



nagarro

# Your guide to configurable UI using reusable components in OTT applications





<b>Table of Contents</b>	<b>Abstract</b>	<b>01</b>
	<b>Introduction</b>	<b>02</b>
	<b>Understanding OTT Market Content Producers and Distributors</b>	<b>03</b>
	1. Understanding the value chain and the demands	03
	2. Classification of OTT enterprises and their challenges	04
	<b>Reusable Components: An Overview</b>	<b>05</b>
	<b>Our Framework of Reusable Components</b>	<b>07</b>
	1. Functional Details	07
	2. Technical Details	08
	<b>Are these Reusable Components for your Business Size?</b>	<b>10</b>
	<b>Author</b>	<b>12</b>
	<b>About Nagarro</b>	<b>12</b>



# Abstract

Content is the king, but alone, it is not enough. An enriching experience built by intuitive, appealing, and user-friendly UI (User Interface) is inescapable, as consumer demands are growing with new entrants throwing down challenges to existing businesses by raising the bar.

With capabilities like low buffering delay, high stream quality, adaptive streaming, different monetization models, gamified engagement, etc., available with OTT platforms, businesses must ensure that their apps have improved content and upgraded user interface. However, by the traditional approach, adapting to these capabilities requires time and effort from various teams, including designers, developers, quality assurance, and store upgrade processes. Sometimes, users may not update the application and instead opt for a different platform or app to enhance their experience. Change is the only constant, and unique apps are no longer unique.

## How to reach the OTT perfection?

Imagine your application having a love-based theme and skin during Valentine's week, eggs popping up when Easter kicks in, lights brightening it up just before Diwali, and Santa Claus welcoming the viewers with a red and white theme during the Christmas season. In a traditional app, it is next to impossible to develop an updated version for every occasion or launch a new release every time. Nagarro has developed an easy-to-plug-in solution to overcome these limitations based on the low code approach.

Nagarro's reusable components are the —pre-built modules or pieces of code that provide varied features on different specifications. The best part is that they can be used across multiple projects and applications. An interesting question is - how can these components provide customized features to suit everyone's diverse needs?

This whitepaper will take a deep dive into:

- Understanding OTT market content producers and distributors
- How reusable components can be used to create unique and customized features for various applications and projects
- Nagarro's reusable components framework

## Problem Statement

The whitepaper aims to address the challenges of faster time to market and evolving consumer needs by leveraging reusable components for different OTT providers, i.e., Entrants, Challengers, and Leaders. Through Nagarro's reusable platform framework and OTT platform capabilities, we will discuss how the reusable components can work for different business sizes.



## Introduction

OTT content is streamed over computers, laptops, mobiles, connected TVs, and other smart devices. Over the last few years, the OTT market has expanded at an unimaginable rate. The Global Over the Top (OTT) Market is predicted to be worth 490.13 Billion USD by 2028, growing at a CAGR of 15.72%.

Viewers now have many options to choose from and are spoiled for choices. OTT applications experience 67% churn within the first 2 weeks. 90% of users are not likely to return after a bad user experience. Global OTT players like Netflix, Disney+, etc., have developed an ultra-efficient way of connecting with users by delivering customized, tailored experiences.

Irrespective of the content aggregation and distribution strategy, time to market is now the key to entry. And once someone is into the business, the differentiation in the user experience matters.





# Understanding OTT Market Content Producers and Distributors

An OTT enterprise's main objective is to keep its customers engaged and involved. End users take time from their schedules and visit their preferred OTT apps for different needs. Whether it's entertainment, education, sports, or events, the essence lies in the "content".

## 1. Understanding the value chain and the demands

Majorly the OTT value chain comprises three steps: Creation & aggregation, distribution, and consumption.

Value chain	Definition	Example
Creation & aggregation	Generate any form of content	Netflix studios, Amazon studios
Distribution	Make the media available over the internet	Apple TV, YouTube
Consumption	Access and view the content	Hotstar viewer, Netflix subscriber

**Consumers on OTT channels & platforms present several challenges to the distributors in media content distribution.**

- A range of devices with different screen sizes from wrist watches to wall-sized displays where an accuracy of display is needed.
- OTT devices have different underlying operating systems, such as Android, Apple, Roku, webOS, Tizen, Hisense, etc., meeting requirements of these different systems is a challenge.
- The devices differ based on accessibility and user-friendliness, including smartwatches, smart wearables, smart TVs, vehicle onboard units, etc. Providing a uniform experience across devices is a major task.
- Another significant challenge is offering seamless user experience across the distribution channels.
- Consumers prefer personalized content recommendations based on their viewing history and preferences. A difficulty for the distributors is offering tailored content suggestions.



## 2. Classification of OTT enterprises and their challenges

The media industry is transforming fast, as new players enter the market and the existing businesses evolve by adapting and innovating. OTT service providers can be categorized based on scale, positioning, vision, needs, etc.

- **'Entrants'** are new to the industry and usually have budget constraints, they focus on core business i.e., content production and distribution, and usually skip on the ancillaries or wow factors. Their key business priorities are identifying their unique selling point and devising an effective strategy to enter the market, in order to attract more & more potential customers. While user-friendliness, seamless experience and quality are important; equally important is to choose the right mix of marketing and other user retention strategies. Hence, it's important for the entrants to establish a technical approach that allows them to expand in future on platforms, operating systems, form factors, localizations, internationalisation etc. for maximum user coverage.
- **'Challengers'** have mostly established themselves in the market. They intend to retain their existing users and acquire new ones, aiming to increase their digital presence. Their key business priorities are utilizing the resources for maximum output, which might require prioritizing business promotions or strengthening the technical infrastructure or increasing digital market presence, bringing internationalization.
- **'Leaders'** usually have a competitive advantage over others as they have either been in the industry for long or have established themselves well in a short span using cutting-edge technologies. For leader the focus areas are keeping pace with the latest advancements in order to stay competitive and simultaneously innovate to evolve product features. It's essential to find the cost effective solutions which offer the agility to expand and ensure robust safeguards with respect to the data protection and privacy, while growing in scale.

It is essential to acknowledge that the boundaries between these categories are not rigid because the scope of an OTT business is agile. The sole purpose of this classification is to identify the business-specific needs at any given stage.

Nagarro has worked globally with different-sized enterprises, helping them overcome the challenges of the OTT space for different business segments. With an extensive experience and knowledge, we effectively address specific business requirements with unique solutions for each client's unique needs. Reusable software components is one of our solutions that is indispensable for all three categories to effectively tackle diverse challenges.

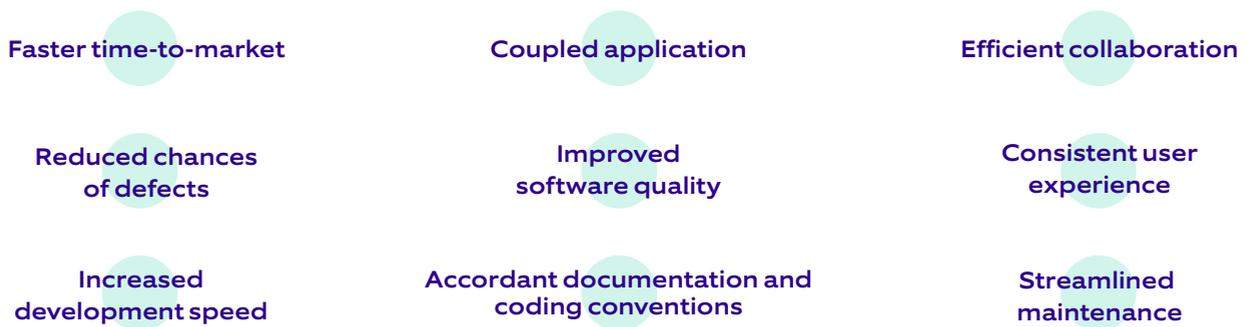


# Reusable Components: An Overview

In software development, reusable components comprise existing assets, such as code, software components, designs, test suites, etc. that organizations can reuse across multiple digital solutions or apps.

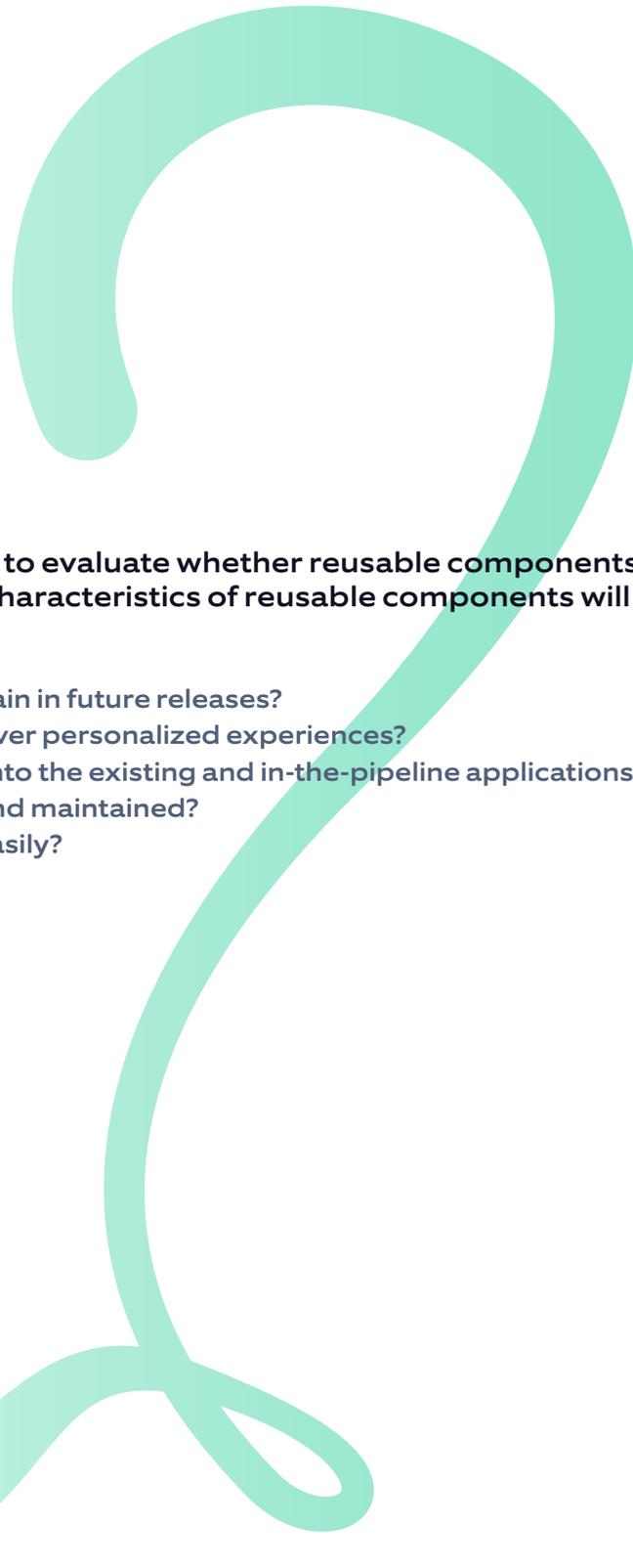
Reusability is a practice followed in software development for years. These components provide scalability, maintainability, and efficiency by using existing components rather than reinventing the wheel for every new project.

Reusable components or low code approach increases operational efficiency and reduces cost by saving development time and effort. Instead of writing from scratch, existing modules that have already been tested and proven to work can be reused. Some of the key advantages are:



Components can be easily published and shared, making them available for others to use and contribute. On the other hand, organizations can keep them for private and specific uses. This practice also gives a higher level of abstraction. This ecosystem with reusability expedites innovation and provides an advantage from the collective efforts and expertise of the community. Organizations can create scalable, maintainable, and high-quality software systems by adopting a modular approach and building reusable components.





**Certain key considerations to evaluate whether reusable components fit into the feature well or not. These characteristics of reusable components will ensure that it is fit for purpose:**

- Can this feature be used again in future releases?
- Can these components deliver personalized experiences?
- Can it be easily integrated into the existing and in-the-pipeline applications?
- Can the feature be scaled and maintained?
- Can the feature be tested easily?



# Our Framework of Reusable Components

## 1. Functional Details

This toolkit is an enhanced library that offers customization to change the look and feel as well as the usability of the application at ease.

- The library has been designed to offer **dynamic UI** to apps using the **Props and Configuration** options that enable modifying granular theme aspects such as colors, sizes, styles, and behavior based on the business needs.
- The reusable components allow the creation of unlimited **variants** based on **conditional rendering** that offer assorted styles or functionalities as per the business needs while sharing the same underlying logic. For instance, a card component could have basic, outlined, or focused variants.
- These components provide the ability to use **business-specific custom branding or literature** without modifying its core structure.
- **Event Handling** is a crucial part of the library. The library allows applications to attach custom event handlers to the components and respond to their business-specific interactions.
- **Documentation** is an important aspect of the reusable components in the library. The documentation explains all available customizations and how to use them effectively. Readme provides high-level details, whereas the other technical documentation provides low-level details.
- A lot of default **configurations** are there in the library to take care of any potential fallback cases gracefully. Projects can be started quickly with the added benefit of being able to customize them as needed.

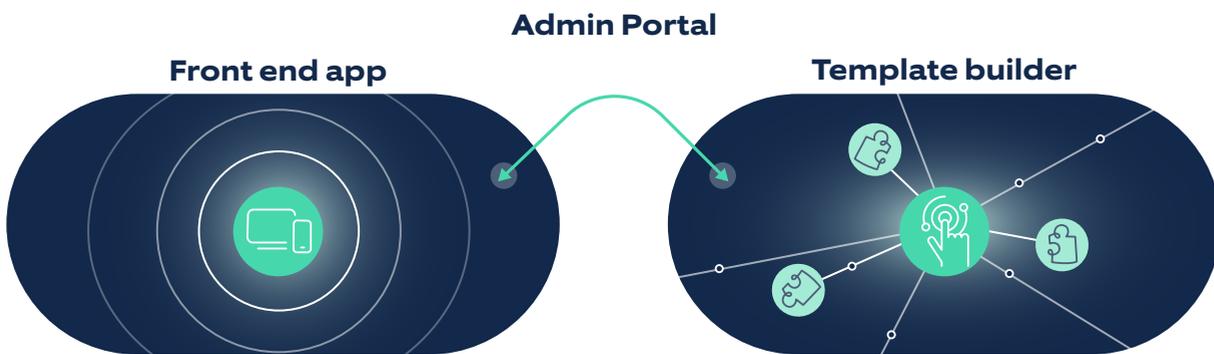
### The front-end library provides the following advantages:

- **Reduced development time and cost** is achieved as the boilerplate code is readymade, and development takes less effort than writing from scratch, thus reducing the cost.
- **Theme** support is implemented to allow organizations to apply unique styles or themes to the components, providing multiple UI options and variations.
- **Consistency across multiple platforms** is ensured as the library is available on multiple platforms. It provides better communication across teams and improves consistency.
- **On-the-fly UI customization** is possible, and UI can be changed without redeploying the app in the stores. The application will respond to UI changes on a real-time basis.
- **The easy-guided process** provides pre-defined templates to use and default configuration documentation.



## 2. Technical Details

Reusable components can provide a customized experience for different projects within a framework. Customizations in a component library are critical to success, and they refer to the ability to modify the appearance and behavior of components. Incorporating customization options in a library makes it more versatile and adaptable to different use cases. Nagarro's ecosystem (framework) for creating dynamic UI in OTT apps consists of several components, including the **Front-end Toolkit**, **Back-end Template Builder**, and **Back-end Admin Panel**.



With the extensive customizations available in the component library, one can create unique user interfaces while still benefiting from a reusable library. It is important for the library to be user-friendly, and it requires finding the right balance between flexibility and complexity.

**Configurator** is the interface to play around with the library features, but the back-end admin panel and template builder do the magic.

**Dynamic app skinning** enables to show the app UI dynamic based on configurations without deployment. It requires no code or UI changes and even no app version update and deployment on stores.

**Template Builder** assists users in defining and creating templates for varied usage. This tool is particularly beneficial to streamline the workflow, maintain consistency in branding, and save time by not starting from scratch each time new content is created.

**Nagarro's Template Builder** is an enriched web component library that provides a variety of pre-designed layouts to choose from. The library provides a complete set of tools for creating new layouts by dragging and dropping different elements onto a canvas. Users can customize colors, fonts, and logos and select from multiple options and other brand elements to maintain consistency across different UIs. Users can collaborate with team members for template creation, review, and editing. The preview feature acts as a visual treat by letting the users review the UI. Templates can be integrated with other software programs, exported in various forms, and stored on servers.



The **Admin Portal** acts as a bridge connecting the **Front-end library** with the **Template Builder**. Content owners and designers can select a specific template for a particular group. For instance, the OTT app has various categories on the homepage, such as New Releases, Top Binge, All-Time Popular, etc. The Admin Panel displays all the listings and provides an option to choose templates for each category separately. These templates are linked with their unique IDs to different classifications.



### **Nagarro's Reusable Content Framework: How it Works**

To understand how this will work, let's take an example. Let us assume it's January end, and the team has created a few templates highlighting the love theme in the template builder.

The application has the same interface till the January end, and on the first of February, you switch the theme using love templates that your team has already built and kept ready. The preview option will let the business review how the new theme will look for each rail and in the background. As soon as this is initiated and applied, the subsequent API request displays the love theme. A week after Valentine's Day, the business can revert to the previously applicable interface by selecting the original template. Clicking on apply will make the API call and revert to the desired interface.

This complete ecosystem developed by Nagarro is under a single umbrella, providing the features to be used by content owners, app designers, delivery teams, marketing teams, and many more. It ensures a seamless experience while fulfilling the needs of the hour.



# Are these Reusable Components for your Business Size?

As we understand that different businesses face different challenges, there can never be a single solution. However, some challenges can be solved through a common solution.

The “reusable components library” is one such software framework initiated as an outcome of multiple brainstorming sessions to bring value to the client and make the launch and sustenance easy for them. It is developed considering varied factors and attributes to different solution components.

## The Entrants

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The reusable media components enable **entrants** to launch a budget-friendly app in a short frame of time. The proposed framework reduces development costs. The dynamic UI serves as an enhancement to the standard basic UI. This enables new entrants to swiftly generate a tailored user interface application, providing them a competitive edge in the market.

## The Challengers

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Some **challengers** we have met rely on third-party solutions such as SaaS (software as a service) for their technical needs. The distribution platforms relying on these SaaS-based solutions may have issues like consistency or accuracy across their applications. Reusable components perfectly complement SaaS-based solutions to address such business-specific issues and are very easily managed via their exclusive management console.

## The Leaders

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The **leaders** in business have distribution solutions enriched with attractive, personalized, and unique UI apps. They either develop their apps in-house or collaborate with other major companies through acquisition or partnership. The reusable components provide the next-level hyper-personalization by curating unique interfaces for various geographies, occasions, themes, and even people. Using these libraries, the leaders can provide a customized user experience, which will be a game changer for the distributors and provide an edge in the market. Experiencing different UI every time, after some days, or on special occasions will provide a mesmerizing experience for the users.



## Endnote

This is a competitive era where new OTT players are being launched very frequently. For the cut-throat competition, the software industry works on minimizing operational costs, increasing efficiency, and shortening the cycle for time to market. Along with AI solutions and advanced tech, reusability brings the low code concept into the purview and makes it easier for OTT players.

With all these in hand, it is important to have the right technical partner to integrate the solution while ensuring scalability and stability to achieve the next level of digital maturity.





## Authors

### **Devangi Gupta**

Business Consultant, Media & Advertising

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Enabling clients make better decisions her expertise lies in Business analysis and Product management.

### **Gypsa Agarwal**

iOS Lead, Media & Advertising

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Her focus areas include iOS, Apple Watch and Apple TV development, PoC and accelerator initiatives.

### **Puneet Dua**

Technical Architect, Media & Advertising

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Experienced software architect crafting innovative smart device solutions.

## **About Nagarro**

In a changing and evolving world, challenges are ever more unique and complex. Nagarro helps to transform, adapt, and build new ways into the future through a forward-thinking, agile and caring mindset. We excel at digital product engineering and deliver on our promise of thinking breakthroughs. Today, we are 19,500 experts across 35 countries, forming a Nation of Nagarrians, ready to help our customers succeed. For more information, visit [www.nagarro.com](http://www.nagarro.com)