/dashboards/revenue-streams/product- types/{product_type_name}', text: '{product_type_name}' }] }] },], </pre>	

Component	Description
static-tables	Types: - vertical – renders table data with rows as columns, usually used to display a single row of data with multiple measures. - horizontal – renders table data with rows as returned. - profile – renders member profile metric chart with static rows and tabs - dynamic-profile - dynamic-tabs-static-rows-profile - dynamic-tabs-profile

Component	Description
multi-component	A dynamic wrapper component that switches between different visualizations, supporting multiple styles like bar chart, line chart, pie chart or a quadrant in addition to table view. Table Types: - static – Displays tabular data in a fixed format. - pivot – Displays pivot table data for comparisons. Chart Types: - line – Renders a line chart for trend analysis. - pie – Renders a pie chart for category distribution. - column – Renders a bar chart for comparisons. Active Type: trend or table for the default load. Height: Optional setting to hard-code a height in pixels. Column Settings: - decimalPlaces – Defines precision for numerical values. - currencySymbol – Sets formatting (\$, %, or string). - showChange: yes – Displays percentage change indicators. - link – Allows linking to detail pages with dynamic query fields.
Ai-narration	The AI Narration component reads through specified datasets on the page rendered by other components such as static tables and uses conditional logic to render the insights in plain English. It provides settings for the content with placeholders to be populated from results of the calculations performed given criteria requirements.
Quick-wins-insight	Quick wins component provides a layout for the quick wins section to highlight an opportunity and a downloadable list of actions based on the opportunity.
Single-item	Single item component renders a highlight for one record such as a member profile or a featured day of the week. This is used for data highlights with a single row.

3.2.4 Data Handling & REST API Integration

The PostsService class is a core service in the Angular application that retrieves, caches, and manages data from the Apex SBT REST API. It provides utility methods for handling API requests, data caching, and query processing.

Key Functionalities

- Retrieves data from the Apex SBT API and caches it for optimized performance.
- Supports query string modifications to apply filters dynamically.
- Provides GET and POST request handlers for flexible API communication.

3.2.5 Methods Overview

query(query: string):

Formats and processes a query string for API calls.

- Removes redundant query prefixes (query= or &query=).
- Returns a modified query string for API request compatibility.
- `readData(viewId: string, query: string, cld?: string, hld?: string, apiVer?: string)`
- Loads data for a specific view ID and query, with caching optimization.
- Checks if data is already cached
- If available, retrieves from cache.
- If not cached, makes an API request to fetch data and stores it in cache.
- Handles error cases and provides fallback mechanisms.
- Triggers UI updates via `onViewIdCreated$ BehaviorSubject`.

Example query API URLs:

```
url += `/api/data/GetData?token=${token}&siteId=${this.siteId}&viewId=${viewId}${this.query(query)}`;
```

get(url?: string, headers?: HttpHeaders)

Performs a GET request to retrieve data from the API.

- Returns an Observable for asynchronous data handling.
- Accepts optional headers for authentication or other configurations.
- `post(url?: string, requestBody?: any, headers?: HttpHeaders)`
- Performs a POST request to send data to the API.
- Accepts a `requestBody` parameter for sending payloads.
- Supports optional headers for authorization and content-type handling.

readDataFromTemp()

- Retrieves temporary stored data via an Observable.
- Uses dataFromTempO\$ for reactive data streaming.

getClubHierarchyFlag(customerId: string)

Fetches customer-specific settings from the API.

- Calls endpoint: /api/account/customers/{customerId}/settings/list.

getHierarchy(customerId: string)

- Retrieves the organizational hierarchy of clubs under a customer.
- Calls endpoint: /api/account/customers/{customerId}/clubs/hierarchy.

Caching Mechanism

- The service caches API responses to reduce redundant network calls.
- Cached data is stored in storageService and accessed via cachedData.
- Cache Key: A unique identifier generated using viewId and query.
- Expiration: Cached data is only reused if its last API call timestamp is greater than the start of the current day.
- If cache is available, the service:
 - Retrieves data from storageService.cacheData.
 - Triggers a UI update via onViewIdCreated\$.
- Prevents unnecessary API calls.

Error Handling

- Uses catchError to handle API request failures.
- If an error occurs, it sets errorMsg = 'error!!!!' and returns an empty response.
- Ensures that API failures do not crash the application.

RxJS Observables & State Management

- The service leverages BehaviorSubjects for real-time updates and global state management.

Global State Observables

- *globalSetting\$* → Stores global settings (filterEnabled, etc.)
- *filterFormUpdated\$* → Tracks updates to filters.
- *filterDropdownsUpdated\$* → Monitors dropdown selection changes.
- *onViewIdCreated\$* → Notifies UI components when data is loaded.

Temporary Data Observables

- *dataFromTempO\$* → Streams temporary data as an Observable.
- *dataFromTempB\$* → Uses BehaviorSubject for temporary data state.

The PostsService is a critical API management service that enables efficient data retrieval, caching, and query filtering in the Apex application. It ensures optimized API calls, reduces load time, and provides a reactive data flow using RxJS Observables.

Refer to the [Rest API section](#) for a complete list of end points.

3.3 Kentico CMS, Web Parts and Dashboard Creation

3.3.1 Kentico CMS Overview

Kentico CMS is a robust and versatile Content Management System that offers a wide range of features and capabilities. The current deployment of Kentico is responsible for managing both the prospect-facing website and the web portal, which requires users to have valid login credentials.

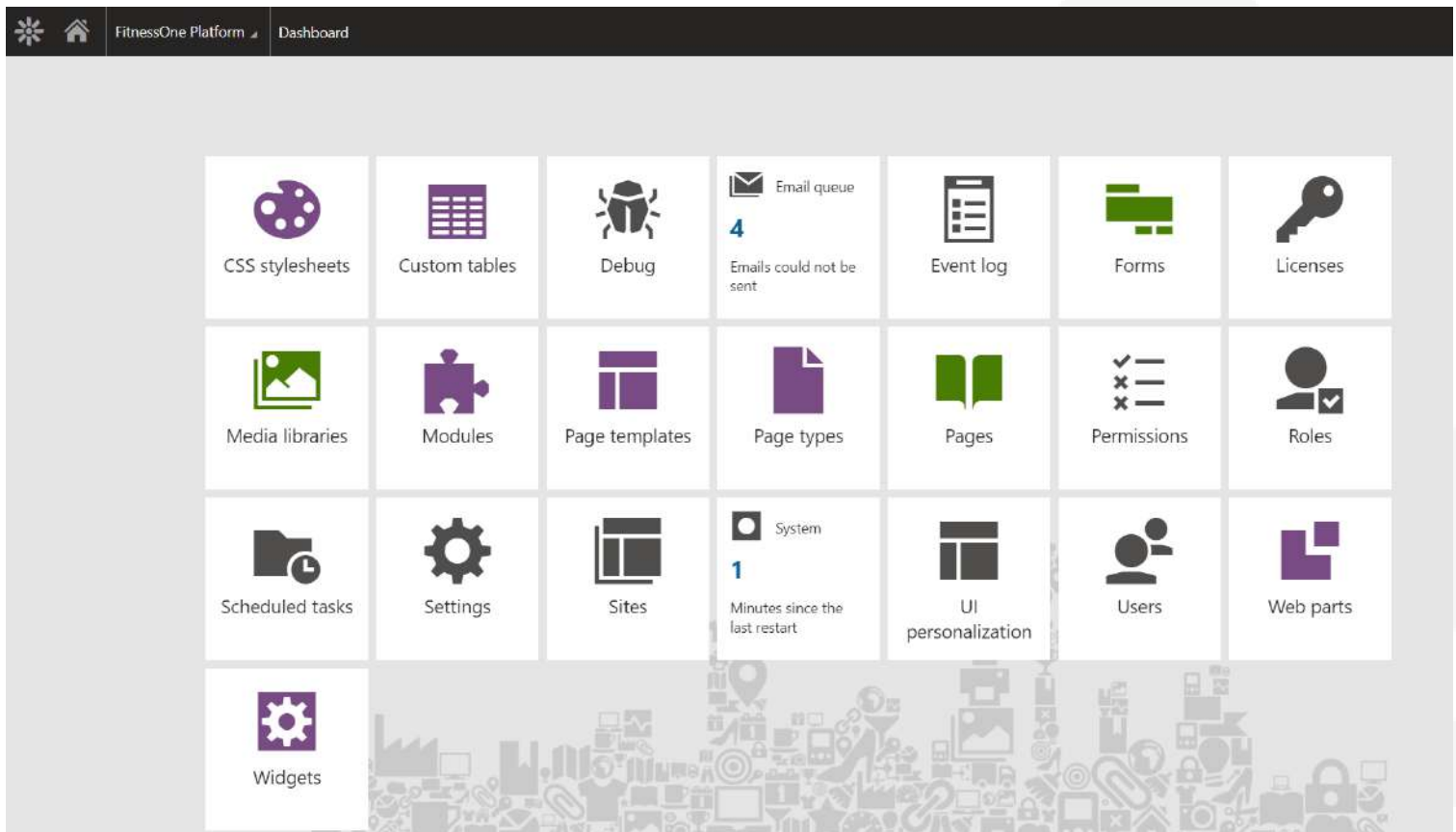
The web portal interface is organized and maintained within the designated "platformv2" folder in the content tree. This folder serves as the central location for managing and configuring the various components, templates, and content associated with the web portal.

By leveraging Kentico's powerful content management capabilities, administrators can easily control and customize the content, layout, and functionality of the web portal to meet the specific requirements of the business or organization.

Administration Interface

The administration of the web portal is managed with Kentico's admin applications and requires an editor login.

Login URL: <https://fitnessoneapp.com/admin>



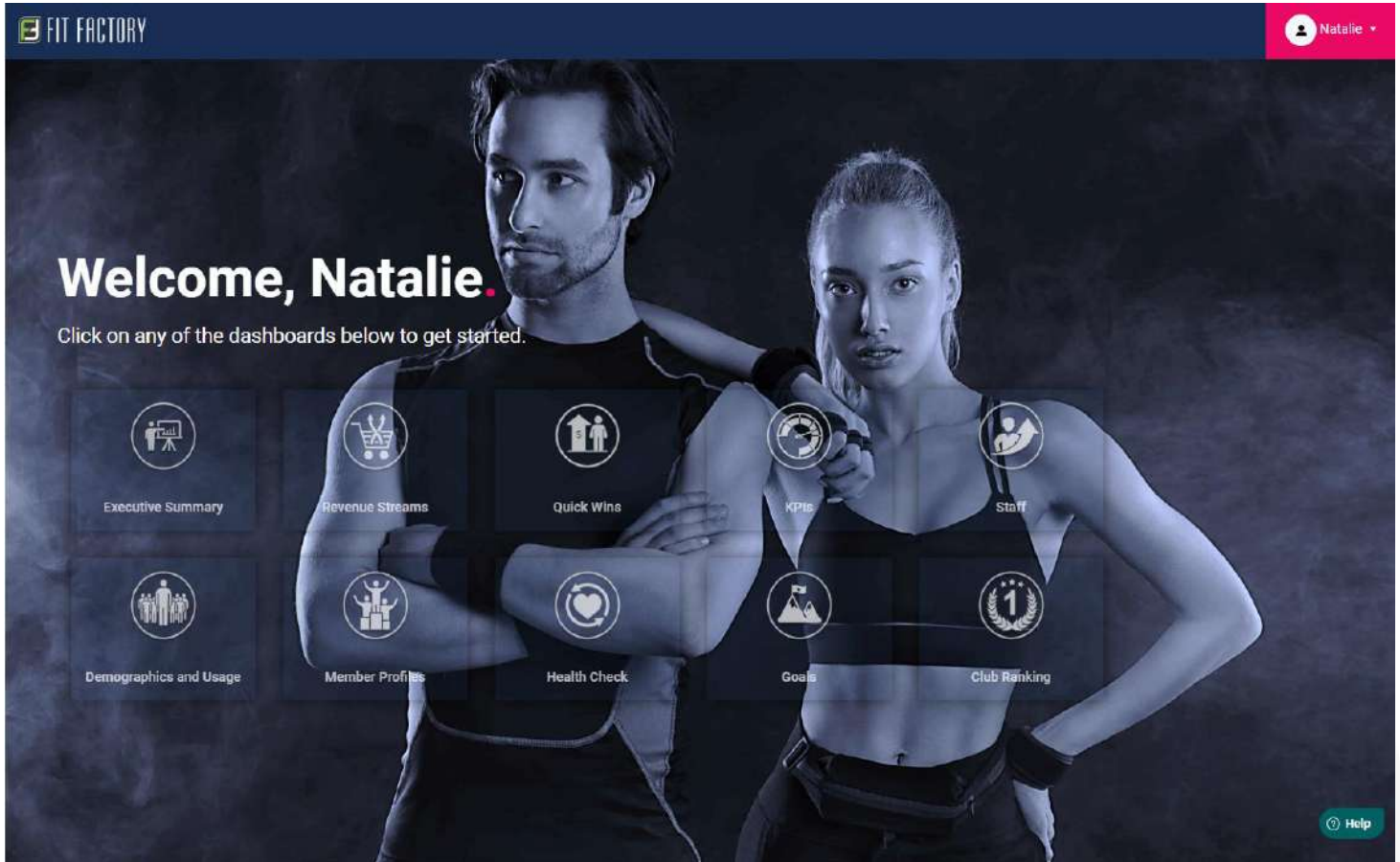
The list below describes the applications or modules used in the Apex Web Portal Deployment:

<i>Application / Module</i>	<i>Function</i>
<i>Pages</i>	All the items in the content tree are pages with a unique URL. The content tree allows us to create a logical hierarchy and order content. The web portal utilizes “Menu Items’ and “Structured Pages” in Kentico for a controlled editor-friendly interface.
<i>Custom Tables</i>	Custom tables allow you to create your own tables in the system database. You can manage the data in custom tables without using Microsoft SQL Server Management Studio or any other database management tool. You will find this useful especially when you need to store a large number of items in a flat data structure. Standard Kentico pages are not as efficient as custom tables for storing items in a flat structure.
<i>Page Types</i>	Page types allow you to create pages with a custom set of fields to be populated by the editor. The templates will use the populated content or settings to configure the template programmatically, so the editors don’t have to worry about formatting. All page types store different transformations (snippets of code to render the content) that can be used in repeaters to generate the layout consistently each time.
<i>Templates</i>	Page templates define the structure, design and core functionality of pages.
<i>Roles</i>	Roles define authorization options for users, i.e. which actions they are allowed to perform on the website. Roles provide an interface that maps permissions to users in a way that can easily be reused. Each role can be assigned to any number of users and vice versa – a user can be a member of an unlimited number of roles.
<i>Scheduled Tasks</i>	Scheduled tasks can be useful when you need to perform operations at a specific time or regularly over a certain time period.
<i>User Management</i>	There are two types of users: administrators and customers. Administrators have a privilege level to edit content and access the admin section of the web portal. Customers have login credentials to access the customer facing view of the Apex portal.
<i>Media Libraries</i>	All media files are stored and managed with the media libraries application which become available for editors to add to pages.
<i>Web Parts</i>	Web parts are custom controls built for Apex specifically to allow for any custom functionality to be added to a template / page.
<i>Event Log</i>	Event log provides records of all errors or warnings that occur within the web portal deployment.

Templates and Themes

Upon registration, each customer is provided with unique login credentials to access the Apex Web Portal. Once logged in, they are greeted with a personalized welcome screen, acting as a centralized hub for accessing all available dashboards.

If the customer is in the **"FitnessOneActiveCustomer"** role and have completed their onboarding process, they will see a list of dashboards they can access.



The rendering of dashboard tiles in the web portal is dynamically handled by a repeater web part, which is configured using the following settings:

- **Path:** This setting specifies the path to the dashboard pages within the content tree. Only the pages located at this specified path will be considered for tile rendering.
- **Order:** The **"NodeOrder"** property is utilized to determine the display order of the tiles. The pages' order in the content tree directly influences the order in which the tiles are presented.
- **Where Condition:** The Where Condition is set to filter the dashboard pages based on the value of the "Featured" flag. Only the pages where the "Featured" flag is set to true will be included in the tile list.

To ensure that new dashboards are displayed in the tile list, it is essential to enable the "Featured" flag when creating those dashboards. By enabling this flag, the newly created dashboards will meet the criteria and be included in the dynamically rendered tile list.

Path: Select

Data source name:

First Component Id:

Content filter

Page types: Select Clear

Category name: Select Clear

Combine with default culture: ☐ Yes ☐ No ☒ Use site settings

Culture code: Select Clear

Maximum nesting level:

ORDER BY expression:

For example, fill in "NodeLevel, NodeOrder, NodeName" to order pages as they are ordered in the content tree.

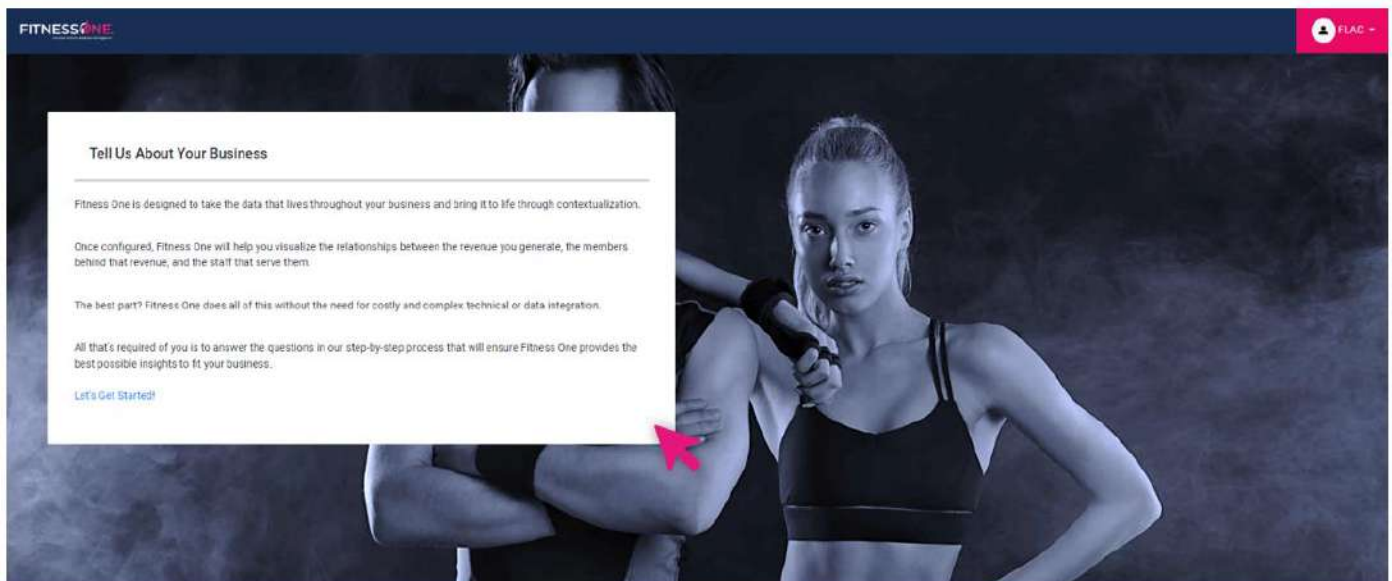
Select only published: ☐

Select top N pages:

Site name:

WHERE condition:

If the client did not complete the onboarding process and are still in the "FitnessOneOnboardingCustomer" role, the welcome screen will change to show content that redirects them to the onboarding wizard instead.

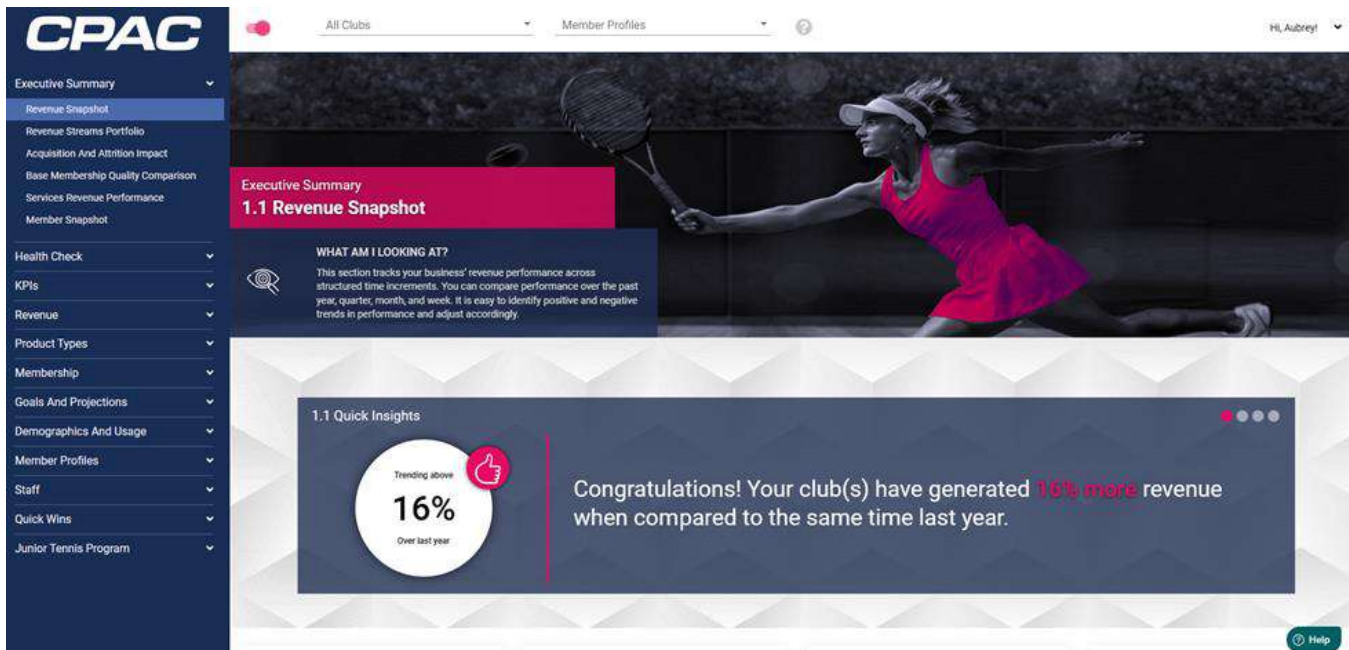


Menu and Navigation

The web interface features a concise menu, providing customers with a list of accessible dashboards. This streamlined navigation enables customers to effortlessly explore each dashboard and its associated sections, facilitating quick access to the desired information.

The menu – tree and dynamic data

The Apex Web Portal prioritizes user convenience, offering a seamless experience that allows customers to efficiently navigate through the system and gain valuable insights from each dashboard.



3.3.2 An Overview of the Kentico CMS Web Parts

Web parts are pre-built components that can be easily added to page templates by simply dragging and dropping them onto pages. These web parts offer a wide range of functionalities, allowing developers to enhance their websites with features such as content management, user authentication, e-commerce, social media integration, and more.

The key advantage of using web parts lies in their rapid development capabilities. With the intuitive drag-and-drop functionality, developers can quickly build and configure pages without the need for extensive coding. This streamlines the development process and saves valuable time. Additionally, web parts provide flexible customization options, allowing developers to tailor the appearance and behavior of each component to meet specific requirements. This level of customization ensures that the web parts seamlessly integrate into the overall design and functionality of the website.

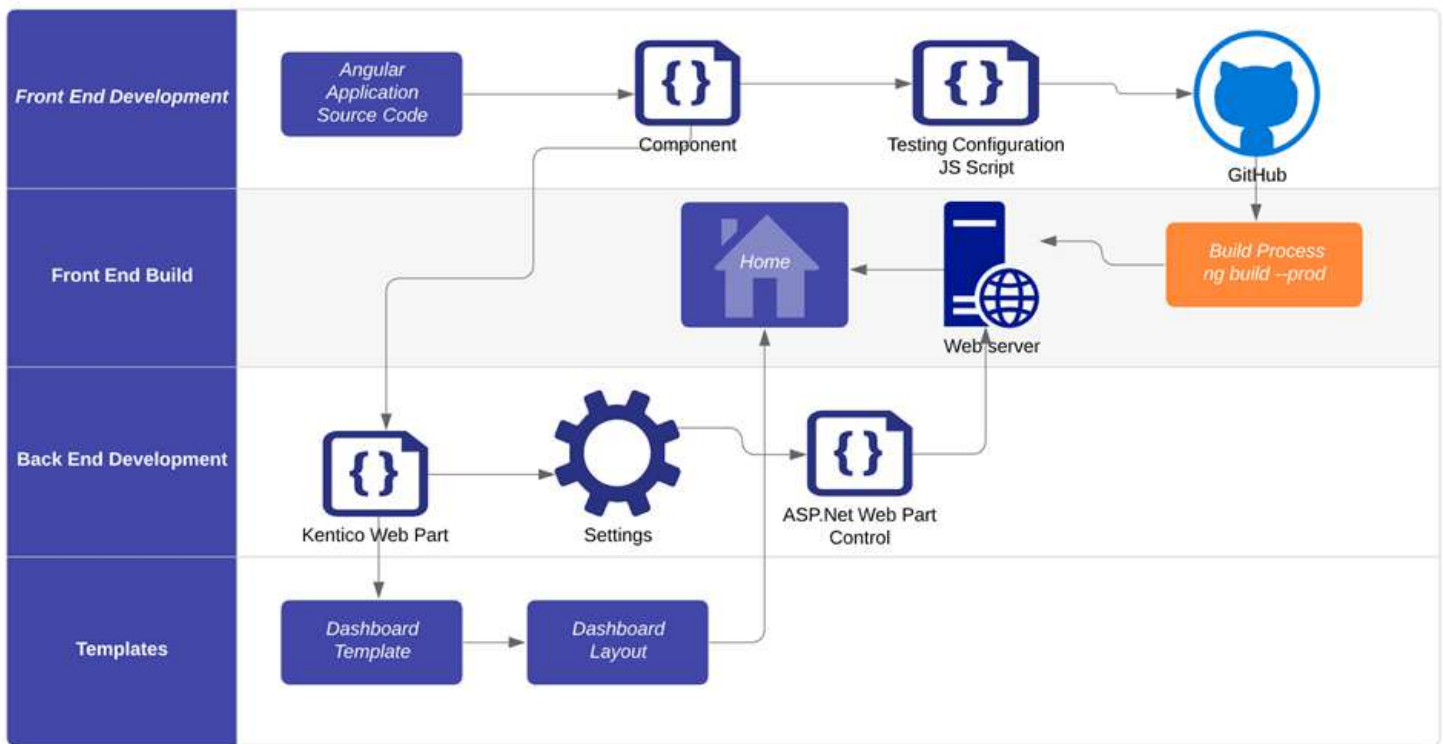
We have taken advantage of this functionality by creating custom web parts to extend the CMS's functionality and integrate with other systems or APIs. We have developed web parts for Angular framework components, which provide custom form fields for every input needed for each component. This eliminates the need to manually set up the components and provides an intuitive interface without requiring knowledge of the underlying configuration code.

Moreover, any changes made to the Angular component only need to be carried out in the corresponding Kentico web part. Once the update is applied, it is automatically reflected across all instances where the web part is used within the web portal. This streamlined process ensures consistency and reduces the effort required for maintenance and updates.

3.3.3 Integrating Angular Components with Kentico CMS Web Parts

Fitness One Web Portal Development Process

Natalie Deych | April 21, 2021



Integrating Angular components with Kentico CMS Web Parts involves a systematic development process to ensure seamless integration and deployment. The process consists of several steps to develop or update the Angular component and synchronize it with the corresponding Kentico web part.

Initially, the Angular component is developed or updated within the Angular framework. The component is thoroughly tested locally to ensure its functionality and reliability. Once the testing phase is completed, a development build of the framework is pushed to the development server.

If the Angular component is new, a corresponding Kentico web part needs to be created. This web part includes the necessary fields as properties, allowing for customization and configuration. Additionally, a C# code is implemented to generate the correct JavaScript code that will be rendered on the page. On the other hand, if the component already exists, the Kentico web part needs to be updated to incorporate any changes made to the JavaScript output and properties.

After making the required updates to the Kentico web part, it is pushed to the development server, ensuring that the changes are reflected in the development environment. To facilitate testing, a Component Tester Page is available on the development server. This page allows developers to conveniently test all the web parts and ensure their proper functioning and compatibility.

Once the updated code and web part changes have been thoroughly tested and validated, they are ready to be deployed to the production environment. The changes are pushed to the production server, ensuring that the latest version of the Kentico web part is available to the end-users. Additionally, the updated Angular code, stored in the "platform" folder on the server, is also pushed to the production environment.

By following this structured development process, Angular components can be seamlessly integrated with Kentico CMS Web Parts. The iterative cycle of development, testing, and deployment ensures that any changes or updates made to the Angular components and their corresponding web parts are successfully implemented in both the development and production environments.

3.3.4 Integrating Web Parts into Dashboard Templates

Each dashboard within the Apex Web Portal is an online page created in Kentico, utilizing a customizable template that can be easily repurposed to create multiple dashboards.

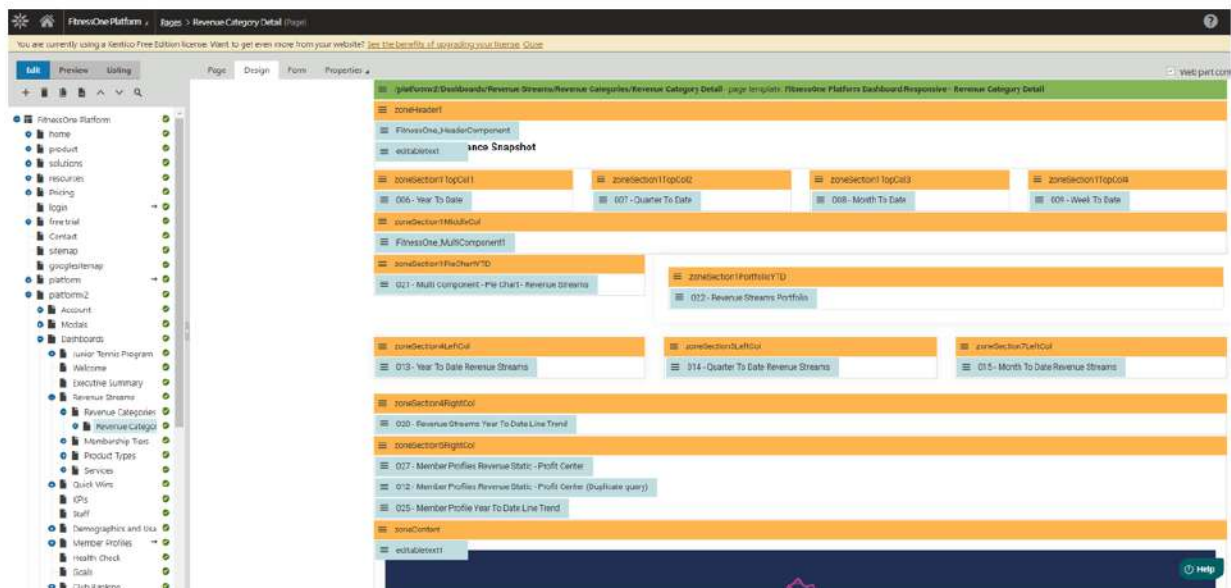
This approach ensures consistency in design and functionality across different dashboards, streamlining the development process and allowing for efficient management and updates.

Content Tree Path: platformv2 / dashboards

Page Type: Page (menu item)

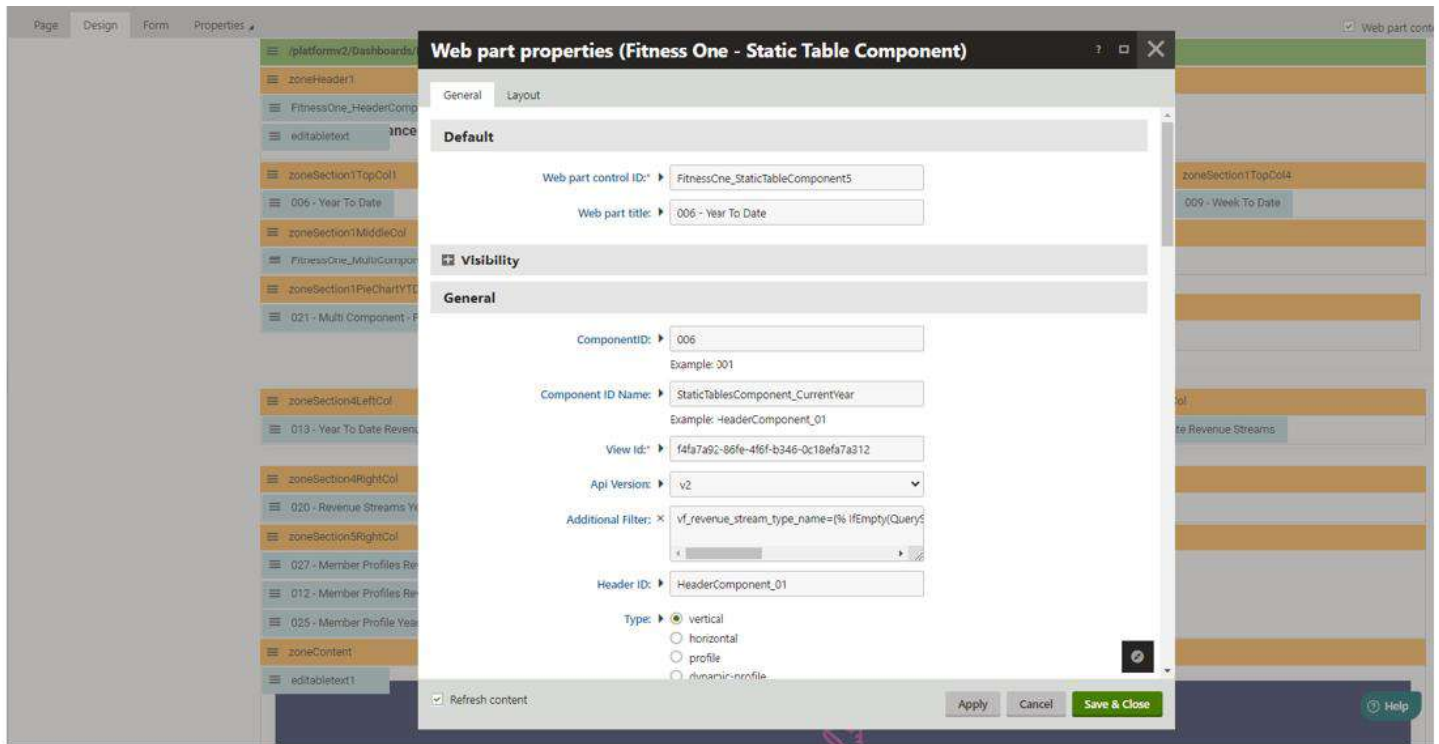
Template: FitnessOne Platform Dashboard Responsive – [DASHBOARD NAME]

Each dashboard within the Apex Web Portal is constructed using modular web parts, purpose-built to showcase diverse charts and insights on the page. One of the key advantages is the ability to edit and customize the dashboard directly on the screen through intuitive form fills.



This user-friendly approach eliminates the need for technical expertise or coding knowledge, ensuring that creating a dashboard is a straightforward and error-free process.

With this intuitive interface, users can effortlessly tailor the layout, content, and configuration of each dashboard to meet their unique requirements, resulting in a truly personalized and meaningful data visualization experience.



3.3.5 Kentico Web Parts

Default Kentico Web Parts

Kentico provides a set of default web parts that offer various features and functionalities out-of-the-box.

Custom Apex Web Parts

Apex extends the functionality of the web portal by introducing custom web parts. These web parts are built using Asp.NET control files, incorporating custom settings that align with the desired output from Angular components (scripts). This approach allows non-technical editors to easily configure settings via a form interface and add them to the templates.

Web Parts are managed within the “Web Parts” application in the Kentico administration:

Click “New web part” to create a new web part from scratch or clone an existing to carry over existing baseline code.

Configuration

When configuring custom web parts, the following guidelines should be followed:

- **ID:** Each web part must be assigned a unique id and code name.
- **Header Assignment:** Each web part must be assigned to a header that already exists on the web page. This ensures proper organization and placement within the layout.
- **View ID:** Each web part must have a valid View ID associated with it. This ID is used to retrieve the relevant data from REST API and display it within the web part.
- **Additional Filter:** Web parts may include an optional additional filter for the REST API. This filter allows for receiving a subset of data from the same View ID, enabling customized data presentation based on specific criteria.

By following these guidelines, developers and non-technical editors can effectively manage and configure custom web parts within the Apex Web Portal, ensuring consistent functionality and seamless integration with Tableau data.

These web parts offer a diverse range of functionalities, catering to different data visualization needs and scenarios.

Below is a comprehensive list of the available custom Apex web parts:

- Header Component
- Multi Component
- Chart Component
- Dynamic Highlight Box with Trend Component
- Quick Wins Insight Component
- Single Item Component
- Static Table Component

Each web part is customizable and can be configured to display relevant information based on specific parameters. The following sections will provide detailed descriptions and configuration options for each web part, empowering users to leverage the full potential of the Apex Web Portal.

Header Component



Header Component Custom Settings

The Header Component offers the following configurable settings:

- **Type:** Specifies the type of header to be displayed. For instance, “With Background Image” is the primary header type used across the application.
- **Title:** Sets the main heading or title for the header. Macros may be used to display dynamic content such page’s name for dynamically generated pages. Refer to Kentico documentation on Macro usage (<https://docs.xperience.io/k11/macro-expressions/reference-macro-methods>)

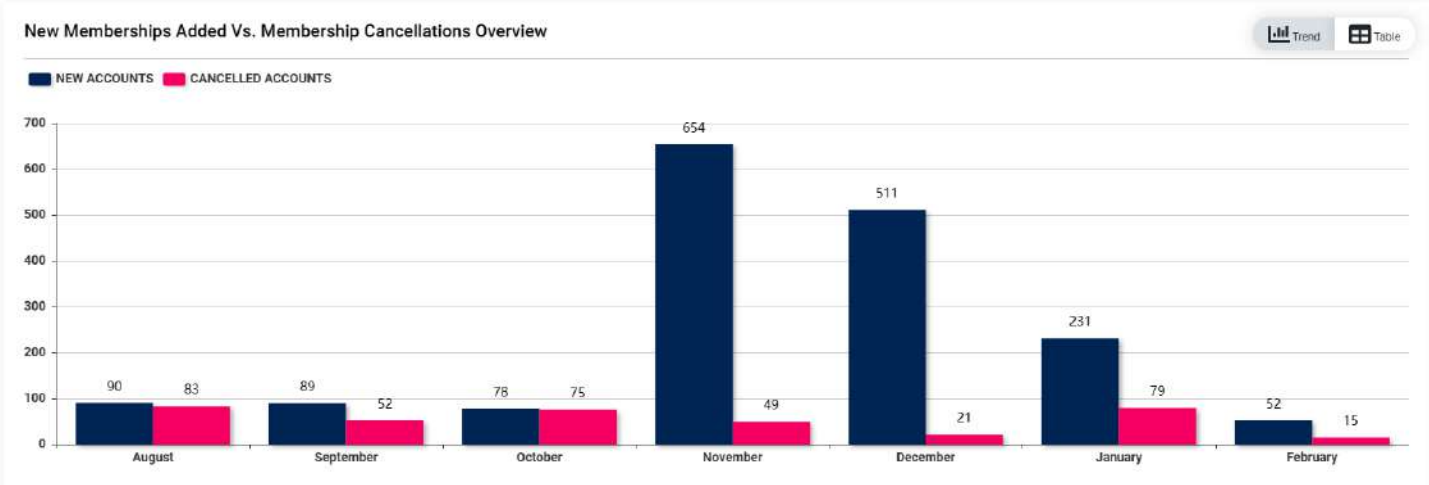
Example: “category” is a dynamic query parameter generated from the URL

```
<strong>{% CapitalizeFirstLetter(QueryString["category"]) #%} Revenue  
Category</strong> Performance
```

- **Tagline:** Adds a brief tagline or subheading above the title
- **Show Header Image:** show or hide flag
- **Header Image:** Provides the flexibility to choose header images from the media library that align with the theme of the business type. Some templates use a specific naming convention combined with the dynamic query string variable to generate header image paths dynamically.
- **Help Content:** Allows the integration of helpful content or additional information within the header.
- **Default Filter:** Permits the specification of a default filter to be applied to the data displayed in the header.
- **AI Narration:** For headers that will feature an AI Narration below, use this field to add the AI Narration code.



Multi Component



The FitnessOne Multi-Component is a Kentico Web Part designed to display multiple data visualizations in a single component. It provides the flexibility to combine tables, trend charts, and filtering options to create comprehensive dashboards.

Multi Component Custom Settings

The Multi Component offers the following customizable settings:

- **Chart Type:** Specifies the type of chart to be displayed, such as line, bar, quadrant, or pie.
- **Table Type:** Determines the format of the table view, including static table or pivot table.
- **Default View:** Sets the default view of the component, allowing users to start with either the chart or table view.
- **Title:** Provides a title or heading for the component.
- **Table Settings:** The “Static Table Values” field allows you to specify the data for the table component in a specific format.

Static Table

Static Table Values: ▶

```
{
  id: "invoice_source", title: "Product Type",
  decimalPlaces: '0', currencySymbol: 'string',
  link: '/platformv2/dashboards/revenue-streams/product-types/{0}',
  linkQueryField: 'invoice_source'
},
{ id: "TOTAL AMOUNT STR", title: "Revenue",
  decimalPlaces: '0', currencySymbol: '$' },
{ id: "TOTAL AMOUNT % STR", title: "% of Whole",
  decimalPlaces: '0', currencySymbol: '%',
  showChange: 'yes' }
```

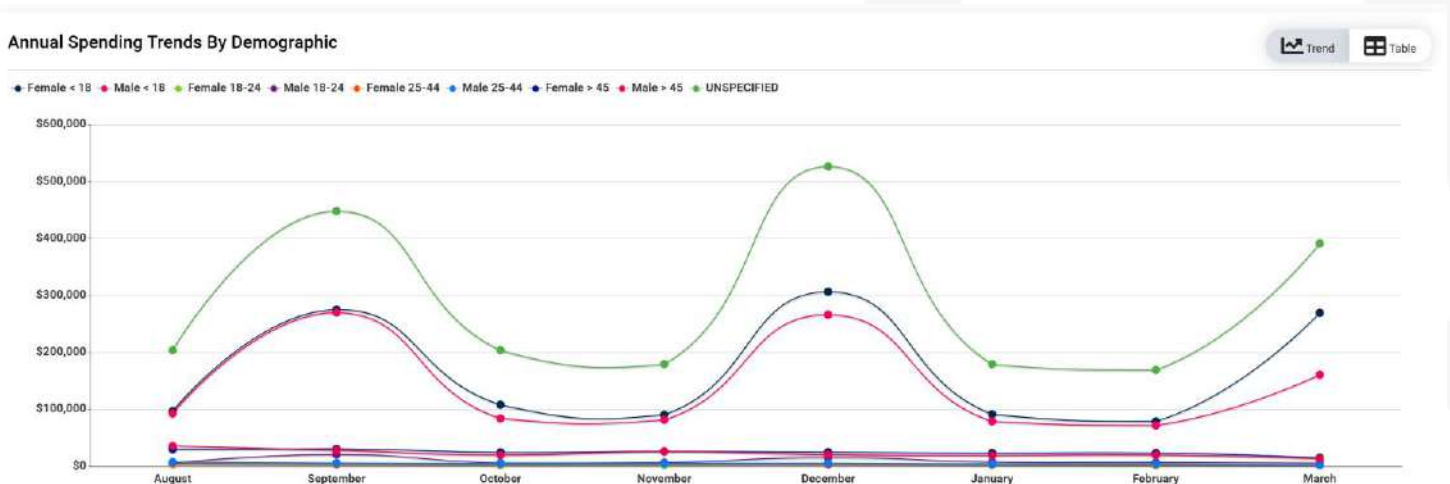
Each data entry should be enclosed in curly brackets {} and separated by commas. A breakdown of the structure of each data entry can be found in the list below:

- **id:** This represents the unique identifier for the data field. It is used internally and doesn't need to be displayed to users.
- **title:** This is the title or label for the data field that will be displayed in the table.
- **decimalPlaces:** This setting determines the number of decimal places to display for numeric values. In the provided example, '0' indicates that no decimal places should be shown.
- **currencySymbol:** This setting allows you to specify the currency symbol or formatting for numeric values in the table.

You have the following options:

- **\$:** Use this option if the data field represents a currency value and you want to display the dollar sign (\$) as the currency symbol.
- **Blank:** Leave this setting blank if the data field is a numeric value and you don't want to display any specific currency symbol.
- **%:** Use this option if the data field represents a percentage value and you want to display the percent (%) symbol.
- **'string':** This option serves to display the value as text.
- **link:** If you want to make the data field clickable and provide a link, you can specify the URL pattern using this setting. The {0} placeholder will be replaced with the actual value of the linkQueryField parameter.
- **linkQueryField:** This setting defines the field name whose value will be used to replace the {0} placeholder in the link URL.
- **showChange:** If set to 'yes', this setting indicates that the table should display a up or down arrow based on provided value.

Trend Chart Settings

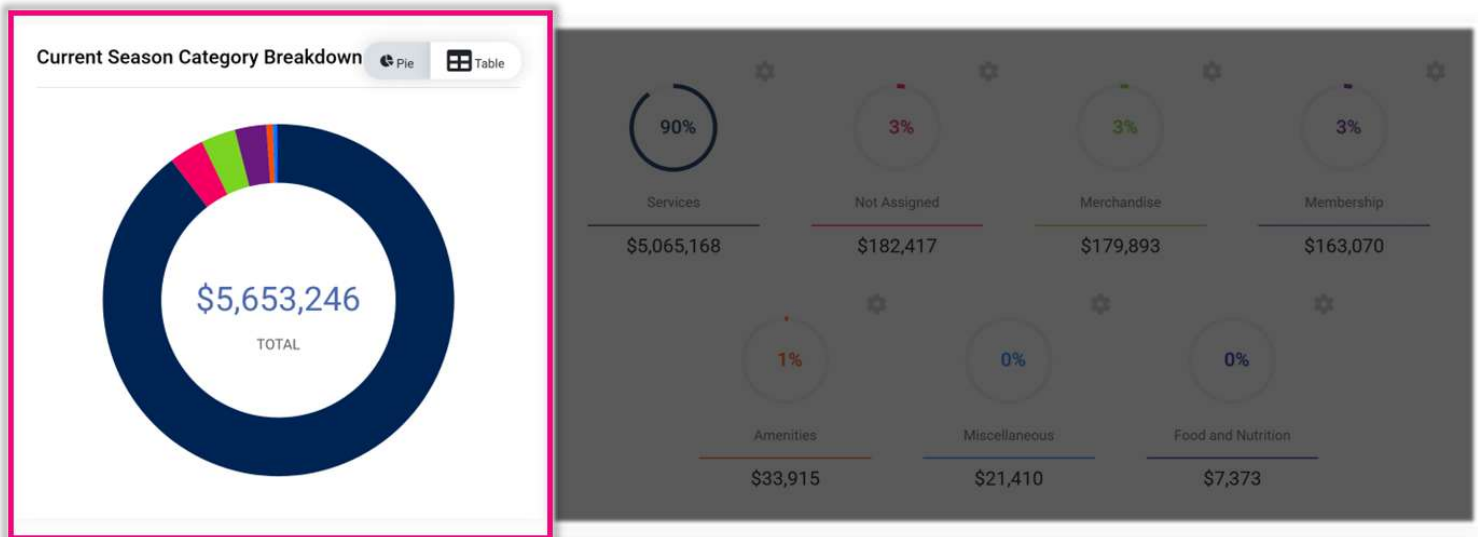


This refers to specific settings related to the chart component, such as axis labels, legends, and data visualization customization:

- **Field Name (Dimension):** This setting specifies the field name representing the dimension or category of the data points on the chart. For example, it could be a field indicating different product categories or regions.
- **Value Field Name (Measure):** This setting defines the field name representing the measure or value associated with each data point on the chart. It represents the primary data to be plotted, such as sales revenue or total customers.
- **Value Field Name 2 (Measure):** If required, this setting allows you to add a second measure field name to the chart. It could represent an additional metric or data point you want to compare or display alongside the primary measure.
- **Measure Value Format:** This setting determines how the measure values will be formatted on the chart. You can choose from options such as "number," "currency," or "percent" to format the values accordingly.
- **xAxisCol:** This setting defines the column or field name that will be used as the x-axis values on the chart. It could represent time intervals, categories, or any other data dimension appropriate for the chart.
- **xAxisData (when custom date value):** If you need to provide custom date values for the x-axis, you can specify them using this setting. It allows you to override the default values derived from the data source. For example: 'Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec'
- **valueColNameY:** This setting specifies the column or field name that will be used as the y-axis values on the chart. It represents the numeric values to be plotted on the y-axis.
- **Show Zoom:** This setting determines whether the chart should have a zoom functionality enabled, allowing users to interactively zoom in on specific sections of the chart for closer analysis.
- **x-axis label:** You can provide a label for the x-axis to describe the data dimension being represented.
- **y-axis label:** This setting allows you to specify a label for the y-axis, describing the measure or metric being plotted.
- **Y Axis Label Location:** This setting determines the vertical position of the y-axis label. It can be set to "middle," "top," or "bottom" based on your preference.
- **Rotate Y Axis (Degrees):** This setting allows you to rotate the y-axis labels by a specified number of degrees. A value of "0" means no rotation.
- **y Axis Currency Symbol:** If the y-axis values represent currency, you can specify the currency symbol to be displayed. Leave it blank for numbers without a currency symbol.
- **xAxisCurrencySymbol:** If the x-axis values represent currency, you can specify the currency symbol to be displayed.
- **Color Palette:** This setting determines the color scheme used for the chart elements. You can choose from options such as "Standard", "Primary and Grey" or "Positive and Negative".
- **Y Axis Max:** This setting defines the maximum value displayed on the y-axis. It allows you to control the upper limit of the chart scale.
- **Y Axis Split Number (Max divide by this):** This setting determines the number of divisions or intervals on the y-axis. It influences the granularity of the y-axis scale.

- **Y Axis Interval:** This setting specifies the interval or step size between tick marks on the y-axis. It controls the spacing of values displayed on the axis.
- **Stack Bar Chart:** If enabled, this setting stacks the bars in the bar chart, combining the values of different categories for each data point.
- **Flip Bar Chart Axis:** This setting determines whether the x-axis and y-axis are flipped for the bar chart representation.
- **Reverse Values:** If enabled, this setting reverses the order of the values on the y-axis, effectively flipping the chart upside down.
- **Legend View Id:** This setting allows you to specify the View Id associated with the legend of the chart. It can be used to link the chart's legend to a specific data source or view.

Pie Chart Specific Settings



- **Chart Values:** Specify the values for the pie chart. Instead of using separate dimension and measure fields, you can directly input the chart values using this setting.
- Example:


```
exactMatchCol: 'invoice_source',
valueColName: 'TOTAL AMOUNT STR',

quarteCol: "",

colorCol: 'COLOR HEX'
```
- **Currency Symbol (Value in Middle of Donut):** If you choose to display a currency symbol in the middle of the donut chart, you can specify the desired currency symbol using this setting. For example, you can use "\$" for dollars.
- **Pie Chart Label (Middle of Donut):** This setting allows you to define the label to be displayed in the middle of the donut chart. It typically represents a summary or total related to the chart data.

- **Legend Direction:** This setting determines the direction in which the legend items are displayed. You can choose between "Horizontal" and "Vertical" to control the orientation of the legend.
- **Show Legend:** This setting determines whether the legend should be displayed on the pie chart. Enabling this option will show a key that explains the colors or categories represented in the chart.
- **Show Labels:** This setting controls the visibility of data labels on the pie chart. When enabled, the values or labels associated with each slice of the pie will be displayed.
- **Show Labels on Slices:** If enabled, this setting allows the data labels to be displayed directly on the slices of the pie chart. This can be useful for showing specific values or percentages associated with each slice.

Pie Chart Settings

Chart Values: ▶

```
exactMatchCol: 'invoice_source',
valueColName: 'TOTAL AMOUNT STR',
quarterCol: '',
colorCol: 'COLOR HEX'
```

Optional, use instead of fields below for pie chart values

Currency Symbol (Value in Middle of Donut): ▶

\$

Pie Chart Label (Middle of Donut): ▶

Total

Legend Direction: ▶

Vertical ▼

Show Legend: ▶

☐

Show Labels: ▶

☐

Show Labels on Slices: ▶

☒

Pie Chart Settings Configuration:

To incorporate the Multi Component into a page within the Apex Web Portal, follow these steps:

- On the "Design" tab of the template, click on the desired zone and choose "Add new web part".
- Select the "Apex - Multi Component" from the list of web parts
- Assign a unique app_id and a descriptive name to the component.
- Provide a valid View Id to fetch the necessary data for the component.
- Customize the Multi Component settings according to your requirements, including the chart type, table type, default view, title, and specific table/chart settings.
- Ensure that the Multi Component is placed in a suitable location within the page layout.

By following these configuration steps, you can incorporate the Multi Component into your Apex SBT Web Portal pages, enabling users to visualize and analyze data through interactive charts and tables.

Dynamic Highlight Box with Trend Component Documentation

Tennis Category Revenue

↑ 6% Current Season \$4,839,602
vs. Last Season \$4,565,254

Junior Tennis

9% Current Season \$422,558
vs. Last Season \$309,102

Adult Tennis

4% Current Season \$189,870
vs. Last Season \$250,999

Tae Kwon Do

2% Current Season \$84,685
vs. Last Season \$98,938

Other

86% Current Season \$4,142,490
vs. Last Season \$3,906,215

Fitness Category Revenue

↓ -6% Current Season \$217,189
vs. Last Season \$230,614

Junior Tennis

8% Current Season \$17,156
vs. Last Season \$4,603

Adult Tennis

7% Current Season \$15,115
vs. Last Season \$20,891

Tae Kwon Do

2% Current Season \$4,515
vs. Last Season \$6,113

Other

83% Current Season \$180,403
vs. Last Season \$199,007

The Dynamic Highlight Box with Trend component is designed to display a dynamic comparison between two values along with a trend indicator. This component is useful for visually highlighting and comparing data points. The following documentation provides an overview of the configuration and settings for this component.

Dynamic Highlight Box with Trend Component Configuration

Services YTD by Member Profile

All Fitness Fitness Package Liability Martial Arts
Tennis



Female < 18



Male < 18



Female 18-24



Male 18-24



Female 25-44



Male 25-44



Female > 45



Male > 45



Unspecified

Add-On	Female < 18	Male < 18	Female 18-24	Male 18-24	Female 25-44	Male 25-44	Female > 45	Male > 45	Unspecified
Add-On	\$100	\$350	-	\$125	-	-	\$350	\$100	\$1,400
Appointment	\$407,423	\$302,657	\$5,046	\$27,501	\$6,496	\$6,917	\$43,197	\$46,773	\$104,333
Camp	\$10,080	\$12,719	\$360	\$109	-	-	-	-	\$220
Facility Reservation	\$6,047	\$8,806	\$1,194	\$785	\$583	\$3,763	\$14,249	\$6,793	\$65,816
Group Activity	\$42,353	\$44,880	\$4,328	\$3,121	\$10,461	\$14,510	\$60,604	\$41,393	\$84,182
Membership	\$53,434	\$68,033	\$1,325	\$495	-	\$1,113	\$2,533	\$3,305	\$2,068
Other	\$3,391	\$10,813	-	\$279	\$73	\$210	\$865	\$1,008	\$646
Package Liability	-	-	-	-	-	-	\$1,890	\$1,260	\$6,990
Program	\$669,597	\$549,725	\$3,510	\$30,935	-	\$125	\$5,895	\$3,300	\$22,572

To incorporate the Dynamic Highlight Box with Trend component into a page within the Apex SBT Web Portal, follow these steps:

- On the "Design" tab of the template, click on the desired zone and choose "Add new web part".
- Select the "Apex - Dynamic Highlight Box with Trend" from the list of web parts.
- Assign a unique app_id and a descriptive name to the component.
- Configure the settings for the Dynamic Highlight Box with Trend component based on the available options described below.

Dynamic Highlight Box with Trend Component Settings

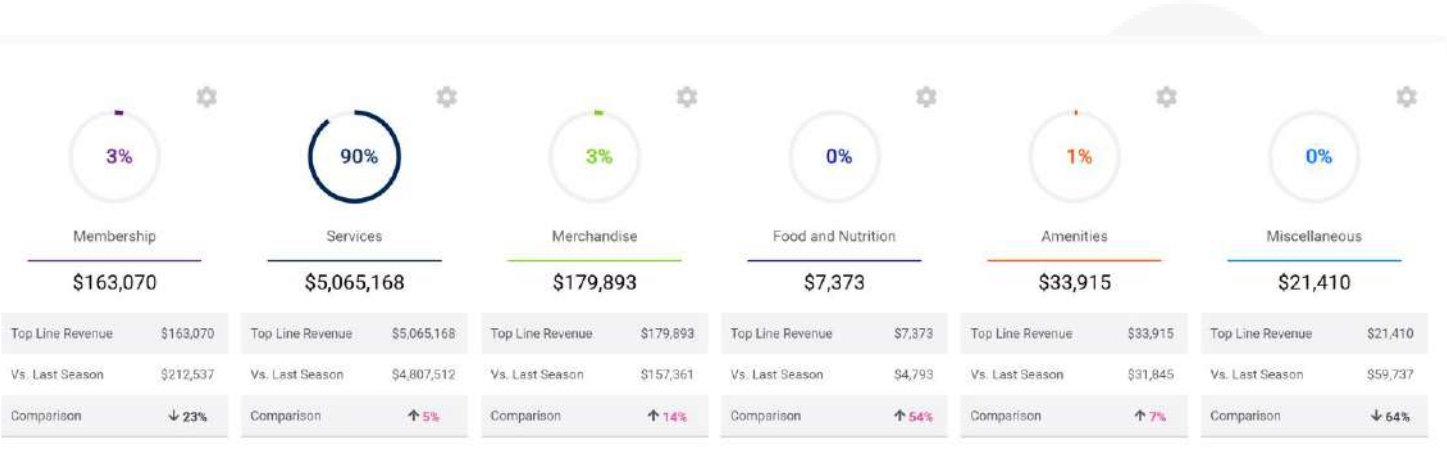
- **Type:** Specifies the type of available options for comparison to be displayed.
 - "Comparison": Displays a comparison between two values with percent increase or decrease indicator.
 - "Rank": Shows a ranking layout
- **Footer**
 - Text: Defines the text to be displayed in the footer of the component.
 - Link: Specifies a link for the footer text.
- **View ID:** Specifies the View ID from which the data will be fetched
- **Header ID:** Specifies the ID of the header component associated with the Dynamic Highlight Box with Trend component. (e.g., 'HeaderComponent_01')
- **Additional Filter:** Specifies an additional filter for the REST API to receive a subset of data from the same view ID.
- **Layout:** This setting determines the layout and content of the component. It consists of position-based definitions with corresponding values or text.
 - position01: Defines the text or value for the title.
 - position02: Specifies the column name and format for the percentage value field.
 - position03: Specifies the column name and format for the first row value field.
 - position04: Defines the text for the first row label.
 - position05: Specifies the column name and format for the second row value field.
 - position06: Defines the text for the second row label.

By following these configuration steps, you can incorporate the Dynamic Highlight Box with Trend component into your Apex Web Portal pages. This component enables users to visually compare values and track trends, providing valuable insights into the data.

```
<app-c002 id="DynamicHighlightBoxWithTrendComponent_ServiceRevenue"></app-c002>
<script>window.DynamicHighlightBoxWithTrendComponent_ServiceRevenue = {
  viewId: 'F74FF07A-F616-406D-8BCC-32BB609AEE24',
  apiVersion: 'v2',
  headerId: 'HeaderComponent_01',
  style: 'comparison',
  additionalFilter: '',
  footer: { link: '/platformv2/modals/help/program-kpis', icon: 'help'},
  secondFonts: '',
  layout: {
    position01: { text: 'Junior Tennis Program Revenue' },
    position02: { colName: 'sum_total_amount_this_year_vs_last_year', format: '%' },
    position03: { colName: 'sum_total_amount_this_year', format: '$' },
    position04: { text: '{% if (GlobalObjects.CustomTables["FitnessOne.Customer"].Items.Where("CustomerID = '" + CurrentUser.CustomerID + "')["UseCurrentSeasonDates"])',
    position05: { colName: 'sum_total_amount_last_year', format: '$' },
    position06: { text: '{% if (GlobalObjects.CustomTables["FitnessOne.Customer"].Items.Where("CustomerID = '" + CurrentUser.CustomerID + "')["UseCurrentSeasonDates"])',
  }
}</script>
```

Portfolio Component Settings

The FitnessOnePortfolioComponent web part is designed to dynamically generate and configure portfolio components within the Apex SBT platform.



Portfolio Component Custom Settings

The Portfolio Component offers the following customizable settings:

- **Type:**
 - Portfolio 6 columns
 - Portfolio 1 column (single)
 - Portfolio 2 columns
 - Portfolio 3 columns
 - Portfolio 4 columns

- **Position 1 (Percent):** Field name to display the large percent value
- **Position 2 (Label):** Field name to display the label below the percent
- **Position 3 (Value):** Field name for the numerical value
- **Default Label:** Text to show if no results are found
- **Sort Column:** Field name to be used for sorting
- **Sort Direction:** asc or desc
- **Color Hex Column:** Field name that contains the color hex
- **Value Format:** Leave blank for currency, %
- **Link:** Link with format {0} style to populate with dynamic filter
- **Link Query Field:** Field name to populate dynamic filter in the link

Quick Win Component Settings

The FitnessOneQuickWinComponent web part dynamically generates a **Quick Win** component within the Apex platform. This component is used to present actionable insights, recommendations, and opportunities to users.

Quick Win Component Custom Settings:

Potential Cancellations Early Warning System		
13 High Risk Cases	These members have recently decreased their club usage and are within the average cancellation window of their member profile. These factors indicate a high probability of cancellation and should be addressed.	Download Report
1,092 Low Risk Cases	These members who are within ~30 days of the average cancellation window of members sharing the same profile. There is a probability they may cancel and should be contacted.	Download Report

The Quick Wins Component offers the following customizable settings

- **Type:**
 - **Default:** 50% column width card
 - **Full Width:** 100% width card
 - **Card:** 25% width card
 - **List:** Displays data with multiple rows
 - **Upsell Item:** Displays the data in the upsell format
 - **Upsell List:** Displays the data in the upsell format for multiple rows

- Values:** Set of field names with format settings
 'LOW AT RISK TO CANCEL': { method: 'sum', decimalPlaces: '0', currencySymbol: ' ' },
 'HIGH AT RISK TO CANCEL': { method: 'sum', decimalPlaces: '0', currencySymbol: ' ' }
- Content:** HTML Content with dynamic placeholders for content
 `<big>{HIGH AT RISK TO CANCEL}</big><span>High Risk Cases</span>`,
 `<div style="margin-bottom: 0;">These members have recently decreased their club usage and are within the average cancellation window of their member profile. These factors indicate a high probability of cancellation and should be addressed.</div> ` , ``
- Button Text:** The text for the action button
- Button Link:** The link for the action button used to render the download list
- Button Filter:** Filter values for the button with unique viewId and query
 viewId=91a434b7-0cb4-410f-b8a0-faf088651787&query=vf_cancellation_risk_alert_level=Highly at Risk

Health Check Component

The FitnessOneHealthCheck web part provides an **automated performance review** of business metrics within the Apex platform. This web part evaluates revenue trends, member transactions, and key business insights, allowing users to quickly assess financial health and operational performance.

Health Check Component Custom Settings:

The Health Check Component offers the following customizable settings

- Introduction Header Text:** Title for the introduction panel.
- Introduction Header Description:** Description text for the introduction panel.
- Results Header Text:** Title for the results panel.
- Results Header Description:** Description text for the results panel.

	Comparison	Current Season vs. Last Year		Comparison	Current Sessions vs. Last Year		Comparison	Month To Date vs. Last Year		Comparison	Week To Date vs. Last Year		
Is My Revenue Up Year To Date?	↑ 7%	\$5,592,155	\$5,237,450	↓ 0%	\$0	\$0	↑ 11%	\$801,532	\$724,441	↑ 40%	\$92,778	\$66,298	Learn More
Revenue Breakdown													Learn More
Services ▶	↑ 6%	\$5,021,731	\$4,738,437	↓ 0%	\$0	\$0	↑ 15%	\$766,457	\$668,200	↑ 94%	\$87,933	\$45,282	Learn More
Tennis ▶	↑ 6%	\$4,801,723	\$4,509,407	↓ 0%	\$0	\$0	↑ 16%	\$754,744	\$650,660	↑ 100%	\$84,446	\$41,640	Learn More
Fitness ▶	↓ 6%	\$212,432	\$222,151	↓ 0%	\$0	\$0	↓ 23%	\$13,714	\$17,840	↓ 23%	\$3,485	\$4,503	Learn More
Martial Arts ▶	↑ 10%	\$7,576	\$6,978	↓ 0%	\$0	\$0	↓ 100%	\$0	\$301	↓ 100%	\$0	(\$270)	Learn More
Dance ▶	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	Learn More
Group Classes ▶	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	Learn More
Yoga ▶	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	↓ 0%	\$0	\$0	Learn More
Merchandise ▶	↑ 14%	\$175,521	\$153,817	↓ 0%	\$0	\$0	↓ 40%	\$10,466	\$17,506	↓ 32%	\$2,650	\$3,910	Learn More
Not Assigned ▶	↑ 345%	\$170,477	\$38,276	↓ 0%	\$0	\$0	↑ 5%	\$7,154	\$6,580	↑ 80%	\$1,399	\$758	Learn More
Membership ▶	↓ 23%	\$162,560	\$211,492	↓ 0%	\$0	\$0	↓ 56%	\$12,707	\$28,009	↓ 90%	\$210	\$15,705	Learn More
Amenities ▶	↑ 7%	\$33,298	\$31,062	↓ 0%	\$0	\$0	↑ 23%	\$1,741	\$1,418	↓ 14%	\$494	\$575	Learn More
Miscellaneous ▶	↓ 64%	\$21,410	\$59,737	↓ 0%	\$0	\$0	↓ 57%	\$585	\$1,361	↓ 0%	\$0	\$0	Learn More
Food And Nutrition ▶	↑ 54%	\$7,159	\$4,639	↓ 0%	\$0	\$0	↑ 33%	\$421	\$318	↑ 33%	\$92	\$66	Learn More

Static Table Component Settings

Member Profile	Active Members	% Of All Active Members	Avg. Tenure (Months)	Avg. Monthly Spend	Clubs-Wide Avg. Monthly Spend	Lifetime Value
Male 25-44	70	2%	83	\$136	\$205	\$8,467
Female 25-44	92	3%	81	\$163	\$205	\$6,953
Male 18-24	110	4%	65	\$147	\$205	\$11,162
Female 18-24	78	3%	64	\$173	\$205	\$8,652

The FitnessOneStaticTableComponent is a Kentico Web Part designed to display static tables with customizable headers, titles, footers, sorting, filtering, and API-driven data retrieval. It can be configured to present data in multiple formats, including:

Static Table Custom Settings:

Tennis Program Spotlight	Top Demographic	Penetration	Sales Potential	Quick Win
Junior Tennis Program 62% of Program Revenue	 Female < 18 89% Cohort Penetration	30% of Spotlight Clientele 32% of Spotlight Revenue	46 Potential Buyers \$1,221 Average LTV	Click on the button below to start increasing Junior Tennis Program revenue. 

The Static Table Component offers the following customizable settings types:

- **Vertical:** Displays the values vertically
- **Horizontal:** Displays the values in standard horizontal format
- **Profile:** Displays the values by member profile
- **Dynamic-Profile:** Displays the values by member profile with dynamic tab values
- **Title:** Table title
- **Footer Link Text:** The text displayed as a disclaimer in the footer or a follow up link
- **Show Headers:** Hides the column headers if unchecked
- **Hide Title:** Hides the table title
- **Remove Drop Shadow:** Removes the shadow effect from table
- **Sort Column:** Field name for the sorting of data
- **Values:** Set of field names with format settings
- 'LOW AT RISK TO CANCEL': { method: 'sum', decimalPlaces: '0', currencySymbol: " },
- 'HIGH AT RISK TO CANCEL': { method: 'sum', decimalPlaces: '0', currencySymbol: " }

Member List Component

User List

399 records

Download CSV file

Club Name	User Id	Scan Tag	Full Name	Email	Phone Number	Join Date	Avg Monthly Spend	lifetime_value	commitment_status	weekly_checkins	upsell
College Park	11642689	1482	JORDAN ZEIDEL	Randizee@gmail.Com	Not Set	08/17/2019	\$494	25202.92	Custom	0	15
College Park	11642693	1474	KYLIE YOO	Akrtyoo@gmail.Com	Not Set	08/17/2019	\$993	52617.48	Custom	0	25
College Park	11921113	1235	LEAH SIDELL	Randysidell@gmail.Com	Not Set	08/27/2019	\$324	6810.00	Custom	0	2
College Park	11955429	0021	STELLA AKSELRUUD	Katzolya@yahoo.Com	Not Set	08/28/2019	\$784	47039.57	Custom	0	20
College Park	11957005	0365	AVA FIUTAK	Afiutak@gmail.Com	Not Set	08/23/2019	\$719	28032.25	Custom	0	9
College Park	15056884	0198	GABRIELLE CHO	Rosecafe7722@gmail.Com	Not Set	12/19/2019	\$219	10284.00	Open End	0	5
College Park	15537240	0735	EMILY LEVINE	Nmlhomenock@gmail.Com	Not Set	01/17/2020	\$848	44085.96	Custom	0	21
College Park	15651148	0506	VIVienne HEWITT	Patricia.A.Oconnell@gmail.Com	Not Set	09/10/2020	\$647	28468.35	Custom	0	14
College Park	17445908	1228	STELLA SHLIFKA	Lisashlifka@gmail.Com	(847) 607-8767	06/10/2020	\$341	4770.00	Custom	0	1
College Park	17657340	0120	CAYLA BOEHM	Lboehm720@gmail.Com	(847) 433-7339	06/29/2020	\$635	33660.90	Custom	0	21

The FitnessOneMemberListComponent web part retrieves member lists according to the filters.

Member List Component Custom Settings

The Member List Component offers the following customizable settings

- **Page Title:** Sets the page title for the web part.
- **File Name:** Defines the default filename for CSV exports.
- **Export Only:** If true, skips UI display and exports data as a CSV.

Customer Data Cache

The FitnessOneCustomerDataCache web part is designed to enhance performance and user experience within the Apex platform by caching customer-specific settings and storing them in cookies. This prevents unnecessary database queries and ensures a seamless, personalized experience for each user.

User Identification & Role Assignment

- Determines the Kentico User ID of the logged-in user.
- Checks if the user is assigned to the FitnessOne_Permissions_Owner role.
- Stores these values in cookies for quick access.

Customer Data Retrieval & Caching

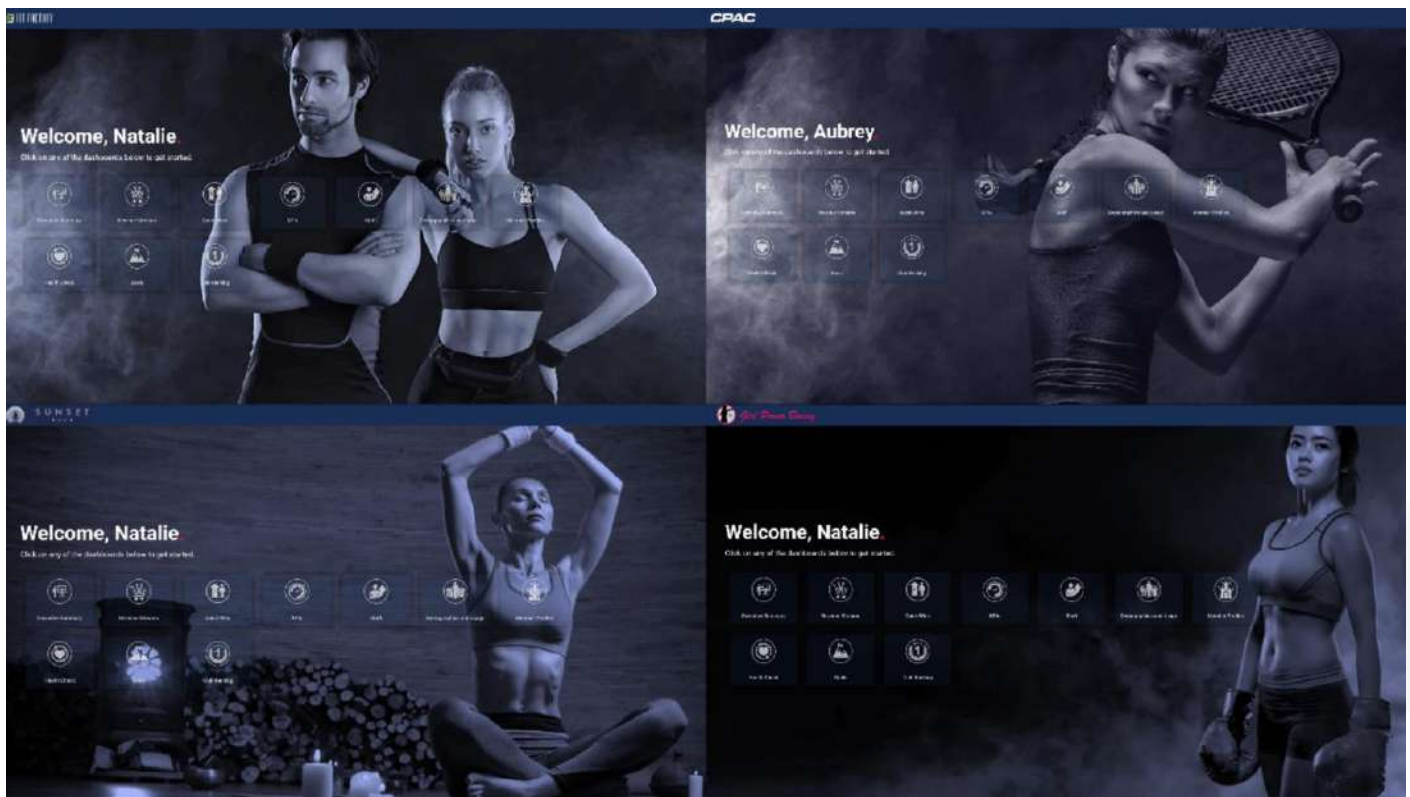
- Retrieves customer settings from the FitnessOne.Customer custom table in Kentico.
- Caches customer records using Kentico's CacheHelper for performance optimization.

Cookie-Based Personalization

- Stores critical customer-related information in cookies, reducing database queries.
- Ensuring settings like branding, membership tiers, and primary revenue streams are readily available.
- Refreshes cookies if a user logs in under a different customer account.

Theme & Branding Application

- Dynamically applies skins and themes based on customer type.
- Uses stored settings to customize UI components, such as logos and primary brand colors.



Business-Specific Settings & Labels

- Saves key labels related to upsell services, membership tiers, and program groups.
- Ensures consistency in display values across the Apex web application.

3.4 Customer Onboarding & Configuration

Apex is designed to deliver a fully configured business intelligence platform from day one, ensuring that customers receive the exact dashboards and insights they see in the demo—without requiring additional customization. This is made possible through the Onboarding Wizard, which systematically collects and structures customer data to personalize their deployment.

3.4.1 Onboarding Process & Data Flow

The Onboarding Wizard ensures that every new customer deployment is fully configured from day one, delivering a business intelligence solution with pre-built dashboards, KPIs, and visualizations based on the customer's unique business model.

How It Works

Customer Setup & Data Capture

- The Onboarding Wizard guides non-technical users through configuring their business details.
- Information collected includes customer data, club structure, membership types, lead sources, and revenue streams.

Data Storage & Integration

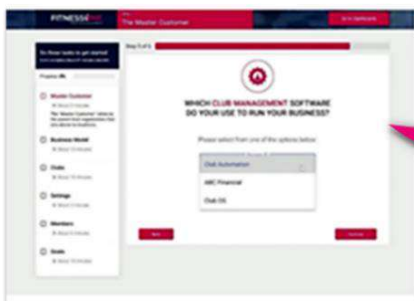
Captured settings are stored in two locations:

- Kentico → Stores templates, labels, and navigation settings (⚠ Should not be modified manually).
- Apex Database → Stores structured customer, club, and revenue data for analytics and reporting.

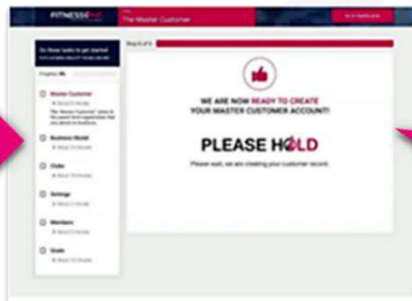
Automated Data Import & Sync

- Once the Master Customer is created, Apex automatically pulls all relevant data from the customer's club management system.
- This ensures dashboards and reports are pre-loaded with actual customer data before launch.

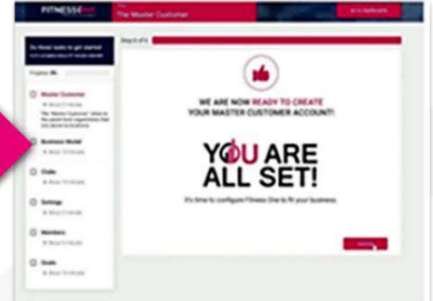
Step 1: Select Source Platform



Step 2: Click Continue



Step 3: Done



3.4.2 Onboarding Process for Users

Designing an Effective User Onboarding Experience

One major aspect of Apex 's multi-faceted UVP is the Customer's ability to take delivery of the product, fully configured with a full slate of detailed dashboards and up to hundreds of dynamically generated interior pages.

This capability allows users to start their business intelligence with a global view of their business with the ability to drill down to the most granular of detail, to understand whatever interests them. This concept of "what you see is what you get, on day one, out of the box" was intentional, as our market research suggests that most business owners that buy software, do so thinking that they will "get" what they see in the demo- which is rarely the case (without substantial customization).

Being able to tell potential customers that they will receive exactly what they see in the demo- with their data populating these dashboards- without any investment by them beyond their monthly fee is a game changer.

Apex is built with the understanding that each customer runs their business differently. The initial onboarding process aims to understand each business and map the specifics to how Apex needs to see it.

This value add is made possible by virtue of Apex 's proprietary New Customer Settings and Onboarding Wizard.

The Onboarding Wizard was built to walk a non-technical Club Operator through the setup process to ensure that the data which lives within the systems they use in their clubs, is accurately, visually represented within their deployment of Apex .

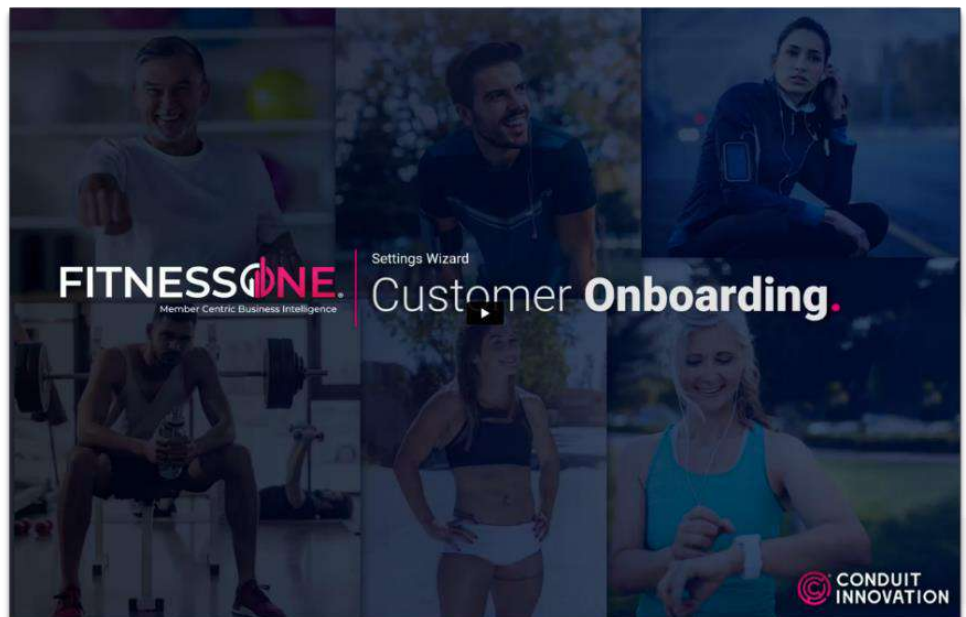
The interface has been built for non-technical account managers to onboard customers and manage information specific to their clubs(s) including:

- Customer Information
- Club(s) Information
- Membership Types
- Lead Sources
- Revenue Streams

As the customer is walking through the Onboarding Process, the first step is to create the Master Customer.

Once the Master Customer is created then it's a matter of a single click for Apex to import all data that is required from the Platform of Origin- into the Apex SBT database

Click on Image Below to Launch Customer Onboarding and Settings Video



Business Model Configuration

The Business Model Configuration step in the Apex Onboarding Wizard ensures that the platform is tailored to the unique operational structure of each business. This section allows businesses to define their membership model, revenue streams, and membership tiers, ensuring accurate data representation and optimized reporting.

Onboarding Process for Users

3.4.3 Business Model Configuration.

Apex's **customer onboarding** and **customer management** has been built for **non-technical** account managers to **onboard** customers and **manage** information **specific to their gym(s)**.

Key Highlights

- Account Management
- Goal Management
- Club Information
- Membership Tiers and Pricing
- Revenue Stream Mapping
- Lead Sources Mapping
- Primary Upsell Services
- Settings

Business Type

- Determines dashboard themes, KPIs, and page layouts.
- **Options:** HVLP Gym, Non-Profit Fitness Center, Premium Health Club, Specialty Boutique, Self-Service, Health Club, Specialty Club, Tennis Club.

Membership Requirement

- **Yes:** Membership required for access.
- **No:** Means Non-members can access specific services.

Non-Member Access

- Available if No is selected.
- **Options:** Programs, Packages, Certifications, Amenities, Personal Training, Restaurant, Salon/Spa.

Business Model

- **Pay-As-You-Go:** No membership, session-based access.
- **Flat Monthly Fee:** Unlimited access for a set price.
- **Tiered Plans:** Different membership levels with included amenities.
- **Tiered + Upsells** → Base memberships with optional add-ons.

Revenue Stream Mapping

- Assigns imported revenue streams to Apex categories.
- Profit centers are imported from the customer automatically.
- Unmatched items default to Other for manual classification.

Key Revenue Streams

- Select two priority revenue streams for KPI tracking.
- **Example:** Tennis, Fitness.

Membership Tiers

- Up to 4 master tiers can be created.
- Defines pricing and access levels.
- Assign membership plans to membership tiers.

Clubs Configuration

Club Hierarchy

- **Yes:** Define structure: Corporate, Franchise, Both.
- **No:** Clubs operate independently.

Hierarchy Structure Options

- **Corporate:** Centrally managed locations.
- **Franchise:** Independently owned locations.
- **Both:** Mix of corporate and franchise.
- **None:** No hierarchy.

Club Profiles & Users

- Displays synced clubs from the management system.
- Editable: Club Display Name, Opening Date.
- ⚙️ (Configure) → Assign General Manager access.
- Enable GM Access: Assign a General Manager, Define GM Email and Name
- Link club to hierarchy for structured management.

Users & Roles

- Displays existing user accounts.
- Adjust user roles and permissions.
- Ensures correct access levels before onboarding completion.

Settings Configuration

Membership Requirement

- **Yes:** Membership required for transactions.
- **No:** Transactions allowed without membership.

Family/Group Memberships

- **Yes:** Supports shared memberships (e.g., Family, Group, Add-On).
- **No:** Individual memberships only.

Tracking Member Activity

- **Yes:** Members use unique identifiers to track behavior and usage.
- **No:** No individual tracking.

Check-In Requirement

- **Yes:** Members must check in to access programs, services, or amenities.
- **No:** No check-in required.

Amenities Usage Tracking

- **Yes:** Tracks frequency of member use for specific amenities.
- **No:** No tracking.

Defining Member Statuses

- **Active Members:** Select statuses that define an active member
- **Inactive Members:** Select statuses for inactive members
- **New Members:** Select statuses that define a new member
- **New Member Duration:** Define how many days a member is considered new (e.g., 70 days).
- **Cancelled Members:** Select statuses for a canceled member
- **Sleepers:** Define inactivity threshold (e.g., 28 days) before a member is classified as a sleeper.

Revenue Time Period

- **Yes:** Revenue is reviewed by season.
- **No:** Revenue follows the calendar year.

Members Configuration

Member Data Import

- Displays results of the imported member data from the club management system.
- Shows total active members across all clubs

Demographic Breakdown

- Members are categorized using age and gender attributes.
- Identifies members with missing demographic data

Data Validation & Update

- Provides a downloadable list of members with missing data.
- Users can use the list as a reference to update missing details in their native system.

Goals Configuration

Monthly Goal Setting

- Define monthly revenue targets for each club.
- Goals can be set by club, revenue stream, and/or employee.

Goal Inputs

- **Month:** Select the target month.
- **Club(s):** Choose one or multiple clubs.
- **Revenue Stream(s):** Assign revenue categories to track.
- **Employee:** Assign employee to track

Key Customer Settings (Populated by the Onboarding Wizard):

- **Customer Information:**
 - Customer ID
 - Customer Name
 - Customer Type
 - Customer Logo
 - Apex Plan Name
 - Stripe ID
 - Stripe Subscription ID
 - Active Locations
 - Active Status
 - Use Current Season Dates
- **Primary Categories & Custom Labels:**
 - **Upsell Services** (Code & Display Name for top services)
 - **Membership Tiers** (Code & Display Name for up to four tiers)
 - **Primary Program Groups** (Name, GL Code, Short Name)
 - **Program Sessions** (Up to six session names per program group)

During the onboarding process, customers will select the category that best describes their business from the following options:

- | | |
|--|------------------|
| • HVLP Gym | • Self-Service |
| • Non-Profit Community Center with Fitness | • Health Club |
| • Premium Health Club | • Specialty Club |
| • Specialty Boutique | • Tennis Club |

This selection plays a crucial role in tailoring the Apex application experience. The system will use the chosen category to dynamically adjust dashboards, themes, imagery, headers, and page layouts to best match the business type. By aligning visual elements and data presentation with the selected business model, Apex ensures a customized and intuitive user experience.

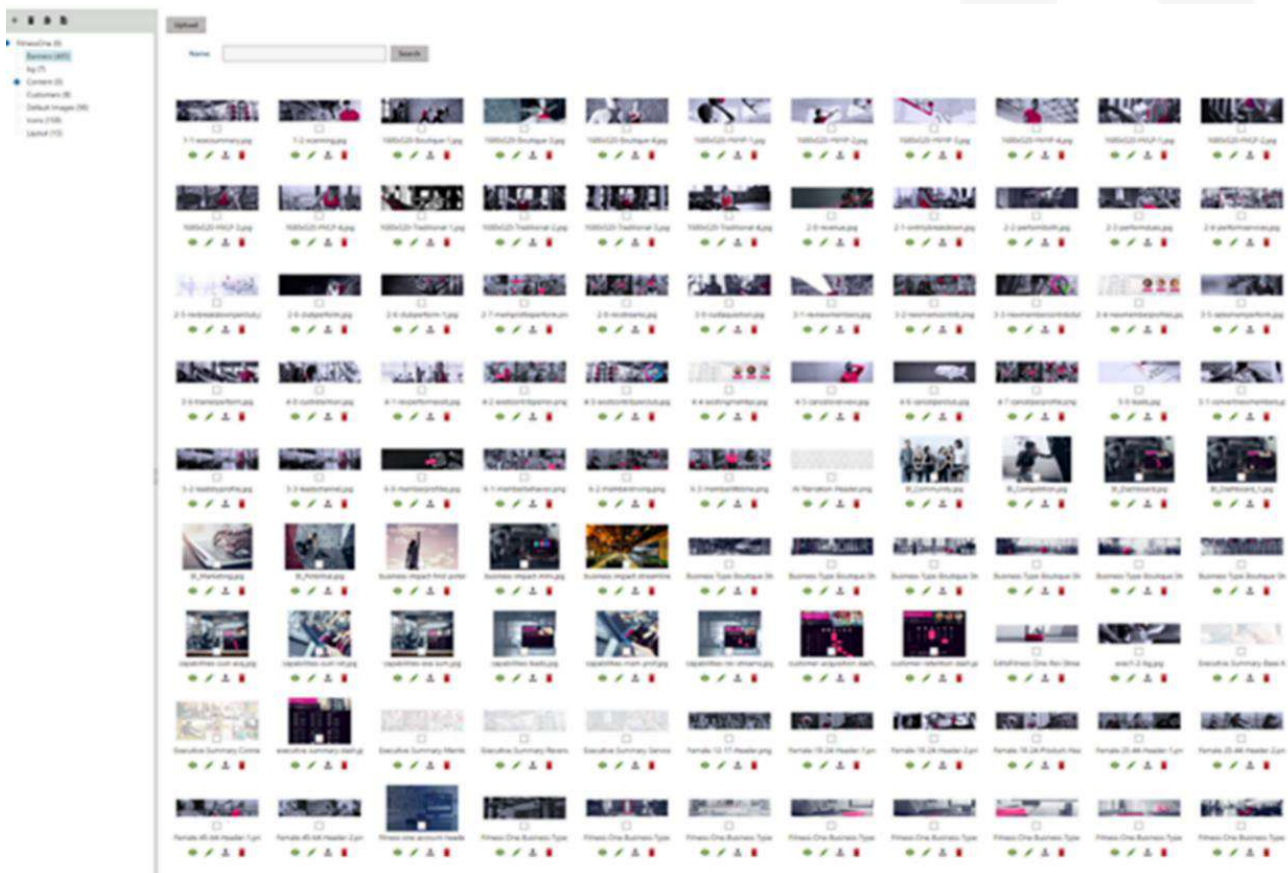
Design Guidelines for Visual Customization

To enhance the onboarding experience, Apex has a library of curated images that reflect each business type. These images can be expanded based on future requirements.

In the examples to the right, the acquirer has the capability to market Apex's front end as individualized, hyper targeted industry segment solutions, or to open the solution up to third parties as a white labeled channel offering.

In every instance, the solution itself will remain centrally administered and the hierarchy/integrity of the data within the product will be maintained- despite the potential for wholly unique end user experiences.

Another core aspect of Apex's end user flexibility comes with it's curated library of



Naming Convention

General Format: [business-type]_[image-purpose]_[version].[extension]

Image Size Requirements

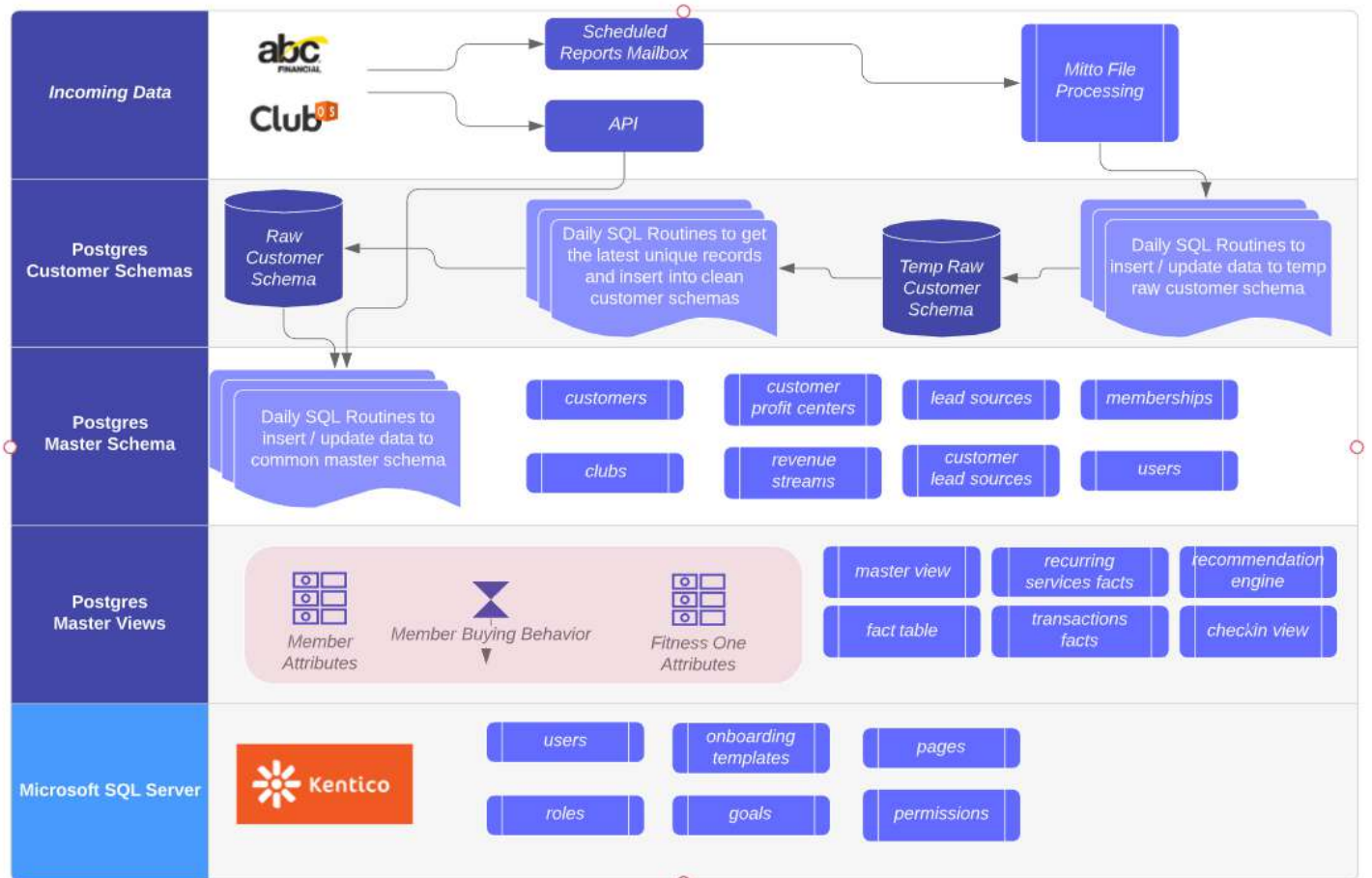
To ensure optimal resolution across all devices, the following size guidelines must be adhered to:

<i>Image Type</i>	<i>Recommended Size (px)</i>	<i>Aspect Ratio</i>
<i>Welcome Screen Background</i>	1920 x 1080	16:9
<i>Dashboard Header</i>	1600 x 500	16:5

4.0 Database Servers

Apex maintains its data in two databases:

- An AWS Postgres database responsible for all data analytics
- Microsoft SQL Server database is responsible for web portal management, Apex basic CRM data and customer goals.



4.1 PostgreSQL 9.1

All ingested customer data is stored in the PostgreSQL database. The database is part of the data staging manager, Mitto and described in the [“Data Processing”](#) section.

The database is backed up daily with a scheduled job and the database file is stored in the File Manager within Mitto.

4.1.1 Tables and Mapping

Apex master schema also contains custom tables with customer and club information required for the algorithms and views to run. This data is collected during the [onboarding process](#) and stored.

Apex Global Tables	Description
<i>revenuestreams</i>	Master set of revenue streams displayed to customers within the dashboards that allows the user to group similar profit centers that may be too granular within the financial platform. • Id • Name • Type: Dues, Upsell, Amenities, Fees or Other
<i>leadsources</i>	Master set of lead sources displayed to customers within the dashboards that allow to group similar lead sources and campaigns that may be too granular within the marketing automation platform. • Id • Name • Channel
<i>users</i>	Master set of users in the system that governs permissions and access to view club information. • User id • Kentico User Id • Username • Customer Id • Name • Email • Phone • Club Id – 0 means they can see all clubs

Customer Specific Tables	Description
customers	A single record for the chain / franchise group / independent operator: • Customer Id – Chain-wide • Customer basic information • Customer tier • Custom metrics
customerclubs	A single record for each participating club: • Customer Id • Club Id • Club Number • Club Name • Address • Club Status: Active, Trial, Onboarding, QA, Inactive • Club Prospects Source • Club Name Club OS • Club Api – If yes, this club is included in the daily API Data Pull Job
Customer Specific Tables	Description
customermembershippricing	A single record for each membership type sold across all clubs for the customer: • Customer Id • Membership Type • Price – full base price membership is typically sold at • Excluded From MMI – if checked, removed from recommendations for membership types within money making insights. This is used to remove legacy, free, employee or ad-hoc membership types.

<i>Mapping Tables</i>	<i>Description</i>
<i>customerprofitcenters</i>	Maps customer specific profit center to global revenue stream, allowing to group multiple profit centers into the same revenue stream
<i>customerleadsources</i>	Maps customer specific lead sources to global lead sources, allowing them to group multiple profit centers into the same lead source.
<i>Apex Main Tables</i>	<i>Description</i>
<i>members</i>	A complete list of all members of each club: • Agreement number • Club • Status • Personal information • Demographic information • Membership information • Contract obligation information • Past due information
<i>transactions</i>	A list of all transactional data for each member or generic purchased broken down by revenue stream and source for the last 3 years.
<i>prospects</i>	A list of all prospects from the CRM including their creation date, conversion information, salesperson and lead source for the last 3 years.

<i>Apex Main Tables</i>	<i>Description</i>
<i>new_accounts</i>	A list of all new accounts for each member including new accounts, renewals and rewrites going back for 3 years.
<i>cancelled_accounts</i>	A list of all cancelled accounts for each member with cancel date and reason going back for 3 years.
<i>recurringservices</i>	A list of all recurring services that were purchased: • Start and end dates • Status • Revenue stream • Service • Product / Plan • Frequency • Sessions and Pricing
<i>checkins</i>	A list of all checkins for each member including daily for the past 3 years.
<i>invoicesavailable</i>	A snapshot for the current month of all membership and fees related to outstanding invoices from ABC CRS broken down by member standing (collections) and profit center.
<i>pt_orientations</i>	A list of all fitness consultations from the CRM including their orientation date, booking information, attendance, conversion information and salesperson for the past 3 years.
<i>recurring_services_projections</i>	A snapshot for the current month of all outstanding invoices for recurring services broken down by profit center.
<i>tours</i>	A list of all tours from the CRM including their tour date, conversion information and salesperson going back for a 3 year period.

Apex Main Tables	Description
Masterview	Masterview has the primary table as the transactions table and appends to each transaction additional information about the member, the services they purchase, their prospect history and aggregated “checkin” information. Each line in this table has a transaction date and details of what was purchased on the transaction. The relationship between members and transactions is a full outer join, as some transactions do not have a member record and some members aren’t making attributable transactions (additional members). The relationship between members and prospects is also a full outer join, as not all prospects convert and not all members were once a prospect. The remaining joins are left joins from the transactions table.
MemberattributestableView	<i>MemberAttributesTableView</i> (also called FactTable) is an aggregated summary of member data. Only one record exists per member in this table, and it contains details such as their sign date, cancel date (if applicable), number of additional services purchased and how many referrals exist. If the field does not contain an indicator of time (such as <i>checkins_L4W</i>) then it is assumed to be a view of their entire member history. This table contains a full outer join between Transactions and Members as some members are not captured in the transactions table, and some transactions are associated to agreement numbers not in the membership table. The relationship between members and transactions is a full outer join, as some transactions do not have a member record and some members aren’t making attributable transactions (additional members). The relationship between members and prospects is also a full outer join, as not all prospects convert and not all members were once a prospect. The remaining joins are left joins from the transactions table.
Checkinsmemberattributes	Checkins Members Attributes is similar to the <i>TransactionsFactsView</i> except that it looks only at checkins and aggregates counts across various time frames. It is also joined to the FactTable on the Agreement Number.
Checkinsview	Checkins view is used to show flat month over month breakdown of checkins.

Fact Tables	Description
Invoicesmonthtoend	<i>InvoicesToMonthEnd</i> is an aggregated view of services and transaction revenue that is expected to be invoiced between the current date and the end of the month.
Pto_noduplicates	<i>PTO_noDuplicates</i> is a simple query used to select only distinct records in the person <i>pt_orientations</i> table. It is used in both the Masterview and the FactTable
Transactionfactsview	<i>TransactionsFactsView</i> looks at the transactions table and aggregates data based on Profit Center and Time frame i.e. Total Amount spend Month to Date, Total Amount Spent on Services, not including Paid in Full. These fields are all used by the FactTable.
MasterUniqueTours	<i>MasterUniqueTours</i> has been created to join the prospects and the tours tables without creating any duplication. Prospects and Tours are each queried separately, making sure to only take the most recent record for any given person. The unique tables are then joined together on Full Name and Phone number which creates the view. The view is used in both the Fact Table and the Master View, and the join keys are Membership Name and Phone Number

4.1.2 Master Views

Apex Tables	Description
Masterview	Masterview has the primary table as the transactions table and appends to each transaction additional information about the member, the services they purchase, their prospect history and aggregated check-in information. Each line in this table has a transaction date and details of what was purchased on the transaction. The relationship between members and transactions is a full outer join, as some transactions do not have a member record and some members aren't making attributable transactions (additional members). The relationship between members and prospects is also a full outer join, as not all prospects convert and not all members were once a prospect. The remaining joins are left joins from the transactions table.

Apex Tables	Description
Memberattributestableview	MemberAttributesTableView (also called FactTable) is an aggregated summary of member data. Only one record exists per member in this table and it contains details such as their sign date, cancel date (if applicable), number of additional services purchased and how many referrals exist. If the field does not contain an indicator of time (such as <i>checkins_L4W</i>) then it is assumed to be a view of their entire member history. This table contains a full outer join between Transactions and Members as some members are not captured in the transactions table, and some transactions are associated to agreement numbers not in the membership table. The relationship between members and transactions is a full outer join, as some transactions do not have a member record and some members aren't making attributable transactions (additional members). The relationship between members and prospects is also a full outer join, as not all prospects convert and not all members were once a prospect. The remaining joins are left joins from the transactions table.
Checkinsmemberattributes	"Checkins" Members Attributes is similar to the <i>TransactionsFactsView</i> except that it looks only at checkins and aggregates counts across various time frames. It is also joined to the FactTable on the Agreement Number.
Checkinsview	Checkins view is used to show flat month over month breakdown of checkins.
Invoicesmonthtoend	<i>InvoicesToMonthEnd</i> is an aggregated view of services and transaction revenue that is expected to be invoiced between the current date and the end of the month.
Pto_noduplicates	<i>PTO_noDuplicates</i> is a simple query used to select only distinct records in the person <i>pt_orientations</i> table. It is used in both the Masterview and the FactTable
Recurringservicesfacts	<i>RecurringServicesFacts</i> is similar to the <i>transactionsfactview</i> in that it aggregates data to a single record per agreement number using the recurring services table. It is joined to the Fact Table.
Transactionfactsview	<i>TransactionsFactsView</i> looks at the transactions table and aggregates data based on Profit Center and Time frame i.e. Total Amount spent Month to Date, Total Amount Spent on Services, not including Paid in Full. These fields are all used by the FactTable.

Apex Tables	Description
MasterUniqueTours	<i>MasterUniqueTours</i> has been created to join the prospects and the tours tables without creating any duplication. Prospects and Tours are each queried separately, making sure to only take the most recent record for any given person. The unique tables are then joined together on Full Name and Phone number which creates the view. The view is used in both the Fact Table and the Master View and the join keys are Membership Name and Phone Number

4.1.3 Recommendation Engine

Apex Tables	Description
RecommendationEngine	<i>RecommendationEngine</i> calculates recommended personal trainer and service plan at a club and membership profile level. It consists of two queries, one that pulls the service plan with the greatest number of enrollments (by counting records in the recurring services table) and a second that pulls the personal trainer with the highest conversions. This is joined to the FactTable on Member Profile and Club.

4.2 Microsoft SQL Server

Kentico 11 deployments is run on SQL Server database. Beyond the content management system, this database is responsible for custom tables created in Kentico and user information.

Customer Custom Tables	Description
Apex Goals	A single record for monthly goal per club and revenue stream. For each club, goals may be broken down by: - Goal type* - Month** - Revenue Stream / Profit Center - Salesperson <i>*Goals may be set by Total Revenue, by Profit Center or Salesperson.</i> <i>**Monthly goals are calculated using the 1st of the month for the date, i.e.: 04/01/2025</i>

User Tables Extended	Description
User	Membership Module System Table “User” has been extended with custom fields to be populated for each user record: - Customer Id - This is customer_id from PostgreSQL database from the customers table - Apex Plan - Apex Plan Start Date - Apex Membership Active - Apex Membership In Trial - Apex Trial Start Date - Apex Paid Customer Start Date - Active Locations Filter List

5.0 Rest API

5.1 Overview

Apex SBT uses a Rest API to extract data from systems of origin (in its native form) for ingestion into the Apex back-end.

REST API (Representational State Transfer Application Programming Interface) is a set of rules that allows systems to communicate over HTTP, commonly used for web-based services.

5.1.1 Key Characteristics:

- Stateless: Each request from client to server must contain all the necessary information; no session state is stored on the server.
- Uses HTTP methods:
 - GET – Retrieve data
 - POST – Send new data
 - PUT/PATCH – Update existing data
 - DELETE – Remove data
- Resource-based: Data is treated as resources accessed via URLs (e.g., <https://api.example.com/users>).

Once integrated, Apex will leverage a series of Rest API pulls in order to refresh its dataset on a daily basis for both incremental (new) data and changes to historical data which already lives in Apex's back-end database/data warehouse

5.2 Rest API Calls

The list below represents a complete listing of Apex SBT's most frequent Rest API calls, including the context of each.

General Data Retrieval

- GET /api/data/getuser – Returns a simple response.
- GET /api/data/getdata?token={token}&siteId={siteId}&viewId={viewId}&query={query} – Fetches data for a given view.

Clubs Data

- GET /api/data/locations/list – Retrieves list of club locations.
- GET /api/data/locations/hierarchy – Fetches club hierarchy

Revenue Data

- GET /api/data/revenue/highlight – Provides revenue highlights.
- GET /api/data/revenue/highlight/revenuestreams/tiers – Revenue streams by tiers.
- GET /api/data/revenue/highlight/membershiptiers – Revenue by membership tiers.
- GET /api/data/revenue/mom – Month-over-month revenue comparison.
- GET /api/data/revenue/yoy – Year-over-year revenue comparison.
- GET /api/data/revenue/yoy/detail – Detailed year-over-year revenue comparison.
- GET /api/data/revenue/locations/portfolio – Revenue by locations.
- GET /api/data/revenue/revenuestreams/portfolio – Revenue breakdown by stream.
- GET /api/data/revenue/revenuestreams/activities – Revenue by activity.
- GET /api/data/revenue/producttypes/portfolio – Revenue breakdown by product type.
- GET /api/data/revenue/membershiptiers/portfolio – Revenue by membership tiers.
- GET /api/data/revenue/last12months – Last 12 months revenue trend.
- GET /api/data/revenue/daily/mtd – Daily revenue trend month-to-date.
- GET /api/data/revenue/revenuestreams/daily/mtd – Revenue streams daily MTD.
- GET /api/data/revenue/revenuestreams/daily/wtd – Weekly revenue trends.
- GET /api/data/revenue/averagemonthlyspend – Average member spend per month.
- GET /api/data/revenue/averagemonthlyeftspend – Average monthly EFT spend.
- GET /api/data/revenue/services/penetrationrate – Service revenue penetration.
- GET /api/data/revenue/eftvspif – EFT vs PIF revenue breakdown.

Membership & Member Insights

- GET /api/data/membership/newvscancel/ytd – New vs. canceled members YTD.
- GET /api/data/membership/newvscancel/cancelreasons – Cancellation reasons breakdown.
- GET /api/data/membership/net/ytd – Net membership changes YTD.
- GET /api/data/membership/netgrowth/highlight – Membership net growth summary.
- GET /api/data/membership/netgrowth/tiers – Membership net growth by tier.
- GET /api/data/membership/netgrowth/locations – Membership net growth by location.
- GET /api/data/membership/freezes – Membership freeze details.
- GET /api/data/membership/snapshot – Membership overview snapshot.
- GET /api/data/membership/kpis – Key performance indicators for membership.
- GET /api/data/members/active – Fetches active members.

- GET /api/data/members/tenure – Member tenure analysis.
- GET /api/data/members/tenure/profiles – Member profiles by tenure.
- GET /api/data/members/sleepersvsactive – Compares sleepers vs. active members.
- GET /api/data/members/active/frozen – Lists active and frozen members.
- GET /api/data/demographics/gender – Gender demographics.
- GET /api/data/demographics/gender/profiles – Gender distribution by profiles.
- GET /api/data/demographics/gender/locations – Gender distribution by location.

Rankings & Performance

- GET /api/data/rankings/locations/revenue/ytd – Location revenue rankings YTD.
- GET /api/data/rankings/employees/payroll – Employee payroll ranking.
- GET /api/data/rankings/employees/payroll/bottom – Bottom payroll performers.
- GET /api/data/rankings/employees/eventfees – Rankings based on event fees.
- GET /api/data/employees/revenuestreams/memberprofiles – Employee revenue by member profile.
- GET /api/data/rankings/employees/revenueprofit – Employee revenue vs. profit ranking.
- GET /api/data/rankings/locations/revenue/locations/profiles – Location performance by revenue and profiles.

Check-Ins & Engagement

- GET /api/data/checkins/highlight – Member check-in summary.
- GET /api/data/checkins/yoy – Year-over-year check-in trends.
- GET /api/data/checkins/popular/days – Most popular check-in days.
- GET /api/data/checkins/popular/times – Peak check-in times.
- GET /api/data/checkins/bestworst/months – Best and worst performing check-in months.

Quick Wins & Opportunities

- GET /api/data/quickwins/upsell/services – Identifies upsell opportunities.
- GET /api/data/quickwins/cancellations – Highlights potential member churn.
- GET /api/data/quickwins/leads/hot – Fetches high-potential leads.
- GET /api/data/quickwins/collections – Tracks outstanding collections.

6.0 Data Processing

Data processing is a critical component of the Apex SBT Engine, ensuring seamless data ingestion, transformation, and synchronization across multiple third-party platforms. The system is designed to provide scalable, automated, and structured data processing to support business intelligence, reporting, and operational decision-making.

Currently, Apex integrates with three primary platforms:

- **Daxko (Club Automation & Daxko Vault)** – Synchronizing club management, membership, and financial data.
- **ABC Financial** – Handling financial transactions, memberships, and recurring services.
- **Club OS** – CRM sales and marketing lead data

However, Apex's ETL framework is built for scalability, allowing for future integrations with additional third-party platforms as needed. New data sources can be integrated via database connections, API pulls, or scheduled reports, ensuring that Apex continues to evolve with business needs.

6.1 Third-Party Integrations

6.1.1 Daxko & Club Automation

Apex integrates with Club Automation, a club management platform under the Daxko umbrella, utilizing Daxko Vault as the primary data source.

How It Works

- **Daxko Vault:** A centralized data warehouse that standardizes data for all Daxko-managed clubs.
- **Club Automation:** Each customer has a dedicated database tenant storing their master data.

ETL Works automates nightly synchronization:

- **Primary Source:** Data is pulled from Daxko Vault using a customer-specific schema.
- **Fallback Source:** If data is missing from Daxko Vault, ETL Works queries the Club Automation database tenant.
- **Data Merging:** Missing data from Club Automation is appended to the Vault dataset for completeness.

6.1.2 ABC Financial

The ABC Financial integration syncs financial and membership data into Apex daily.

How It Works

ABC Financial maintains their data within two systems:

- **CRS** – Stores transactional and membership data.
- **Data Track** – Tracks member check-ins and recurring services

Apex connects to ABC Financial via two methods, depending on the system it is retrieving data from:

- **Scheduled Reports:** Daily reports emailed to data@fitnessoneapp.com mailbox
- **API:** Daily Rest API pulls via scheduled job managed within the Kentico deployment

System	Method	Description
CRS	Scheduled Reports	All CRS data can be sent to Apex via scheduled reports daily. The request must be sent to the CRS team for each club for each of the reports below: • Active and Inactive Reports • DRDR Transactions Reports • Invoices Available to Collect • New Accounts • Cancelled Accounts
Data Track	API	Data Track data can be accessed via API. Apex natively integrates to pull the following data: • Daily checkins • Recurring services • Prospects managed in ABC (optional)

Historical Import

When onboarding a new customer, part of the process is to import historical data going back three years. The import follows a similar process to the ongoing jobs but the source files or API calls date ranges changes to the three-year look back.

In order to receive historical data for CRS reports, the account manager must complete the request form for the CRS team to be emailed to data@fitnessoneapp.com mailbox.

File name: CRS Report Caster Setup Checklist.xlsx

Fields:

- Club Name
- Club Number
- Report Name
- Frequency of Report
- Owner/Staff Username for CRS
- Email address
- CRS User Id
- Report Format
- Notes

CRS Report Caster Setup Checklist								
Club Name	Club Number	Report Name	Frequency of Report	Employee/Owner Name	Email Address	CRS User ID	Report Format	Notes
Fitness Incentive	6551	Revenue by Profit Center Detail	Daily, 5am	kenbrown	data@fitnessoneapp.com		Excel	Report should contain full "Month to Date" data
Fitness Incentive	6551	Total Invoices Available to Collect	Daily, 5am	kenbrown	data@fitnessoneapp.com		Excel	Current Month
Fitness Incentive	6551	Active and Inactive Member Detail	Daily, 5am	kenbrown	data@fitnessoneapp.com		Excel	
Fitness Incentive	6551	New Account Analysis - TOTAL (All)	Daily, 5am	kenbrown	data@fitnessoneapp.com		Excel	Report should contain new accounts from previous day
Fitness Incentive	6551	Cancelled Accounts	Daily, 5am	kenbrown	data@fitnessoneapp.com		Excel	Report should contain cancelled accounts from previous day
Echelon Health and Fitness	6531	Total Invoices Available to Collect	Daily, 5am	jquinn6531	data@fitnessoneapp.com		Excel	Current Month

6.1.3 Club OS

The Club OS integration allows Apex to replicate prospect, tour, and consultation data daily.

How It Works

Club OS provides a reporting module with a capability to email reports on a schedule.

System	Method	Description
Club OS	Scheduled Reports	All Club OS data can be sent to Apex via scheduled reports daily. The reports must be set up within the Club OS deployment in the reporting module: • New Prospect report • Daily Guest Log report • Consultations report

6.2 Data Ingestion and Processing

Apex relies on ETL Works for automated data ingestion, transformation, and synchronization.

Data Connection Routines

<i>Routine</i>	<i>Type</i>	<i>Purpose</i>
DAXKO Club Automation Sync	Database to Database	Synchronizes core club data.
DAXKO Vault Redshift Sync	Database to Database	Standardizes Vault data before ingestion.

<i>Routine</i>	<i>Purpose</i>
Daxko to Apex Master - Data Mapping	Maps Daxko data into the Apex Master schema.
Daxko Vault - Insert/Replace Members	Updates member profile data.
Daxko Vault - Upsert Transactions & Services	Inserts and updates revenue transactions for every revenue stream.
Daxko Vault To Apex Master - Mapping - Employees	Updates employee basic data such as instructors and trainers.
Daxko Vault - Upsert Employee Payroll	Updates payroll and employee transaction details.
Daxko to Apex Master - Data Mapping - Programs	Updates member program registration data
Daxko Vault to Apex Master - Insert Cancelled Accounts	Inserts canceled account records.
Daxko Vault to Apex Master - Insert Checkins	Syncs check-in data
Daxko Vault to Apex Master - Insert New Accounts	Adds newly created accounts
Daxko to Apex Master - Data Mapping	Maps Daxko data into the Apex Master schema.
Daxko Vault - Insert/Replace Members	Updates member profile data.
Daxko Vault - Upsert Transactions & Services	Inserts and updates revenue transactions for every revenue stream.

Data Mapping Routines

Apex ETL Works Routines

Data Mapping

- Daxko Vault to Apex Master - Insert Cancelled Accounts – Inserts canceled account records.
- Daxko Vault to Apex Master - Insert Checkins – Syncs check-in data.
- Daxko Vault to Apex Master - Insert Employee Transactions by Employee Id – Inserts employee transactions.
- Daxko Vault to Apex Master - Insert New Accounts – Adds newly created accounts.
- Daxko Vault to Apex Master - Insert Projected Invoices – Syncs forecasted invoices.
- Daxko Vault To Apex Master - Mapping - Employees – Maps employee data.
- Daxko Vault to Apex Master - Replace Member Appointments – Updates member appointments.
- Daxko Vault to Apex Master - Replace Member Group Activities – Updates group activities.
- Daxko Vault to Apex Master - Replace Member Point of Entry (POE) – Updates member entry records.
- Daxko Vault to Apex Master - Replace Member Program Registrations – Updates program registrations.
- Daxko Vault to Apex Master - Replace Members – Replaces full member records.
- Daxko Vault to Apex Master - Replace Members Dependents – Updates dependent member data.
- Daxko Vault to Apex Master - Upsert Employee Payroll – Updates payroll details.
- Daxko Vault to Apex Master - Upsert Services Transactions (RS Timeframe) – Inserts/upserts service transactions.
- Daxko Vault to Apex Master - Upsert Transactions – Inserts or updates financial transactions.

Fact Table Processing

- Apex Master - Fact Table - 01 - Member Basic Info – Stores core member data.
- Apex Master - Fact Table - 02 - Member Transactions (Master View) – Main transactions dataset.
- Apex Master - Fact Table - 03 - Member Checkins – Logs member check-in data.
- Apex Master - Fact Table - 04 - Member Attributes – Stores member demographic attributes.
- Apex Master - Fact Table - 05 - Member Snapshot – Captures member status snapshots.
- Apex Master - Fact Table - 06 - Transactions Snapshot – Summarizes transactions.
- Apex Master - Fact Table - 07 - Transactions MoM Snapshot – Month-over-month transactions view.
- Apex Master - Fact Table - 08 - Member Growth – Tracks membership growth.
- Apex Master - Fact Table - 09 - Member Growth Snapshot – Monthly membership change log.
- Apex Master - Fact Table - 10 - Member Growth MoM Snapshot – Membership growth by month.
- Apex Master - Fact Table - 11 - Projections – Forecasted membership and financial data.
- Apex Master - Fact Table - 12 - Member Services – Logs member service usage.

- Apex Master - Fact Table - 13 - Checkins Snapshot – Member check-in summary.
- Apex Master - Fact Table - 14 - Checkins MoM Snapshot – Month-over-month check-in trends.
- Apex Master - Fact Table - 15 - Services Snapshot – Aggregated services data.
- Apex Master - Fact Table - 16 - Quick Wins Recommendations – Identifies opportunities.
- Apex Master - Fact Table - 17 - Hot Leads – Tracks potential leads.
- Apex Master - Fact Table - 18 - Member Profile Metrics – Stores detailed member analytics.
- Apex Master - Fact Table - 19 - Member Transactions Snapshot – Transaction summary.
- Apex Master - Fact Table - 20 - Member Transactions MoM Snapshot – Month-over-month trends.
- Apex Master - Fact Table - 21 - Member Family Units – Links family memberships.
- Apex Master - Fact Table - 22 - Member Days In Club Per Week – Tracks visit frequency.
- Apex Master - Fact Table - 23 - Program KPIs – Key performance indicators for programs.
- Apex Master - Fact Table - 24 - Program Registrations with Appointments and Group Activities – Tracks program attendance.
- Apex Master - Fact Table - 25 - Upsell Revenue by Session and Member Profile Last 12 Months – Revenue breakdown.
- Apex Master - Fact Table - 26 - Program Upsell Revenue by Invoice Source – Revenue sources analysis.
- Apex Master - Fact Table - 27 - Program Funnel Member Value KPIs – Member value KPIs.
- Apex Master - Fact Table - 28 - Program Revenue Groups by Gender – Revenue analysis by gender.
- Apex Master - Fact Table - 29 - Program Ranking with Top Staff Revenue by Invoice Source – Staff performance ranking.
- Apex Master - Fact Table - 30 - Member Transactions MoM Detail – Detailed MoM transactions.
- Apex Master - Fact Table - 31 - Program Revenue and Profit by Session with Payroll – Program revenue details.
- Apex Master - Fact Table - 32 - Fact Payroll – Payroll processing data.
- Apex Master - Fact Table - 33 - Fact Payroll By Program Session Day – Payroll breakdown.
- Apex Master - Fact Table - 34 - Fact Payroll Revenue By Program Session Day, Instructor – Payroll revenue by instructor.
- Apex Master - Fact Table - 35 - Transactions MoM 12 Months Back Snapshot – Historic transaction data.
- Apex Master - Fact Table - 36 - Event Net Profit / Hour KPIs Benchmarks Current Season – Event profitability.
- Apex Master - Fact Table - 37 - Court Utilization Net Profit by Hour – Court usage efficiency.
- Apex Master - Fact Table - 38 - Revenue Percentile Groups – Revenue segment analysis.
- Apex Master - Fact Table - 39 - Revenue Streams Custom Hierarchy Revenue – Custom revenue mapping.
- Apex Master - Fact Table - Employee Transactions Snapshot – Employee transaction tracking.
- Apex Master - Fact Table - Health Check - Average Monthly Spend Change – Financial health check.
- Apex Master - Fact Table - Health Check - Revenue Streams Transactions Count Change – Revenue stream trends.

- Apex Master - Fact Table - Upsert Employee Sales By Member Profile – Updates sales data.
- Apex Master - Fact Table 20 - Employee Sales Snapshot – Sales data snapshot.
- Apex Master - Fact Tables - Transactions – Handles transactional processing.
- Apex Master - Fact Tables - Employee Only – Processes employee-related data.
- Apex Master - Fact Tables - Health Check – Monitors system health.
- Apex Master - Fact Tables - Family Units Only – Family unit processing.
- Apex Master - Replace Program Payroll by Instructor (Legacy) – Legacy payroll updates.
- Apex Master - Replace Program Event Pros – Updates event professionals.

6.2 Scheduled Reports

Some systems do not expose data needed for Apex via an API but do provide capabilities to schedule excel or CSV reports to be sent to a designated place daily. ETL Works can extract files attached to emails and parse the data.

6.3 Apex Import API

6.3.1 Daxko Vault Integration

Apex integrates with Daxko Vault, which serves as a centralized data warehouse for Daxko's club management platforms, including Club Automation. The integration pulls critical data related to club locations, revenue streams, membership types, member activity, and financial transactions.

This API used by the onboarding wizard only. Nightly sync happened entirely in ETL Works.

Key API Methods for Data Retrieval

GetClubLocations(int club_key)

- Retrieves all club locations for the specified customer from Daxko Vault.

GetCustomerRevenueStreams(int club_key)

- Fetches revenue streams which are associated with a customer.

GetCustomerMembershipTypes(int club_key)

- Retrieves all membership types defined for a club.

GetMembersAllLocations(int club_key)

- Retrieves all members across all club locations.
- Data is sourced from a custom integration table mapping Daxko members to Apex .

GetStaffAllLocations(int club_key)

- Retrieves all staff members across club locations.
- Uses a custom integration table mapping Daxko staff to Apex .

GetTransactionsAllLocations(int club_key)

- Fetches financial transactions from all club locations.
- Transactions are filtered from 2019 onwards.

GetCheckinsAllLocations(int club_key)

- Retrieves check-in records from the start of the current year.

GetNewAccountsAllLocations(int club_key)

- Retrieves newly created accounts across club locations.

GetCanceledAccountsAllLocations(int club_key)

- Fetches canceled accounts across club locations.

6.3.2 ABC Financial Integration

Apex integrates with ABC Financial, which manages financial and membership data. The integration supports retrieving club information, member activity, check-ins, recurring services, and financial transactions.

ABC Financial data is retrieved daily using scheduled reports and API pulls.

Daily Jobs - Kentico	Description
RunDailyDataImport()	Daily scheduled task to run ABC API pulls for all active clubs that use API • Library Name: FitnessOne.ScheduledTasks • Class Name: AbcFinancialApiDailyPullTask

Key API Methods for Data Retrieval

GetClubProfitCenters(int clubNumber)

- Retrieves profit centers for a given club.

GetClubPlans(int clubNumber)

- Fetches all membership payment plans for a club.
- GetRecurringServices(int clubNumber, string dateRange)
- Retrieves recurring service transactions within a given date range.

GetRecurringServicePlans(int clubNumber)

- Fetches available recurring service plans.

GetCheckins(int clubNumber, string dateRange, int page)

- Retrieves club check-in details for a specific date range.

GetMembers(int clubNumber, int page)

- Fetches active members associated with a club.

GetProspects(int clubNumber, int page)

- Retrieves prospects (potential members) from ABC Financial.

GetCampaigns(int clubNumber, int page)

- Retrieves marketing campaign data for the specified club.

GetClubInformation(int clubNumber)

- Fetches general club demographics and details.

7.0 Index

7.1 Member Attributes

Apex consolidates key member attributes to generate a comprehensive member-centric view, serving as the foundation for all analysis and recommendations within the platform. This unified dataset integrates demographic, financial, and behavioral insights into a single record, enabling a deeper understanding of acquisition, retention, and loyalty metrics.

7.1.1 Gym Membership Data Overview

Basic Member Information

- Agreement Number: Unique Member ID
- First Name
- Last Name
- Email
- Phone
- Demographic
 - Age
 - Gender

Membership Information

- Gym Location
- Since Date: Date when the member first joined this gym location
- Renewal Date: Date when the member is set to renew their current contract
- Status: Active | Inactive
- Membership Duration: How long they have been a member (Months)
- Membership Type
- Membership Payment Plan
- Contract Obligation: Open | Installments | Cash
 - Indicates if the member is under contract, paying month to month, or paid in full for a certain period
- Membership Tier Price: Monthly amount the member pays for membership only
- Recurring Type: Monthly | Paid in Full
- Contract Expiration Date: Date when the current contract is due to expire
- Membership Payment Incentive: None (Pay full amount) | Promotion

- If the membership dues are less than the full price, it is classified as a "Promotion"
- Membership Free Period: Yes | No
 - Indicates if they signed up with a promotion offering a "free" period
- Membership Currently in Free Period: Yes | No
 - Indicates if they are currently in a "free" period

7.1.2 Usage Metrics

- Total Check-ins
- Avg Monthly Check-ins
- Avg Weekly Check-ins
- Last Check-in Date
- Sleeper Status: Yes | No

7.1.3 Active Upsells

- Total Active Upsells: Number of currently active upsell packages
- Total Active Upsell Monthly Invoice Amount: Monthly billing for all active services
- Total Active Upsell Value: Total billing from start to end for all active services
- Fitness Consultation Date
- Fitness Consultation Salesperson
- Active Upsell 1 Details:
 - Profit Center
 - Service
 - Plan
 - Recurring Type: Fixed Interval | PIF
 - Invoice Amount
 - Total Package Amount
 - Total Unbilled Amount
 - Salesperson (First Last)
 - Create Date
 - Recurring Status: Approved | Frozen | Paid in Full

Leads

- Lead Create Date
- Lead Tour Date
- Lead Source
- Lead Channel
- Sales Cycle: Days from [Lead Create Date] to [Since Date]
- Salesperson
- Campaign

Apex Calculated Fields

- Member Profile: Combination of Age + Gender
- Avg Monthly Spend: Excludes fees and Paid in Fulls
- Lifetime Value (LTV): Includes all transactions
- Paid in Full Services Spend: Includes only paid-in-full service transactions
- Paid in Full Membership Spend: Includes only paid-in-full membership transactions
- Paid in Full Total Spend: Includes all paid-in-full transactions

Membership Tenure Badge

- Trial
- New Member (Up to 3 Months)
- Graduate (3-12 Months)
- Committed (12+ Months)

Member Loyalty Badge

- High Risk
- Accessible
- Trapped
- Truly Loyal

Loyalty & Referrals

- Number of Referrals (All-time)
- Referrals Converted (All-time)

7.1.4 Loyalty Badge Definitions

- High Risk:
 - Contract Obligation = "Open End"
 - Membership Payment Incentive = "Promotion"
 - Membership Free Period = Yes OR Currently in Free Period = Yes
 - Sleeper = Yes OR Avg Monthly Check-ins < 4
 - *Story:* These members are at risk of cancellation.
- Accessible:
 - Contract Obligation = Any
 - Sleeper = No
 - Avg Monthly Check-ins >= 4
 - *Story:* These members are neutral but could be persuaded to leave.
- Trapped:
 - Contract Obligation = "Installment" or "Cash"
 - Total Active Upsell = 0
 - Referrals = 0 within the last 3 months
 - *Story:* These members may want to leave but are restricted by financial obligations.
- Truly Loyal:
 - Contract Obligation = Any
 - Membership Duration = Longer than average OR at least 13 months
 - Sleeper = No
 - Avg Monthly Check-ins >= 4
 - *Story:* These members value the gym and are committed.

7.1.5 Recommendations

- Suggested Upsell Service
- Suggested Upsell Plan
- Suggested Upsell Salesperson
- Suggested Membership Salesperson

Part **Three.**

Research & Development **Timelines & Cost Structure.**

8.0 Apex SBT Research & Development Timeline

The research and development of Apex SBT can be broken into three phases, with each phase (and the associated activities within them) playing a formative role preparing the technology IP to take advantage of the opportunity that is presented to us at present.

- **Phase 1** Pre-Pandemic (2017-2020)
- **Phase 2:** Pandemic (2020)
- **Phase 3:** Post Pandemic (2021-2023)

8.1 Phase 1: Pre-Pandemic (2017-2020)

This period of time is best described as the research, design, development and launch of what was then referred to as “Fitness One’s Minimum Viable Product”.

During Phase 1, Conduit chose to leverage Tableau as the primary platform for calculations and data visualization.

The decision to use Tableau was directly related to the initial vision of a pre-revenue exit.

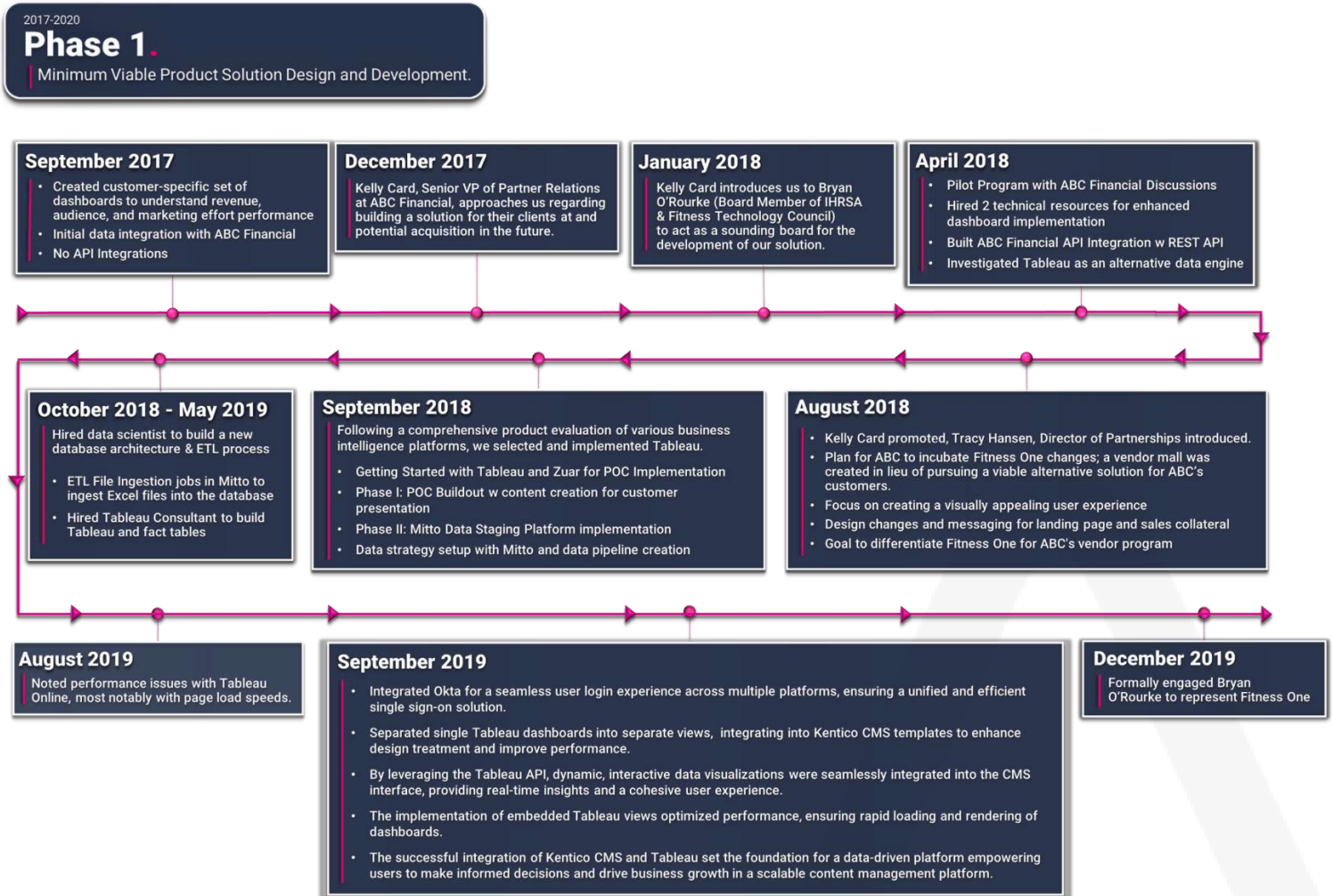
At the time, Tableau, a leading business intelligence software, offered both on premise and cloud licensing, which Conduit felt would provide the acquirer of Fitness One the most agility.

During development, the Conduit team found that the platform struggled to process large datasets—each Fitness One deployment averages 2.7 million lines—resulting in significant lag despite its strong reputation. Additionally, Tableau’s front-end visualization proved to be neither user-friendly nor scalable.



However, having consulted with a focus group of Club Operators and Industry experts every six months throughout the first three years of the solution's development, the feedback around the UX/UI was extremely positive and well beyond what the other vendors in the market were offering at the time.

Phase 1: Research & Development Pre-Pandemic Schedule



8.2 Phase 2: Pandemic (2020)

In December 2019, industry advisor Bryan O'Rourke approached Conduit to facilitate a pre-revenue exit for its emerging solution.

2020
Phase 2: Primary Areas of Focus

Development & Investment Timeline
April 2020 to October 2021: Custom Front End: Moving Away from Tableau Dashboards

Anticipating the post-pandemic needs of brick-and-mortar Fitness/Wellness Operators, we prioritized enhancement of the front-end user experience of the product, leading to the hiring of front-end resources, a complete UX redesign, and the implementation of the new Fitness One front end framework into Kentico CMS templates.

As interest grew in early 2020, excitement mounted, with Fitness One's first potential buyer in the midst of preparing an offer. However, negotiations were abruptly interrupted by the onset of the pandemic, which severely impacted on the fitness industry.

Having dedicated his career to helping businesses build resilience amid economic and competitive uncertainty, Conduit's CEO and Founder quickly recognized the profound implications of the pandemic following the announcement of widespread business closures.

He understood that the economy had fundamentally changed.

The pandemic placed unprecedented pressure on all industries, prompting Conduit to strategically alter its approach and expectations regarding the completion of its software. Conduit recognized that organizations striving to recover from the impact the pandemic had on their businesses would require clear insights to navigate back to prosperity.

As a result, the firm redirected its resources to advance the "Fitness One" MVP to the next stage of its development. Beginning with the migration away from Tableau to its own proprietary back-end data warehouse/database hybrid, Conduit began what would become a series of enhancements to the design, scalability, and performance of the solution.

Phase 2 Research & Development Pandemic Schedule

2020
Phase 2.

Sunsetting Tableau to improve the responsiveness and performance of the solution while also improving the quality and scalability of the front-end user experience.

March 2020

Exit discovery process is paused due to extreme destabilization of the Fitness Industry and its technology providers due to the COVID-19 pandemic.

April 2020

- Decision is made to focus all resources on the enhancement and upgrade of Fitness One platform to be positioned to capitalize on demand once pandemic restrictions end.
- Began enhancement of the front-end user experience of the product given feedback we had received from our advisor and market research of end users of competitors.

July 2020

Hired front end resources to implement new designs with latest Angular framework.

It was at this time that Conduit's vision advanced beyond the pre-revenue exit of a BI product into architecting a core solution that would serve as the backbone for legacy SaaS products to expand their relevancy into the impending AI age.

8.3 Phase 3: Post Pandemic (2021-2024)



The integration of Daxko Vault and Club Automation databases marked the beginning of Phase 3, where we mapped Daxko Vault's architecture to align it with Fitness One's data structure.

This integration process involved identifying missing data critical to Fitness One's functionality, followed by self-guided research and integration with Club Automation tables to enhance compatibility. Additionally, an ETL solution was then implemented to ensure seamless data synchronization.

To simplify client onboarding and reduce the administrative cost of sales, we developed an onboarding wizard.

This innovative wizard was designed to lower the required skill level for users, address common onboarding issues like data misinterpretation and reporting inconsistencies, and empower clients to select their data representation without technical expertise.

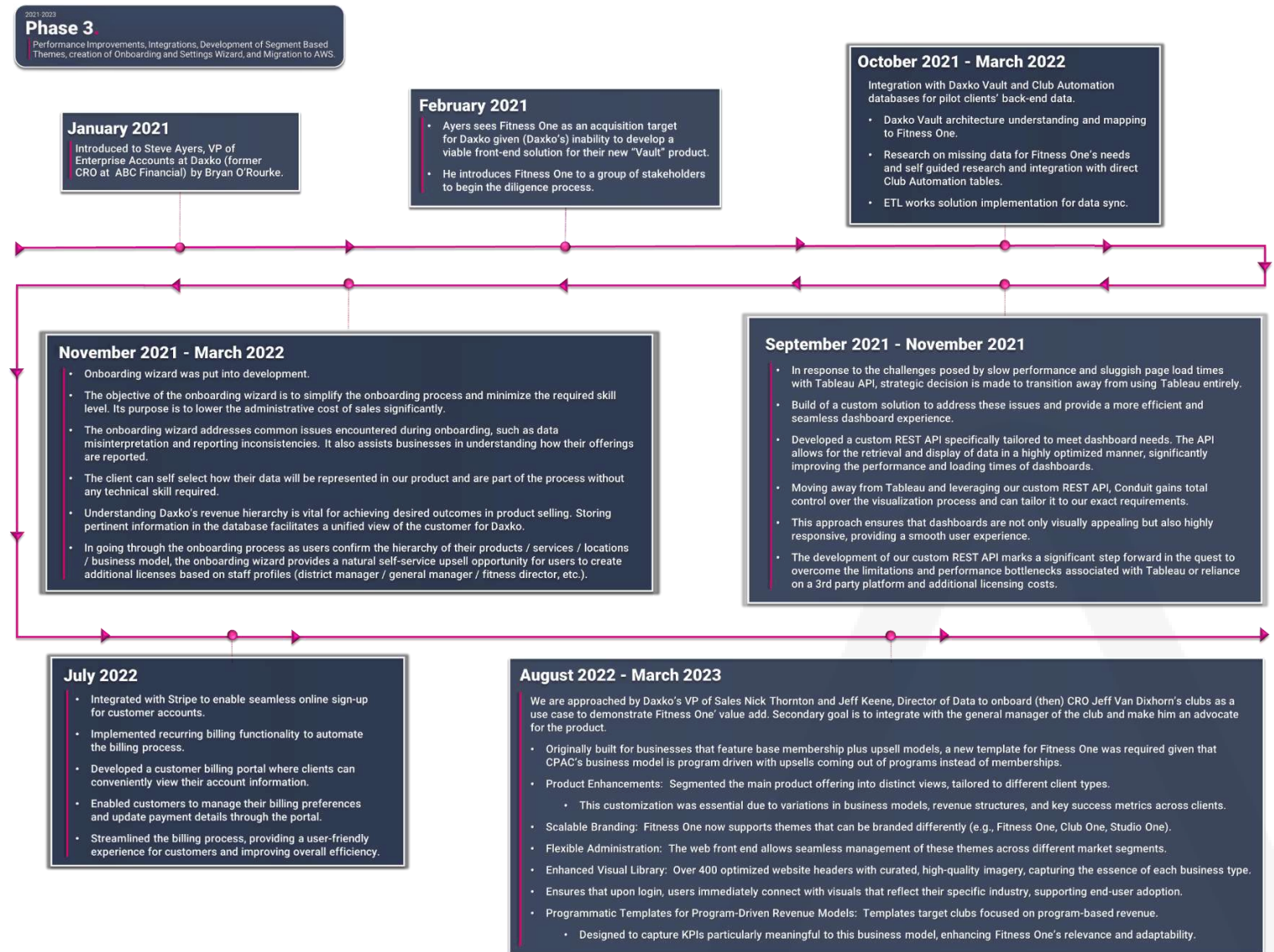
As clients confirmed their product and service hierarchy during onboarding, the wizard also offered a self-service upsell for additional licenses tailored to specific staff roles, such as district managers, general managers, and fitness directors.

In response to slow performance and sluggish page loads with Tableau's API, Conduit strategically decided to transition away from Tableau. To replace it, Conduit developed a custom solution, including a REST API optimized for data retrieval and display, drastically improving dashboard performance and load times. This change gave us full control over visualization, eliminating reliance on third-party platforms and associated licensing fees, while delivering a visually appealing and responsive user experience.

Turning attention to streamlining the billing process, Conduit integrated Stripe to enable seamless online signup and recurring billing. Conduit also developed a customer portal that allows clients to view account information and manage billing preferences, streamlining billing and improving the user experience.

Conduit expanded Fitness One's visual library with over 400 optimized headers featuring curated imagery to enhance user engagement, allowing users to connect immediately with visuals tailored to their industry. Finally, Conduit introduced programmatic templates focused on clubs with program-based revenue, capturing KPIs that enhance Fitness One's adaptability and relevance across industry segments.

Phase 3 Research & Development Post Pandemic Timeline



Lastly, DAXKO requested that Fitness One integrate with (then) CRO Jeff Van Dixhorn's clubs as a case study, with a secondary goal of converting the club's general manager into a product advocate. As a result, Conduit developed a completely new template and business logic for the solution so that it would cater to programmatic based businesses in the fitness space (as opposed to those businesses whose models are predicated on Membership tiers).

9.0 Apex SBT Research & Development Investment

In total, Conduit Innovation has invested slightly more than \$2.9 million to design, develop, integrate and refine the Apex SBT solution. Adjusted for inflation those costs increase to nearly \$3.4 million. All costs associated with the R&D of the solution have been tracked on a separate internal profit and loss statement within Conduit Innovation's financials.

From 2017-2020 Conduit Innovation maintained its core consulting practice while subsidizing the MVP of what was then called "Fitness One".

It is noteworthy to mention that as part of the change of course during the 2020 Pandemic, portions of the Apex Research & Development budget have also positioned the product to be monetized within the Fitness vertical/application and allowing the product to efficiently scale (given the development of the Onboarding and Settings Wizard).

Research & Development.

Year	Actual Total	Inflation Adjusted Total
2017	\$103,753.21	\$133,459.08
2018	\$317,682.66	\$398,701.03
2019	\$316,318.32	\$390,113.66
2020	\$655,669.47	\$798,778.67
2021	\$355,160.33	\$413,264.71
2022	\$655,603.85	\$706,333.26
2023	\$463,331.34	\$479,447.97
Est. 2024	\$47,381.60	\$479,447.97
Total	\$2,914,900.78	Total \$3,367,479.98

In the spirit of accuracy and transparency, copies of Conduit Innovation's corporate tax returns and its internal "Fitness One" Profit and Loss Statements can be made available in the Data Room to aid in the diligence process.

10.0 Apex SBT Technology Carrying Costs

The costs associated with deploying, maintaining, and scaling the Software IP known as Apex can be broken down into three buckets:

1. **Infrastructure Costs:** These are the costs associated with hosting the software product, the web-based front end, and allowing a single sign on for its users (SSO).
2. **Variable Costs:** These are costs associated with the data that is pulled into Apex's Data Warehouse which is hosted in Amazon's S-3 Cloud in addition to other costs that increase on a per user/location basis for the Apex product itself.
3. **Partner Costs:** These are costs associated with the onboarding and access of customer data, that lives within each of the integration partners that Apex is currently connected to.
 - a. Daxko's Vault Product (Primary Data Warehouse)
 - b. Club Automation (Specifically, the Data Tables within Club Automation which Apex uses to extract location data which does not live within the Daxko Vault.
 - c. ABC Solutions (where Apex is configured to extract client data from ABC's API and via scheduled reports as well).

10.1 Apex SBT’ Data Ingestion and Its Impact on Cost

Now that we have outlined the process of pulling and structuring the data that lives in Apex, we have the correct perspective to understand the amount of data stored within Apex on a per location basis (and its impact on pricing).

The average customer deployment of Apex contains roughly 2.7 million lines of data that is housed within Apex’s primary data warehouse. This data is updated once per day (in the early morning) to reflect the previous day’s performance.

The 2.7 million lines of data per location is the sum of all pertinent data points needed to populate all of Apex’s core dashboards, which capture everything the business needs to know- going back three years for historical trend performance comparison.

- This quantity of data per location is reflected in Apex’s market tested MSRP of \$250 per month/per location.
- The primary cost associated with the data stored in Apex’s database, on a per location basis, is reflected in the Amazon Web Services Postgres Database pricing.

Apex’s backend database is currently a db.m6i.large instance type with General Purpose SSD (gp3) storage, enabled storage autoscaling, and a maximum storage threshold of 1000 GiB for a monthly cost of ~\$450.00.

Under this current cost structure, given the present size of Apex locations, approximately 40 customers can be onboarded without the price tier of the Amazon monthly costs rising.

This calculation *assumes that each customer requires the same amount of allocated storage* and does not account for other limiting factors. Storage auto scaling allows for dynamic increase of storage capacity as needed, up to the maximum storage threshold.

Apex’s AWS Database Configuration Information

Instance			
Configuration	Instance class	Storage	Performance Insights
DB instance ID fitnessone	Instance class db.m6i.large	Encryption Enabled	Performance Insights enabled Turned on
Engine version 15.2	vCPU 2	AWS KMS key aws/rds	AWS KMS key aws/rds
DB name analytics	RAM 8 GB	Storage type General Purpose SSD (gp3)	Retention period 7 days
License model Postgresql License	Availability	Storage 50 GiB	
Option groups default:postgres-15 In sync	Master username postgres	Provisioned IOPS 3000 IOPS	
Amazon Resource Name (ARN) arn:aws:rds:us-east-1:721627768623:db:fitnessone	Master password *****	Storage throughput 125 MiBps	
Resource ID db-j75ODE26J3Q5J5JVC2UM56ZEQM	IAM DB authentication Not enabled	Storage autoscaling Enabled	
Created time March 08, 2023, 11:15 (UTC-05:00)	Multi-AZ Yes	Maximum storage threshold 1000 GiB	
DB instance parameter group postgres-15-nossl In sync	Secondary Zone us-east-1f		
Deletion protection Enabled			

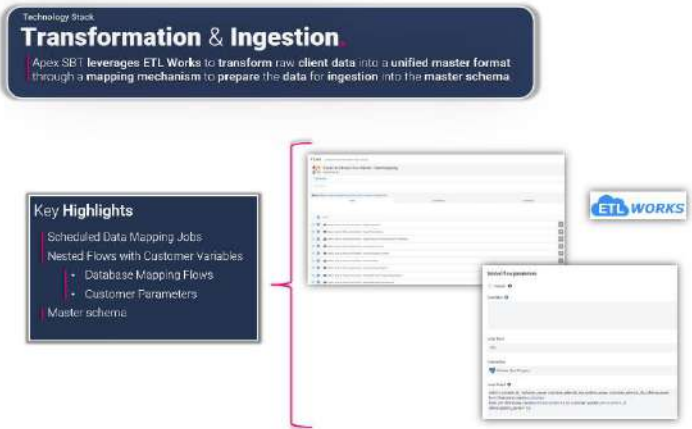
10.1.1 Infrastructure Costs

The base infrastructure costs for Apex are fixed and payable in either monthly or annual installments.

ETL Works

The cost associated with ETL Works covers the process of extracting data from third-party vendors when we establish direct connections to their databases.

This includes the extraction, transformation, and loading of data into our systems for further analysis and utilization. Currently, the cost for ETL Works is fixed at \$600 per month. As the customer base grows and the usage surpasses the overage limits, it is expected that the ETL Works pricing tier will be upgraded to the Enterprise tier, incurring a higher cost of \$900+ per month.



It's important to note that the ETL Works cost specifically pertains to the extraction process from the third-party databases. Any additional integration costs, such as API access fees, are separate and not included in the ETL Works cost.

Kentico Licensing

Kentico is the .NET Content Management System that Apex's web based front end is built on.

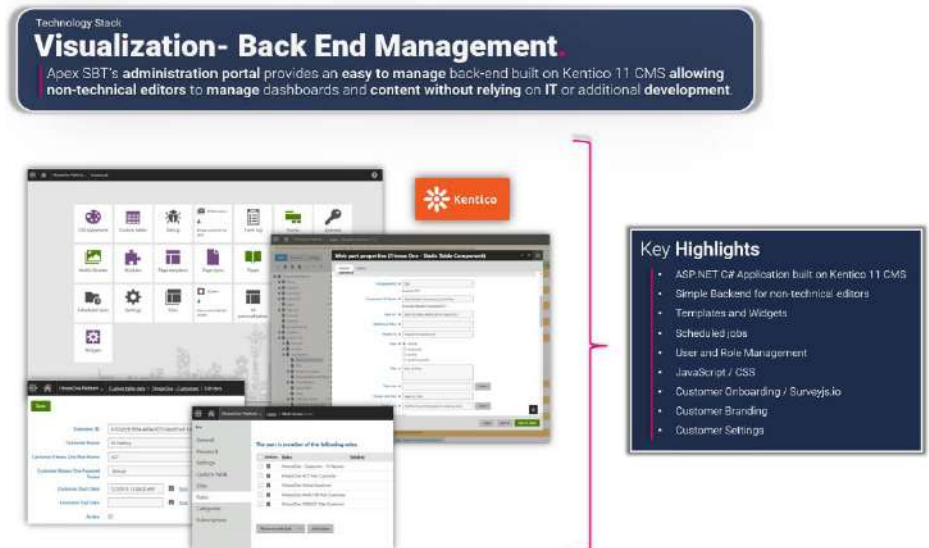
The current license is free but comes with a limit of 100 users.

A "user" is defined as a unique log in. Given that Apex's Onboarding Wizard will allow Apex the capability to upsell several licenses of varying types of an individual location (based on levels of permissions), that user limit does not necessarily equate to 100 locations.

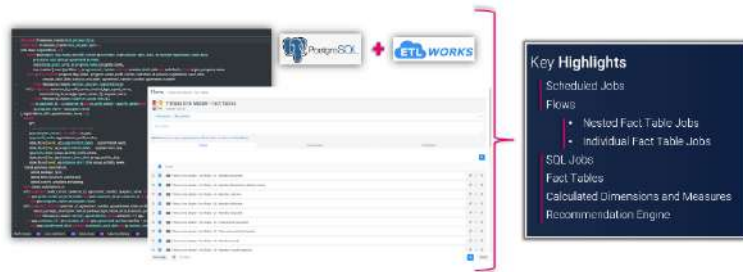
Once 100 users of Apex have been sold, the license will need to be upgraded.

The exact details of the upgraded licensing tier, including any associated costs, will need to be calculated as the current version of Kentico has not been migrated to Kentico's new "headless" CMS.

It is important to plan for this upgrade as we approach the 100-user mark to ensure we account for time and effort to complete the required upgrade.



AWS Postgres Database



As highlighted earlier, the cost of this database is \$450/month. This cost flexes upward based on the relative size of the database.

We estimate the average Apex deployment, if optimized, will cost ~\$11.25/month/customer in storage.

To reiterate, the storage capacity of the current AWS Postgres instance is 1000 GiB, which, based on the average data footprint of an Apex deployment will allow up to 40 locations before costs increase.

Okta Single Sign-On

Okta is a service Apex leverages to allow users to log into the Apex web portal to amend billing, their settings but to also access their data using a single log in.

With an annual contract of \$1584, Okta variable costs are determined by the number of users beyond the minimum requirement and additional fees per user.

Okta Single Sign-On (Variable Cost for > 33 Users):

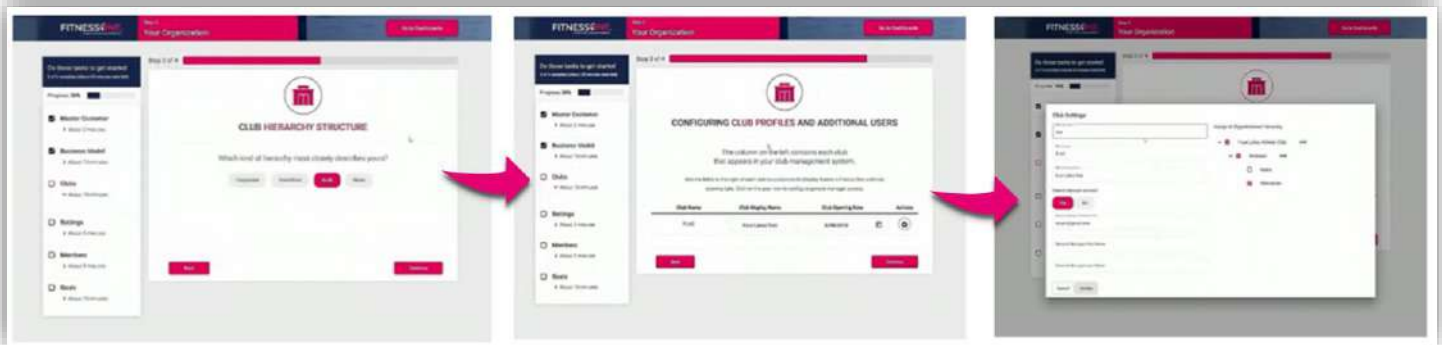
The base cost of Okta that falls within Apex's Infrastructure Fixed costs represent the annual contracts for Apex to provide the single sign on functionality.

Within this annual contract, Okta provides for 33 users of the service in the base, annual cost.

- "Users" as Okta describes them are named licenses which may or may not align exactly with the number of locations that Apex is deployed within.
- One of the many competitive advantages that Fitness One's back-end design provides is the capability of creating multiple named users for a given location, in addition to filtering the access of those users to only the information that is most pertinent to them.
- Additionally, depending on the business model of the chain, additional users with multi club access to part of, or all the data Fitness One provides are also possible. So, whether in a Corporate Environment (GM, District Manager, Regional Manager), a Franchise Environment (Franchisor, Franchisee, General Manager), or both, Fitness One can provide unlimited agility when crafting a go to market licensing model.



Flexibility in Creating Multiple Permissioned User Licenses Within Fitness One



Once Fitness One's userbase exceeds 33 named licenses, the cost for Okta will be at the rate of \$4 per license (\$2 for the Single Sign-On feature and \$2 for the Universal Directory feature respectively).

10.2 Ongoing Carrying Costs

As it is presently deployed, the carrying costs associated with hosting, and administering the solution equate to \$1,881.86 per month or an aggregate \$22,582.32 annually. A complete breakdown of the infrastructure, partner and software costs are included below.

Estimated Monthly
\$1,881.86

Infrastructure Carrying Costs

Estimated Annual
\$22,582.32

Infrastructure Carrying Costs

Expense Name	Amount	Expense Type	Fixed/Variable	Frequency	Annualized Cost
ETL Works	\$600.00	Software and Hosting	Fixed	Monthly	\$7,200.00
CMA Solutions – Web Hosting – Production	\$50.00	Software and Hosting	Fixed	Monthly	\$600.00
CMA Solutions - Web Hosting- Development	\$50.00	Software and Hosting	Fixed	Monthly	\$600.00
Microsoft	\$175.31	Software and Hosting	Fixed	Monthly	\$2,103.72
Kentico Website License	\$0.00	Website	Fixed	In Perpetuity	\$0.00
Authorize.NET	\$30.00	Website	Fixed	Monthly	\$360.00
Stripe	\$144.55	Website	Variable	Monthly	\$1,734.60
Okta - IT Products - Single Sign-On	\$792.00	Website	Fixed	Annual	\$792.00
Okta - IT Products - Universal Directory	\$792.00	Website	Fixed	Annual	\$792.00
AWS Postgres Database	\$450.00	Backend	Variable	Monthly	\$5,400.00
ABC Financial Data Affiliate Minimum Fee	\$250.00	Partner Program Participation	Fixed	Monthly	\$3,000.00
DAXKO Partnership Base Fee	\$0.00	Partner Program Participation	Fixed	Monthly (If Applicable)	\$0.00
ABC Financial Data Transfer Fee	\$10.00	API Integration Fee	Fixed	Monthly (If Applicable)	N/A
DAXKO Customer Acquisition Fee	Revenue Split	API Integration Fee	Variable	Monthly (If Applicable)	N/A

| Appendix **A.**

Apex SaaS Bridge Technology Manual Appendix A: Future Integration Processes

1 - Core Platform Installation

Apex SaaS Bridge is designed to integrate seamlessly with various club management software platforms, enabling the ingestion, mapping, and analysis of critical operational and member data. This section outlines the technical methods for data integration, synchronization, security protocols, and the process for incorporating new technologies, ensuring scalability and ease of use for fitness businesses.

1.1 Data Integration Methods

Apex SaaS Bridge supports multiple integration methods to connect with existing systems, as detailed in the APEX SAAS BRIDGE Technology Manual (Sections 6.1-6.3, pp. 88-95):

- **Direct Database Connection:** Preferred for systems like Daxko Vault, using ETL Works to configure nightly synchronization of key tables.
- **REST API:** For systems like ABC Financial, scheduled API pulls with OAuth or token-based authentication ensure secure data retrieval.
- **Scheduled Report Delivery:** Systems like Club OS send daily reports (e.g., CSV, Excel) to data@fitnessoneapp.com, parsed via ETL Works.
- **Scheduled Custom Jobs:** Configurable via Kentico CMS (ScheduledTask.aspx) for specific client needs.

1.2 ETL Flow

The Extract, Transform, Load (ETL) process is central to Apex SaaS Bridge's data integration:

- 1 **Extract:** Data is pulled from source systems using database connections, APIs, or reports. For example, Daxko Vault uses SQL/ODBC connectors, while ABC Financial combines API pulls and emailed reports.
- 2 **Transform:** Data is sanitized, deduplicated, and mapped to a unified schema using ETL Works' "Scheduled Data Mapping Jobs." Customer-specific fields (e.g., profit centers) are transformed into global categories (e.g., revenue streams).
- 3 **Load:** Transformed data is stored in an AWS Postgres database (db.m6i.large), serving as the centralized data warehouse.

1.3 Synchronization Logic

Data synchronization ensures timely updates, with default frequencies of daily or nightly, as per the APEX SAAS BRIDGE Technology Manual (Section 6.3, pp. 88-90):

- Daxko & Club Automation: Nightly syncs via ETL Works, using routines like “Daxko to Apex Master - Data Mapping.”
- ABC Financial: Daily syncs combine API pulls and scheduled reports, managed by the RunDailyDataImport() task.
- Club OS: Daily prospect and tour data via emailed reports.

Historical data imports cover up to three years, with ongoing daily updates.

1.4 Schema Mapping

Apex SaaS Bridge uses a unified schema to align data across systems:

- Apex Global Tables: Standardize categories like revenue_streams (Id, Name, Type) and lead_sources (Id, Name, Channel).
- Customer Specific Tables: Store client data, e.g., customers (Customer ID, Name), clubs (Club ID, Name).
- Mapping Tables: Link customer data to global categories, e.g., customerprofitcenters maps profit centers to revenue streams.

This structure, detailed in the APEX SAAS BRIDGE Technology Manual (Section 7.1, p. 97), supports complex analytics.

1.5 Authentication and Security

Measures include:

- SSO: Okta and Kentico integration for secure user authentication.
- Encryption: AES-256 for data at rest, TLS 1.2+ for data in transit.
- Audit Logs: Track access and changes for compliance (APEX SAAS BRIDGE Technology Manual, Section 3.1.6).
- Role-Based Access: Limits ingestion jobs to authorized services.

1.6 Integration Process for New Technologies

To integrate a new system:

- 1 Initial Evaluation: Confirm data access via database (SQL/ODBC), API (REST endpoints), or reports (CSV/Excel). Assess data categories (e.g., memberships, transactions) against supported categories: locations, revenue, member demographics, subscriptions, buying patterns, services, sign-ups, check-ins, staff performance, prospects.
- 2 Data Access Setup: Configure connections in ETL Works for database or API access or set up report ingestion via “Email to Database” flow. Define nightly ETL routines or API schedules, mapping source fields to Apex’s schema.
- 3 Historical Data Import: Import up to three years of data using ETL queries or API configurations, validating completeness and accuracy.

- 4 Onboarding Wizard Configuration: Update to include the new platform, adding fields for customer identification (e.g., API keys, SQL/ODBC schemas). Extend the Apex API with endpoints for revenue streams, locations, employees, membership plans, and members.
- 5 Data Validation & QA: Test initial syncs, ensuring revenue totals, member counts, and services align with client reports. Resolve discrepancies collaboratively.
- 6 Go-Live & Monitoring: Initiate daily syncs, monitor sync health for two weeks, and provide client access to dashboards for validation.

1.7 Example: CRM Integration

Integrating a CRM system enhances lead tracking:

- Data Ingestion: Use APIs or reports to import leads and activity logs.
- Mapping: Map CRM leads to Apex SaaS Bridge’s prospective members, and tours to tours.
- Configuration: Add the CRM to the onboarding wizard, prompting for API credentials and filters (e.g., qualified leads).

This provides insights into sales funnels, marketing attribution, and staff performance, complementing operational data.

1.8 Scaling and Performance

Apex SaaS Bridge supports high-scale integration:

- Enterprise Scale: Handles large datasets per customer.
- Simultaneous Ingestion: Supports multiple client systems concurrently.
- Logging: Includes ingestion logs and queue prioritization (APEX SAAS BRIDGE Technology Manual, Section 10.1.1).

1.9 Open Items

- Webhook Support: Verification is needed to confirm webhook-based real-time sync capabilities and supported platforms; currently, no prebuilt webhook support is confirmed.
- Sync Frequency Options: Default is daily; hourly syncs may be configurable, pending confirmation.

Table 1: Key Integration Details

System	Sync Frequency	Method	Data Types
Daxko Vault	Nightly	Database, ETL	Members, Transactions
ABC Financial	Daily	API, Reports	Memberships, Transactions
Club OS	Daily	Reports	Prospects, Tours

2.0 Client Onboarding Wizard & Configuration

The Client Onboarding Wizard simplifies setup for non-technical users, configuring integrations, data mappings, and user roles. This section details the wizard's functionality, UI fields, backend logic, and scalability.

2.1 What the Wizard Configures

The wizard configures:

- Business Information: Client name, locations, contact details.
- Integration Selection: Platforms (e.g., Daxko, ABC Financial) and methods (database, API, reports).
- Data Categories: Memberships, revenue streams, prospects, staff performance.
- User Roles: Admin, analyst, support staff permissions.
- Visual Customization: Logos, themes for dashboards.

2.2 UI Fields

Key fields include:

- Integration Selection: Dropdown for platform (e.g., Daxko Vault), validated for compatibility.
- API Credentials: Fields for OAuth tokens or API keys, with regex validation.
- Sync Schedule: Options for daily or custom intervals, stored in `client_settings.json`.

2.3 Backend Logic

The wizard's backend:

- Data Storage: Saves configurations in `/ApexTenantConfig/client_settings.json`.
- Automated Import: Triggers `RunDailyDataImport()` for initial syncs.
- User Creation: Integrates with Okta for SSO user provisioning.

2.4 Schema References

The wizard interacts with:

- Apex Global Tables: For standardized data categories.
- Customer Specific Tables: For client-specific mappings.

2.5 Scalability

The multi-tenant design supports onboarding 1 to 2,000 sites, with `tenant_id` tagging for isolation (APEX SAAS BRIDGE Technology Manual, Section 1.5).

2.6 Open Items

- UI Screenshots: Field-level details and visual walkthroughs are pending.

Table 2: Key Wizard Fields

Field Category	Example Field	Validation Rule
Integration	Platform Name	Dropdown Selection
API Credentials	OAuth Token	Regex Pattern
Sync Schedule	Frequency	Daily/Custom

3.0 Data Sync Frequency & Real-Time Update Capabilities

Apex SaaS Bridge ensures data freshness through configurable synchronization modes, addressing buyer questions about refresh intervals and schema evolution.

3.1 Sync Intervals

Supported modes include:

- Daily Sync (Default): Runs via RunDailyDataImport() for Daxko, ABC Financial, and Club OS (APEX SAAS BRIDGE Technology Manual, pp. 88-90).
- Hourly Sync: Configurable per tenant, pending verification.
- Real-Time Sync: Possible via webhooks for platforms like Stripe, Salesforce, Shopify, but no prebuilt support confirmed.
- Manual Refresh: Available via Admin Console.

3.2 Webhook Support

Real-time sync requires custom webhook registration, with no prebuilt support for specific systems currently.

3.3 Schema Evolution

A Schema Monitoring Job detects upstream changes:

- Auto-Mapping: Adds new fields with high-confidence mappings.
- Logging: Flags unknown columns for approval (APEX SAAS BRIDGE Technology Manual, Section 6.5.1).

3.4 Error Handling

Sync failures trigger:

- Logging: Stored in /logs/errors/.
- Alerts: Email/SMS to support team.
- Recovery: Automated retries (3x max).

3.5 Open Items

- Webhook Support List: Specific platforms and registration instructions are pending.

4.0 Front End Integration & Single Sign-On (SSO)

The front end, built on Angular and Kentico, supports embedding, customization, and SSO, enhancing user experience and security.

4.1 Module Embedding

Integration methods include:

- Angular Components: Embeddable via iframes.
- Kentico Web Parts: For dashboard integration.
- REST API: For custom extensions.

4.2 UI Customization

Clients can customize:

- Dynamic Elements: Logos, themes.
- Dashboards: Kentico-based, client-specific views.

4.3 SSO

SSO features:

- Protocols: SAML 2.0, OAuth 2.0, LDAP.
- Provider: Okta integration.
- Security: Role-based access.

4.4 Open Items

- Screenshots: Dashboard and SSO panel visuals are pending.

Table 3: Front-End Components

Component Type	Example	Customization Options
Angular Component	Member Dashboard	Theme, Logo
Kentico Web Part	Revenue Report	Layout, Filters

5.0 AI Assistant Setup & Model Configuration

Apex SaaS Bridge’s AI Assistant supports advanced analytics and user interaction, with configurable models and prompts.

5.1 AI Features

The assistant includes:

- Middle Tier: AI-ready for real-time insights.
- Narration Component: Contextual data narration.

5.2 Prompt Stack

The system supports:

- Model-Agnostic Design: Compatible with OpenAI, Anthropic, or open-source LLMs.
- Orchestration: Intent detection, context assembly, prompt injection.

6.0 AI Monetization & Usage Reporting

AI features are integrated into Apex SaaS Bridge's subscription model, with usage tracking for transparency.

6.1 Monetization

The model includes:

- Subscription-Based: Flat tier, per-use, or seat-based options.
- Bundled Features: AI included in standard plans.

6.2 Usage Reporting

Tracking includes:

- Metrics: tenant_id, user_id, tokens_used.
- Dashboards: Contextual Revenue Analysis, Customer Intelligence.

7.0 Required Staff Roles & Buy-Side Team Design

Successful deployment and operation require specific roles and timelines, ensuring smooth integration.

7.1 Staff Roles

Key roles include:

- Implementation: DevOps, Data Integration Specialist (30-90 days).
- Ongoing: System Admin, Product Analyst (1-2 FTEs).

7.2 Timeline Estimates

- Deployment: 2-4 weeks for single instance.
- Support: Ongoing, with training guides recommended.

| Appendix **B.**

Technology Roadmap: AI and Security Advancements, 2025–2045

Executive Summary

Imagine a world where your car senses your mood, your virtual assistant offers empathetic advice, and courtrooms run so smoothly that backlogs are a distant memory. By 2035, artificial intelligence (AI) will likely transform transportation, robotics, and human-machine collaboration, with early steps toward simulating human intuition and emotion. By 2045, AI could approach human-like cognitive depth, reshaping society in profound ways. This roadmap, spanning 2025 to 2045, builds on the visionary work of Dr. James B. Joyce, whose 2000 patent laid the foundation for adaptive AI engines. His forthcoming patent on simulating “other” brain functions, more aligned with the Resonant Circuit of Papez than with logic and reason, promises to push AI toward emotional intelligence.

Complementing these advancements, Dr. Joyce’s Heuristic One-Time Pad Encryption (HOPE), a comprehensive set of end-to-end protocols, offers mathematically uncrackable security, fully non-repudiated authentication, and absolute accountability, ensuring AI’s ethical and secure deployment. Central to achieving this vision is the development of AI middleware platforms, such as ApexOS, which enable enterprises to integrate these advanced AI capabilities securely and efficiently into their operations, overcoming barriers like talent scarcity and data privacy concerns inherent in the current Software as a Service (SaaS) model. While AI’s potential is immense, challenges like privacy, equity, and ethical governance must be addressed to ensure a future where technology amplifies human potential without compromising trust. After all, an AI that understands your emotions is great—as long as it doesn’t use that knowledge to push *your* buttons.

1. AI Advancements: 2025–2035

The next decade will see AI revolutionize multiple domains, from transportation to creative arts, building on the adaptive frameworks pioneered by Dr. Joyce’s 2000 patent. Advances in emotional AI and artificial intuition will enhance human-machine interactions, making them more natural and personalized.

1.1 Transportation: The Rise of Autonomy

By 2035, autonomous vehicles (AVs) are likely to dominate urban roads, transforming commuters into passengers who can work, relax, or engage with in-vehicle augmented reality (AR). Companies like Waymo, operating nearly 800 self-driving vehicles in California and Phoenix as of 2025, and Tesla, advancing its Full Self-Driving (FSD) technology, are leading this shift. McKinsey projects that autonomous driving could generate \$300–\$400 billion in revenue by 2035, with Level 3 and Level 4 systems becoming common in private passenger cars in Europe and North America.

Emotional AI, inspired by projects like the EU-funded SUaaVE, will enable AVs to detect passenger stress through facial expressions or voice tone, adjusting routes or cabin ambiance for comfort. For example, Toyota’s ‘LQ’ concept car uses AI to monitor emotional states, enhancing the driving experience. In urban

areas, AVs will integrate with high-speed public transit like hyperloops, reducing congestion and accidents. Rural areas, however, may lag due to infrastructure gaps, such as poor road conditions or limited 5G connectivity, preserving manual driving in some regions.

Challenges include regulatory harmonization—states like California permit extensive AV testing, while others are more restrictive—and public trust, given high-profile accidents. South Korea’s Mobility Innovation Roadmap aims for self-driving buses and taxis by 2025, setting a precedent for global standards. Security is also critical; HOPE could protect AV systems from cyber threats, ensuring safe operation. By 2035, AVs promise safer roads and reclaimed commute time, though don’t be surprised if your car suggests a detour to avoid your stressful morning meeting.

1.2 Robotics: From Warehouses to Homes

By 2035, robots are expected to be ubiquitous in businesses and affluent homes, handling tasks from inventory management to household chores. The global home robotics market, valued at \$20 billion in 2024, is driven by cleaning, security, and companionship robots. Companies like iRobot lead with robotic vacuum cleaners, while Tesla’s Optimus bot aims to perform diverse tasks like caregiving. In businesses, robots enhance manufacturing speed, logistics efficiency, and healthcare precision, with surgical robots assisting doctors and exoskeletons aiding rehabilitation.

Emotional AI will make robots more empathetic, enabling them to detect user moods via facial expressions or voice tone. For instance, robots like Milo, designed for children with autism, use AI to teach emotional expression, fostering social skills. In retail, robots could adjust interactions based on customer satisfaction, improving service quality. Collaborative robots (cobots) are gaining traction in small businesses, working alongside humans with AI-driven adaptability.

High costs may limit home adoption to wealthier households, but leasing models could democratize access. Safety remains a concern, especially in homes with children or elderly residents, requiring robust fail-safes. Socially, robots may alter household dynamics, reducing manual labor but potentially impacting human connections. HOPE could secure robot data, preventing tampering and ensuring privacy. By 2035, robots named “Jeeves” might outsmart you at laundry, but their charm will come from understanding your mood, not just folding your socks.

1.3 Interfaces: Beyond the 2D Screen

By 2035, the way we interact with digital content will have evolved far beyond traditional 2D screens. Augmented reality (AR) and virtual reality (VR) headsets, such as Apple’s Vision Pro or Meta’s advanced offerings, will provide immersive experiences for work, gaming, and social interactions. In addition to headsets, smart glasses like Meta’s upcoming Hypernova will offer lightweight AR capabilities with built-in displays, allowing users to access digital information seamlessly in their daily lives.

Furthermore, smart contact lenses are on the horizon. Companies like Mojo Vision are developing lenses that can project information directly onto the user’s retina, providing a discreet and integrated AR

experience. These lenses could monitor health metrics, display notifications, or enhance vision, all without the need for bulky hardware.

Beyond eyewear, other innovative interfaces will emerge. Holographic displays will enable 3D visualization without wearables, ideal for collaborative work or entertainment. Spatial computing systems will use the environment as an interface, allowing users to interact with digital objects through gestures and voice commands. AI will enhance these interfaces by adapting to user preferences and emotions, creating personalized and intuitive experiences. While challenges such as comfort, battery life, and affordability persist, particularly for advanced devices like contact lenses, ongoing research and development are expected to overcome these hurdles by 2035. As a result, traditional 2D monitors will become relics of the past, replaced by a diverse array of interfaces that cater to different needs and preferences—though you might still squint at the fine print on a hologram.

1.4 Brain-Computer Interfaces: Merging Mind and Machine

By 2035, brain-computer interfaces (BCIs) are likely to enable seamless communication between the brain and external devices, transforming medical, gaming, and productivity applications. As of 2025, companies like Neuralink, Synchron, and Neuracle are expanding clinical trials, with the invasive BCI market valued at \$160.44 billion in 2024 and projected to grow at a 1.49% CAGR through 2030, while non-invasive BCIs are expected to grow at 9.35%. Invasive BCIs, involving implanted electrodes, offer high-resolution neural data but carry surgical risks, while non-invasive EEG-based systems are safer but less precise.

BCIs are already helping paralyzed patients control cursors or robotic limbs through thought, with trials showing restored communication for those with ALS or spinal injuries. By 2035, non-invasive BCIs may dominate consumer applications like gaming, where users control avatars mentally, or productivity, where thoughts trigger software commands. Dr. Joyce's forthcoming patent on simulating brain functions could enhance BCIs by enabling AI to interpret emotional and intuitive signals, making interactions more natural.

Ethical concerns, such as neural data privacy and autonomy, are significant. HOPE could secure BCI data, preventing unauthorized access. Public acceptance is another hurdle, as many may fear merging mind with machine. By 2035, BCIs could redefine human-tech interaction, but don't worry—your thoughts won't be scheduling meetings without your consent.

1.5 AI-Driven Productivity and Well-Being

By 2035, AI is expected to revolutionize productivity across sectors while enhancing well-being through personalized support. In workplaces, generative AI could automate 30% of tasks by 2030, per McKinsey, freeing employees for strategic work like innovation or customer engagement. To facilitate this transformation, AI middleware platforms such as ApexOS will be instrumental. ApexOS enables enterprises to seamlessly integrate AI into their operations by connecting AI engines directly to their data, allowing for the development of customized solutions without requiring deep AI expertise. This is particularly crucial given the scarcity of AI talent, as ApexOS is designed to be accessible to professionals with domain knowledge, thereby democratizing AI adoption. Unlike the current SaaS model, which often requires

sending sensitive data to external servers, ApexOS acts as a “SaaS-bridge,” keeping data within the organization’s infrastructure to enhance privacy and compliance.

In education, AI tutors will adapt to students’ learning styles, improving outcomes, while in healthcare, AI diagnostics will detect diseases early, reducing physician workload and improving patient care. Emotional AI will boost well-being by monitoring stress and offering interventions, such as suggesting mindfulness exercises. Dr. Joyce’s vision of AI simulating limbic system functions could make these systems more empathetic, tailoring support to emotional needs. For example, AI could adjust work schedules based on detected burnout risks.

However, challenges remain, including ensuring equitable access to AI tools and addressing job displacement through reskilling. Privacy concerns also arise from the collection of emotional data, necessitating secure systems like HOPE to protect sensitive information. By leveraging AI middleware like ApexOS, which can incorporate robust security protocols, organizations can mitigate these risks and ensure that AI-driven productivity tools are both effective and trustworthy. By 2035, AI could make work and life more efficient and fulfilling, provided that it respects user privacy and autonomy.

1.6 The Future of Work

By 2035, AI will likely reshape the workforce, creating 11 million new jobs while displacing 9 million, per the World Economic Forum’s 2025 Jobs Report. AI will augment roles in healthcare, where doctors use AI diagnostics, and creative industries, where artists leverage AI tools. New roles, like AI ethicists and data annotators, will emerge, requiring skills in digital literacy and critical thinking. Furthermore, AI middleware platforms like ApexOS will empower workers by providing tools that allow them to integrate and manage AI systems without needing extensive technical expertise. This democratization of AI technology will create new opportunities for employees to upskill and take on roles in AI optimization and oversight, thereby mitigating some of the job displacement effects and fostering a more inclusive transition to an AI-augmented workforce.

Reskilling is critical, as automation may reduce entry-level jobs. Programs to train workers in AI-related skills will be essential, alongside policies like universal basic income to support transitions. A shorter work week, as suggested by JPMorgan’s Jamie Dimon, could become feasible due to AI-driven productivity gains, enhancing work-life balance.

Concerns include job displacement fears, with 52% of workers worried about AI’s impact, per Pew Research. Ensuring human skills like empathy remain valued is key. By 2035, work will likely be more collaborative and flexible, but don’t expect AI to handle office politics just yet.

1.7 Virtual Companions: Tailored AI Assistants

By 2035, AI-driven virtual companions will likely serve as personalized tutors, coaches, and friends, integrated into AR/VR platforms. Platforms like Replika, which adapts to users’ personalities, and Candy AI,

offering tailored virtual relationships, are leading the way in 2025. These companions use advanced NLP and machine learning to provide emotional support, assist with learning, or enhance entertainment.

In education, virtual tutors will offer real-time feedback, while in healthcare, AI companions could provide therapy or fitness coaching. VR integration will create immersive interactions, simulating physical presence. Ethical concerns include privacy, as companions collect sensitive data, and potential dependency, which could impact human relationships.

HOPE could secure companion data, ensuring trust. By 2035, these companions will likely be ubiquitous, offering support that feels human—though they might get a bit too chatty during your quiet time.

1.8 Seamless AI-Human Collaboration

By 2035, seamless AI-human collaboration will likely be enabled by BCIs and advanced AI, enhancing productivity and accessibility. BCIs allow thought-based control of devices, such as robotic arms in surgery or software in offices. AI systems, augmented by Dr. Joyce's work on intuitive simulation, will interpret neural signals more accurately, making interactions intuitive.

In workplaces, AI will handle data analysis, while humans focus on strategy. In education, BCIs could enable students to interact with learning systems mentally, improving engagement. Challenges include technical reliability, privacy, and user acceptance. HOPE could secure neural data, ensuring ethical use. By 2035, this collaboration will feel like a natural extension of human thought, but humans will still call the shots.

1.9 Corporate Evolution: Human-AI Hybrids

By 2035, businesses will likely operate as human-AI hybrids, with AI integrated into decision-making, automation, and customer service. Goldman Sachs predicts AI systems will act as “employees” by 2025, handling complex tasks. Hybrid intelligence combines human creativity with AI's computational power, enhancing marketing, supply chain management, and innovation. Central to this evolution will be AI middleware platforms such as ApexOS, which enable seamless integration of AI into enterprise systems. By providing a user-friendly interface for connecting AI engines to company data, ApexOS allows businesses to develop and deploy AI solutions that are specifically tailored to their operational needs. This not only enhances the effectiveness of AI applications but also ensures that data remains secure within the organization's infrastructure, addressing privacy and compliance concerns. As a result, companies can leverage AI to optimize processes, make data-driven decisions, and maintain a competitive edge in an increasingly AI-driven market.

Challenges include aligning AI with organizational goals, reskilling workers, and ensuring ethical use. Leadership must foster a culture of collaboration, promoting “double literacy” in human and algorithmic understanding. HOPE could secure AI systems, preventing data breaches. By 2035, businesses will thrive on human-AI synergy, but don't expect AI to handle the office coffee run.

1.10 Civic Engagement: AI and Robotics in Governance

By 2035, AI and robotics will likely enhance civic engagement by improving transparency and participation. AI can analyze public data to detect fraud or optimize resources, while drones monitor traffic or environmental conditions. AI agents could summarize city council meetings, making governance accessible via apps or social media.

Privacy and trust are major challenges, as citizens may fear surveillance. HOPE could secure civic data, ensuring confidentiality. Regulatory frameworks will be needed to balance innovation with public welfare. By 2035, AI could make democracy more participatory, but don't expect robots to run for mayor—yet.

1.11 Unified Interfaces: A Star Trek Future

By 2035, voice-activated, AI-driven interfaces will likely unify device interactions, resembling Star Trek's computer. The VUI market, projected at \$68.74 billion by 2029, is driven by assistants like Alexa and Siri. These systems will control smart homes, cars, and workplaces, using NLP to understand complex commands.

Challenges include interoperability, privacy, and user adoption. HOPE could secure voice data, ensuring trust. By 2035, a single command could manage your entire digital life, but you might miss the chaos of juggling apps.

1.12 Urban Automation: Robots and Drones

By 2035, cities will likely rely on robots and drones for delivery, surveillance, and maintenance. Amazon and UPS are testing drone delivery, while South Korea plans urban air mobility by 2025. Robots will clean streets or inspect infrastructure, enhancing efficiency and safety.

Regulatory hurdles, like airspace management, and public acceptance are challenges. HOPE could secure drone data, preventing misuse. By 2035, urban skies will buzz with drones, delivering everything from pizza to peace of mind.

1.13 Creative Amplification: AI and the Arts

By 2035, AI will likely co-create art, music, and literature, amplifying human creativity. Robots like Ai-Da produce abstract portraits, while AI systems like MuseNet compose music. Artists use AI to experiment with styles, enhancing productivity and accessibility.

Ethical concerns include intellectual property and the risk of homogenized art. HOPE could secure creative data, ensuring authenticity. By 2035, AI will be a creative partner, but human emotion will keep art soulful.

1.14 Interdependent AI Systems

By 2035, AI systems will likely rely on human input for tasks requiring ethical judgment or physical presence. In healthcare, AI diagnoses are verified by doctors, while in content moderation, humans make final decisions. Dr. Joyce's intuitive AI could reduce oversight needs, but human judgment will remain essential.

Challenges include maintaining human expertise and ensuring ethical alignment. HOPE could secure AI-human interactions, preventing misuse. By 2035, AI and humans will work interdependently, balancing autonomy with oversight.

1.15 Scientific Breakthroughs: AI as a Catalyst

By 2035, AI will likely drive breakthroughs in biomolecular science, materials, and climate research. Microsoft's AI2BMD system accelerates drug discovery, while AI designs new materials for electronics. In climate science, AI models predict weather and optimize renewables.

Challenges include data quality, interpretability, and ethics. HOPE could secure research data, ensuring integrity. By 2035, AI will transform science, but human curiosity will still spark the big questions.

1.16 AI in the Legal Profession and Courts: 2025–2035

By 2035, AI will likely have transformed the legal profession and judicial systems, enhancing efficiency and accessibility while raising ethical challenges. In law firms, AI tools will automate routine tasks like legal research, document review, and contract analysis, enabling lawyers to focus on strategy and client relationships. This shift may reshape firm structures, emphasizing technological expertise over traditional associate roles. To facilitate the integration of AI in legal settings, AI middleware platforms like ApexOS will be instrumental. ApexOS enables law firms and courts to connect AI tools directly to their databases, allowing for the customization of AI models to handle specific legal tasks such as document classification, contract analysis, and predictive analytics. Importantly, ApexOS is designed to be accessible to legal professionals without requiring advanced AI knowledge, thereby overcoming the barrier posed by the scarcity of AI talent in the legal sector. By keeping data within the organization's secure environment, ApexOS also addresses critical concerns regarding client confidentiality and data privacy, which are paramount in the legal industry.

In courts, AI will streamline case management, from scheduling hearings to organizing digital evidence, reducing backlogs that plague many judicial systems. Judges will benefit from AI-driven legal research, accessing comprehensive case law analyses in seconds. Some jurisdictions may experiment with predictive analytics for bail or sentencing, aiming to enhance consistency, but strict oversight will be needed to mitigate risks of algorithmic bias. The integration of Dr. Joyce's Heuristic One-Time Pad Encryption (HOPE) will be critical, ensuring AI systems remain tamper-proof and legal data stays secure, maintaining public trust in judicial processes.

2.0 Apex SaaS Bridge Technology: Enabling Enterprise AI Integration

ApexOS is a pivotal AI middleware platform that empowers enterprises to integrate advanced AI technologies into their operations, addressing critical barriers such as talent scarcity and data privacy concerns. By acting as a “SaaS-bridge,” ApexOS combines the accessibility of cloud-based solutions with the security of on-premise data control, enabling organizations to leverage AI effectively and securely.

2.1 Introduction to ApexOS

ApexOS is an innovative AI middleware platform designed to bridge the gap between advanced AI technologies and enterprise operations. It enables organizations to integrate AI engines directly with their data, facilitating the development of customized AI solutions tailored to specific industry needs. With a user-friendly interface and robust data integration capabilities, ApexOS empowers professionals with domain expertise—but limited AI knowledge—to leverage AI for enhanced decision-making and operational efficiency.

Key features of ApexOS include:

- **Data Integration and Processing:** Utilizes a three-step Extract, Transform, Load (ETL) process to ingest, sanitize, and structure data from various sources into a centralized data warehouse, creating a unified view for comprehensive analysis.
- **AI-Ready Middle Tier:** Features a suite of pre-built algorithms tailored to different industries, delivering real-time, actionable insights to reduce the lag between data acquisition and decision-making.
- **User-Friendly Web Portal:** Built with Kentico CMS and Angular framework, it offers intuitive dashboards, dynamic UI elements, and visualization tools like Apache eCharts, making complex data accessible to non-technical users.
- **Security and Compliance:** Incorporates robust security measures, including Okta single sign-on (SSO), token-based authentication, HTTPS/TLS 1.2+ encryption, audit logs, and session management, ensuring data privacy and regulatory compliance.

2.2 Facilitating AI Adoption in Enterprises

The adoption of AI is hindered by two primary challenges: a shortage of AI talent and concerns over data privacy in traditional SaaS models. ApexOS addresses these barriers effectively:

- **Overcoming Talent Scarcity:** ApexOS abstracts the complexities of AI development, enabling business professionals to implement AI solutions without deep technical expertise. Its onboarding wizard guides users through configuring business details, setting up data integrations, and deploying AI models tailored to their needs. For example, in the fitness industry, ApexOS has enabled gyms to leverage AI for member retention and personalized marketing, demonstrating its potential to transform operations across various sectors.

- **Enhancing Data Privacy:** Unlike SaaS models that require sending data to external servers, ApexOS allows enterprises to keep data within their infrastructure. This “SaaS-bridge” approach ensures compliance with regulations like GDPR and HIPAA, making it ideal for industries such as healthcare and finance where data security is paramount.

By democratizing AI access, ApexOS enables organizations of all sizes to harness AI’s power, ensuring they remain competitive in an AI-driven market. Platforms like ApexOS are not just advantageous but essential for businesses aiming to thrive in this new landscape.

2.3 Synergy with Advanced Security Protocols

As AI systems become integral to business operations, ensuring their security is critical. ApexOS incorporates state-of-the-art security features to protect data and maintain trust:

- **Authentication and Authorization:** Leverages Okta SSO and token-based authentication to control access securely.
- **Data Encryption:** Employs HTTPS/TLS 1.2+ protocols for secure data transmission and storage.
- **Audit Logs and Session Management:** Monitors and logs user activities to detect and prevent unauthorized access.

To meet the highest security standards required for future AI applications, ApexOS is designed to integrate with advanced protocols like Dr. James B. Joyce’s Heuristic One-Time Pad Encryption (HOPE). HOPE’s mathematically uncrackable encryption and non-repudiated authentication ensure that AI systems and their data are protected against sophisticated threats, including those posed by quantum computing. This integration is vital as AI handles increasingly sensitive tasks across sectors like healthcare, finance, and legal services.

Moreover, ApexOS’s modular architecture allows it to evolve alongside AI advancements, enabling enterprises to incorporate new algorithms and capabilities seamlessly. By combining user-friendly AI integration with robust security, ApexOS facilitates current AI adoption and prepares businesses for the secure deployment of advanced AI technologies, aligning with the roadmap’s vision of a transformative AI future.

3.0 Security and Ethical Governance: The Role of HOPE

As AI integrates into critical systems, security and ethics are non-negotiable. Dr. Joyce’s Heuristic One-Time Pad Encryption (HOPE) suite of algorithms and protocols offers a groundbreaking solution, ensuring AI’s trustworthiness and societal benefit.

3.1 Introduction to HOPE

HOPE provides mathematically uncrackable encryption through synchronous key generation, surpassing traditional methods like AES in speed and security. The random number generator built into HOPE is the

world's fastest and most random RNG in the world today. The HOPE hash algorithm is a Universal One-Way Hash Function, and it produces a 6,144-bit collision-proof hash at 48 times the speed of SHA-256. Lightweight and quantum-proof, it's suitable for IoT to supercomputers. Its "Matrix Hopscotch" technique ensures randomness, setting a new bar for the industry standard (NIST STS) tests. Building on Dr. Joyce's 2000 patent, HOPE will secure modern AI systems.

3.2 Applications in AI

HOPE's features—security, authentication, and non-repudiation—make it ideal for:

- **Protecting AI Models:** Safeguarding algorithms and data from tampering.
 - **Secure Interactions:** Ensuring confidential human-AI communications in healthcare or finance.
 - **Ethical Development:** Tracing actions to enforce ethical guidelines, preventing misuse.
- AI middleware platforms like ApexOS, which facilitate the integration of AI into enterprise systems, can incorporate HOPE to secure the entire AI lifecycle, from data ingestion to model deployment, ensuring that all interactions and data exchanges are protected by uncrackable encryption and non-repudiated authentication.

3.3 Beyond AI: Blockchain and Digital Authentication

HOPE can revolutionize blockchain, creating uncrackable ledgers for smart contracts or digital identities. It could replace current protocols, securing financial transactions to IoT networks. By 2035, HOPE could be the backbone of digital trust, ensuring AI and blockchain work seamlessly.

4.0 Extended Outlook: 2035–2045

By 2045, AI could approach human-like cognitive depth, simulating intuition and emotion, while HOPE ensures security and ethics. This section compares the 2035 and 2045 landscapes.

4.1 Advanced AI Capabilities

By 2045, AI will likely simulate complex brain functions, like intuition and emotion, building on Dr. Joyce's forthcoming patent. Research suggests neural networks could model emotional processing, enabling:

- **Empathetic Assistants:** Virtual companions that detect and respond to emotions, enhancing mental health support.
- **Intuitive Systems:** AI making decisions with incomplete data, aiding fields like medicine or emergency response. These systems will feel like trusted partners, though they'll lack true subjective experience.

4.2 Societal Impacts and Challenges

By 2045, advanced AI will have permeated various sectors:

- **Healthcare:** Personalized medicine, early disease detection, and robotic surgery.
- **Education:** Adaptive learning systems tailoring education to individual needs.
- **Creativity:** AI collaborating with artists to produce innovative works.
- **Legal Profession:** AI handling routine cases like small claims or traffic violations, with human judges overseeing complex litigation; AI assistants providing real-time support to lawyers, drawing from vast legal databases. Legal education will incorporate AI literacy, preparing lawyers for a tech-driven future. However, these advancements come with intensified risks such as privacy breaches, job displacement, and ethical concerns like bias and manipulation. In the legal field, for example, ensuring that AI decisions are fair and transparent is paramount. Robust governance frameworks and secure technologies like HOPE will be essential to mitigate these risks, ensuring that AI systems are accountable and serve humanity’s best interests. Furthermore, the use of secure AI middleware platforms, which integrate protocols like HOPE, will be crucial in safeguarding data privacy and ensuring ethical AI deployment across various sectors. While AI promises to make justice more accessible, human judgment will remain essential—after all, no algorithm can fully grasp the drama of a courtroom showdown.

4.3 The Maturation of Security Technologies

By 2045, HOPE could be a standard for securing digital infrastructures, from AI to blockchain. Its widespread adoption will protect against quantum threats and insider attacks, maintaining trust in autonomous systems. Compared to 2035, where HOPE is emerging, 2045 will see it as a cornerstone of digital security.

4.4 Comparison: 2035 vs. 2045

The following table compares the key aspects of AI and security between 2035 and 2045:

Aspect	2035 Outlook	2045 Outlook
AI Capabilities	Logical processing with early emotional and intuitive simulation.	Near-human emotional and intuitive understanding, seamless human-AI integration.
Security	HOPE adopted in critical systems, replacing some protocols.	HOPE as a universal standard, securing all digital interactions.
Societal Impact	Significant automation, job shifts, ethical concerns emerging.	Deep societal integration, amplified benefits, and risks requiring governance.
Challenges	Regulatory hurdles, equity gaps, privacy concerns.	Advanced ethical risks, potential for AI autonomy, need for robust oversight.

Conclusion

From 2025 to 2045, AI will evolve from a powerful tool to a near-human partner, driven by advancements like Dr. Joyce's work on cognitive simulation. HOPE will ensure these systems remain secure and ethical, protecting against misuse while enabling innovations like uncrackable blockchains. Integral to this evolution will be AI middleware platforms such as ApexOS, which empower organizations to integrate AI seamlessly and securely, ensuring that the benefits of AI are accessible to all and that enterprises can thrive in an increasingly AI-driven world. By balancing AI's potential with solid integration, ethics, and robust security, we can create a future where technology enhances human life. Without all of these elements, your future results may vary...