



**A Mini Project Report on
“OTT STREAMING WEBSITE”**

Submitted

In partial fulfilment of the requirement for the VI Semester of
Bachelor of Technology in CSIT during the
academic year 2021-22

Submitted By

D.Sai Lokesh-R19CI020

K.Shalini Sree-R19CI035

K.Rohith-R19CI040

M.Siva Krishna Teja-R19CI052

M.Sai Preethi-R19CI053

NN.Uday Kiran-R19CI056

N.Sai Varshitha-R19CI115

REVA UNIVERSITY

School of Computer Science and Information Technology

Bengaluru-560064

2021-2022



SCHOOL OF COMPUTING & INFORMATION TECHNOLOGY

This is to certify that the mini project entitled **“OTT STREAMING WEBSITE”** is a Bonafede work carried out by **D.SaiLokesh, K.ShaliniSree, K.Rohith, M.SivaKrishnaTeja, M.SaiPreethi, NN.UdayKiran, N.SaiVarshitha** bearing **R19CI020, R19CI035, R19CI040, R19CI052, R19CI053, R19CI056, R19CI115** respectively in partial fulfilment of 6th semester of CSIT program of Bachelor of Technology, REVA University during the academic year 2021-22 It is certified that all the corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the school library. The mini-project report has been approved as it satisfies the academic requirements in respect of mini-project prescribed for the 6th semester of CSIT program.

Signature of the Faculty

TABLE OF CONTENTS

Chapter No.	Chapter Name	Page No.
1	ABSTRACT	4
2	INTRODUCTION	5-6
3	DESIGN CHALLENGES	7-8
4	MOTIVATION TO YOUR WORK	9-11
5	DESIGN PHASES	12-14
6	OUTCOMES	15-19
7	CONCLUSION	20
8	REFERENCES	21

1.Abstract

Google and Apple together are ruling the mobile phone industry with their operating systems, Android and iOS. Any mobile application willing to reach the vast majority of end-users, need to be run on both platforms. The issue, however, arises when considering that fact that developing an application for each platform requires different knowledge and code base. Crossplatform frameworks are emerged to overcome the mentioned issue by providing the possibility to develop a mobile application which works on multiple platforms with potentially a single code base.

To investigate the capabilities of cross-platform frameworks, three frameworks were chosen to be compared; React Native backed by Facebook, Xamarin owned by Microsoft, and Flutter developed by Google. The chosen frameworks have been compared in the context of OTT Videooriented mobile applications. As a reference application OTT Flow, an OTT Video application developed by Accedo, has been used.

Over-the-Top (OTT) video platforms, once considered a luxury is today a commodity. In India, there is an increasingly growing number of consumers adapting to it. While Indian streaming services like Hotstar and Jio Cinema has gained a stronger foothold, global players like Netflix and Amazon Prime have steadily grown their market share in India. This paper explores the emergence, advantage, and future of streaming service in India through an analytical research. We also present the various OTT services, their growth factors, technology background, audience characteristics, content, censorship and future developments expected in the industry.

Key Words: OTT future, Network, Policy, Competition, Regulation, Market, Telecommunications, Internet,cross-platform .

2.Introduction:-

2.1 Background:-

Platforms are a combination of hardware (system plus any possibly built-in sensors or actuators), operating system, vendor-provided software SDKs¹ and standard libraries which together gives the ability to the programmers to develop applications for that platform. Frameworks, on the other hand, allows reusing usually a predefined application architecture by providing components to quickly set up an application.

When taking a look at the smart phone market share, it can be seen that the vast majority of the users are using either Android or iOS. The two mobile market giants have a massive 92.1% market share together in 2019 .Other competitors are having a tough time to break through this duopoly and change the market share and there is no sign this can be changed in the near future. shows the smartphones OS market share from 2016 to 2019.

2.2 Problem Area:-

There are various studies comparing different cross-platform framework and tools with different quantitative and qualitative criteria for different purposes. However, there is a lack of available study which investigates the cross-platform frameworks with respect to OTT VideoOriented applications.

2.3 Purpose:-

This thesis aims to compare three of the cross-platform frameworks and evaluate them for a given OTT video mobile application. The selected frameworks are React Native, Xamarin, and Flutter. The reason behind choosing these frameworks is that first, they all generate a true native app rather than a web view or a wrapper, second, they are all backed by giant tech companies and lastly, as statistics in section suggests they are the most used/considered frameworks by the community.

Additionally, based on the comparison results, the OTT Flow application is implemented in the best possible framework partially to back the achieved results in practice.

2.4 Method:-

In order to address the questions raised in the problem statement, this thesis first introduces the three selected cross-platform framework and discuss each in detail with a list of advantages and disadvantages. In the next step, frameworks are compared to each other. The comparison criteria is divided into three main categories; Functional, non-functional, and video-specific comparison.

In the non-functional comparison, Learning Curve, Developer Experience, Market and Community Support, Documentation, Ready-to-Use Libraries, Code Sharing, Development Environment Options, Native Look and Feel, and Licensing and costs have been discussed. The functional comparison, however, discusses the Compilation time and development speed, Code Deployment and app performance, and Testing for each framework.

The video-specific comparison, focus on the OTT Video-oriented part of this thesis. In this category, video-specific features support has been discussed.

After the comparison is done, the answer to the problem statement is revealed and in order to put theory into practice, the OTT Flow application which is the reference application for this thesis, is implemented in one of the frameworks partially.

3.Design Challenges:-

3.1 User experience not up to standards

There are multiple OTT streaming platforms across the globe. To compete in the market, you must for one provide original and unique content. And the second is to offer a user experience that is smooth and efficient. This includes the design of your platform, easy-to-use controls, effortless navigation.

An OTT solution provider can take care of this for you by customizing your entire website or using an OTT app builder for easy access on smartphones.

3.2 Consistent quality

In OTT development, one of the major concerns is meeting the expectations of the customers. Whether it is the content or OTT platform, with every new feature, content, and experience, customers expect more. This is not just for new OTT services but even OTT giants like Netflix, HBO Go and more are under constant pressure to produce the next new hit.

3.3 Video piracy

Piracy has been an issue since the time of traditional TV. Video piracy leads to a huge loss of revenues, customers, and reputation for a business. Hacks into OTT servers don't just mean content leaks but put at risk customer data too. About 21% of the US population watches pirated shows.

There are many means to combat video piracy. Tightening the security of your OTT platform by using technology like DRM, digital watermarking, encryption, and others can reduce this risk considerably.

3.4 The wrong audience profiles

Your audience is one of the key factors you need to focus on while creating an OTT platform business model. Like any business, know your audience and generate content based on what your audience wants to see versus producing content and hoping you get customers.

To create an OTT platform, focus on what niche you want to choose, define your audience. It is essential to create a loyal following in the OTT industry to succeed. With the right audience in mind, you'll not run out of content ideas as you know what your audience wants from your service.

3.5 Provide a modern, robust and easy-to-use platform for your viewers

The first factor is the biggest challenge: launching a powerful branded streaming platform. That's the magic of OKAST, we allow you to create customized turnkey video streaming services in a click. Wait this is not a fake punchline: OKAST is REALLY an all-in-one solution and meets all needs: storage, hosting, encoding, storefront, streaming, payment solution, video player, transactional emails, mobile applications etc....

No coding necessary: you don't need any developers, engineers or webmasters to integrate APIs or code. Like wix or wordpress for Website, our solutions generate a ready-to-use streaming video platform that you can fully customize.

3.6 Offer attractive video content

The second challenge for a successful video platform is the sourcing of awesome video content. If you create content such as training, courses or expertise, you certainly already have enough to feed a platform with your own video productions. However, if you want to offer entertainment content such as movies or series, not everyone has the rights to license a catalogue of movies like Disney or the budget to produce series like Netflix.

You can always try to contact the rights holders (production or distribution companies, or directly artists/creators) but it may take time to negotiate a license agreement. Choose large catalogs to avoid multiplying rights agreements. Focus on rare and exclusive content to diversify from the competition. Finally, when negotiating with potential rights holders, keep in mind that for a multitude of reasons, a lot of content is not currently being exploited digitally and is "sleeping" on servers or hard disks. So better be seen and monetized on a legal streaming platform, right?

If you do not produce video content or do not own the rights to distribute premium content (films, series, animation, documentaries, web-series, etc.), other solutions exist, such as marketplaces, which allow audiovisual rights holders to offer exploitation licenses on very specific terms. Technologies such as blockchain are revolutionizing the exchange and distribution of rights through a decentralized and fully secure system. In addition, this type o

4.Motivation to work:-

4.1 Time to Get Serious about our Future as a Creator

Like most of us video creators, you may have started out sharing content on YouTube and maybe Vimeo. Or you started out posting your videos on Instagram or TikTok. These platforms are the obvious place to start sharing video content since they are free, easy, and bring lots of viewers to their platforms. So, it makes perfect sense to many creators to start there. But at some point, serious creators eventually realize that they can only take their content so far on these free social video platforms. Not to mention, the rules and thresholds are always changing. Eventually the free platforms can lose their utility and even hold a creator back from real success as a content business.

For creators who are serious about developing their creative careers and content, or monetizing their content directly, or both, it may be time to start your OTT Channel. The good news is this does not have to be an “either-or” decision. You can start your OTT Channel but continue feeding and building your audience on YouTube, TikTok and the other social platforms. In fact, you should continue using them. But it may be time to start looking at those places more like marketing channels than primary business platforms. Use them to build an audience, while you begin building your own branded content destination where you can offer premium OTT content and engage more directly with your audience under your own brand.

Your OTT Channel is simply a better platform from which to build a directly targeted audience and distribution strategy. If this is not reason enough to start your OTT Channel, we have 4 more.

4.2 Take Control of our Brand and User Experience.

One of the most frustrating things about YouTube and TikTok is how easy it is to get lost in the shuffle of endless video recommendations designed by those platforms to keep viewers on their platforms, instead of on your channels. We can't blame them for doing that since we have to realize they are looking out for their business and brand, not necessarily yours.

If your content and your brand are truly valuable to you, then you must take care of it and develop it your way, for your audience. You can't just stay on YouTube and get frustrated because your audience is being presented with the "rabbit hole" of other content recommendations, or YouTube is playing ads that don't align with your brand or audience, or that your channel is really wrapped by and designed to fit YouTube's brand, not yours.

4.3 Take control of our data

The same reason this is probably the #1 asset that YouTube and all the other free platforms get from you, your content, and your audience – your data. And you should know that they use your data for their own business purposes. They own your data. Data is essential to successfully run a streaming business, whether for content development, marketing, sales, customer retention, monetization models, etc. On Endavo, starting your OTT Channel means getting and owning all the real-time data you need to start building your audience strategy and ultimately your D2C business or distribution.

Even if you are seeking development funding for your content, having your own OTT Channel data gives you a leg up YouTubers. You'll have much more information at your fingertips for investors and you keep control over everything. And on Endavo, it's your data. You'll get much more control over the types of data you need reported and total control to export it and use it however you need to run your business.

Data is often one of the most overlooked assets for creators trying to monetize their content and build audiences. But data drives everything. Data is critical. So, start your OTT Channel on Endavo and take immediate control of your data and content business!

4.4 Start Building a Direct-to-Consumer Business and Get on a Better Track Towards Distribution.

You have great content. The stories you tell are inspiring the people who follow them, and chances are you have a target audience out there that is passionate enough about your content that they would be willing to pay for it to support you. So it's time to start planning to launch your own ott channel The content would be attractive to some of the increasing number of

online distribution channels in the OTT market actively looking for content, then you should also consider launching an independent OTT channel. The investment in building your direct-to-consumer (D2C) business will be much greater, sure. However, it will be much more rewarding in the long-term.

4.5 Take Control of How You Monetize Your Content.

Let's face it, building an audience on YouTube, Instagram and TikTok is great. But at some point, it's time to start thinking about better ways to monetize your content and engage with your fans. We've met a LOT of creators who have put a LOT of work into their YouTube channels, as well as the other social video platforms, but the ROI(return on investment) is rarely there. YouTube and the others give you a lot for free, but free is in exchange for them monetizing your content and audience. Sure, they share a little back, but in the end it's their money and they keep changing the rules on you. Again, the investment in building your own D2C business will be much greater, however it'll be much more rewarding in the long-term if you take control over your content business.

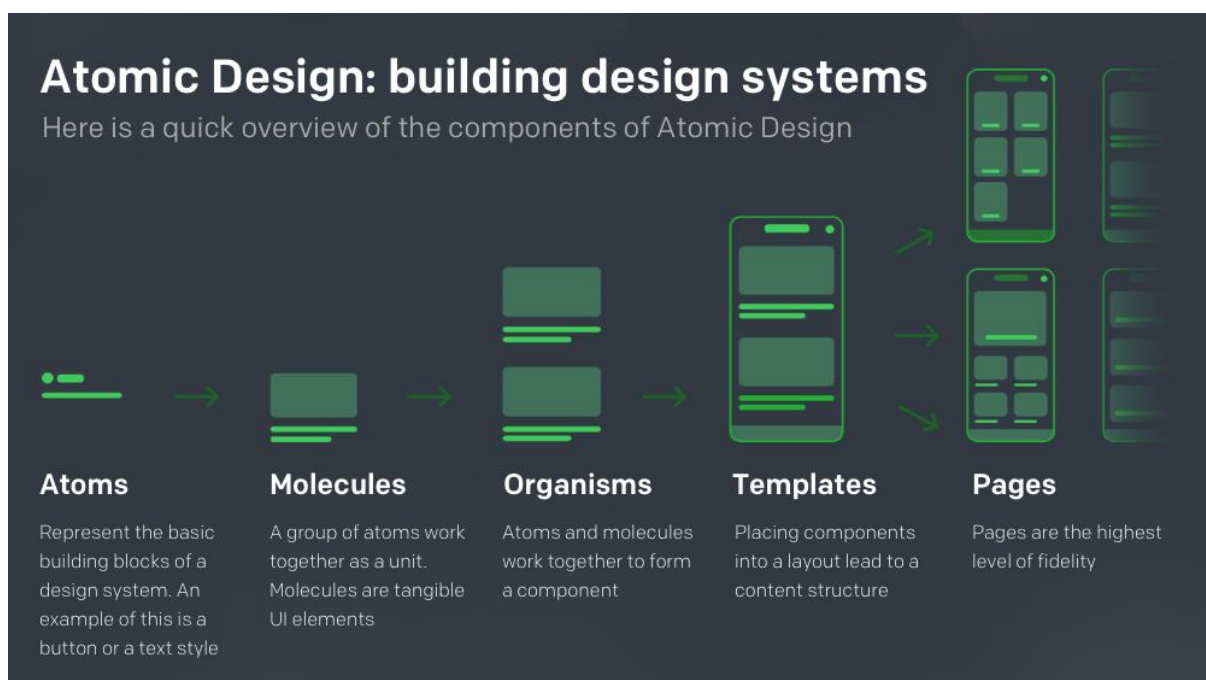
One of the best ways to start taking control of your monetization and content business is to start your own OTT Channel. At endavo, your OTT Channel gives you the immediate flexibility to try out different consumer models and figure out what works best for you, your content, and your viewers. Is it a subscription (SVOD) channel? Want to do movie or docuseries rentals (TVOD)? What about a free live event and ask people to donate? Do you want to crowdfund your channel or series to fund continued content development, like the next season, through member support? Ultimately as you scale up your viewership, wouldn't it be great to curate your own ad inventory or sell sponsorships to brands that align with your content and audience? All of this is at your fingertips if you start your . It's your content. It should be your business as well.

5.Design phases/Research phases:-

As designs evolve, OTT players will need to think about building thoughtful design systems. A well-defined design system can help create well-designed user-centric digital products. While colors and typography play an important role, how the interfaces are built help to tell the whole story. This is where the Atomic Design system comes into play.

In an Atomic Design, interfaces are made up of smaller components. This means the entire interface can be broken down into fundamental building blocks and built up from there.

For example: for Discovery+, we created the design from scratch using the Atomic Design system to build a unified and consistent design that is scalable.



The journey of any digital product development starts from understanding the users' needs and pain points, ideating on a solution that will address these needs, and finally developing a user and business-centric product. The journey of creating an OTT platform in two phases: (a) Research & prototyping and (b) Execution & implementation.

Getting started – Competitor Research, User Research & Prototyping

At Robosoft, we use the principles of Design Thinking to create user-centric experiences – which start from empathizing with and understanding the users. In that context, user research and competition research become critical aspects to understand the business and customer requirements

1. Competitor research

With the deluge of OTT platforms, it becomes important to understand the competitive landscape. This will not only help in outlining features that already exist and work but will also help in avoiding the shortfalls of other platforms. Knowing the competition is also critical to offer something better and unique and gain a competitive advantage.

For instance: in OTT platforms – ‘Add to watchlist’ or ‘Like’ is a common feature. However, just trying to replicate the same model is insufficient. In order to create the differentiator, we need to delve deeper into the world of ‘favoriting’ and what makes the user want to add a particular content to a list

In this instance, some of the key aspects we need to understand about what is already being offered can be:

- The value of a watchlist and how it works
- UX flows – how to keep the viewer moving forward while making it quick and easy
- How to help viewers feel smart and put their mind at ease
- How to improve the disadvantages & limitations.

2. User research & prototyping

To design user-centric experiences, understanding users is critical. One of the most important stages of user research is creating Empathy Maps that enables design and development teams to chart out users’ motivation and pain points. In the context of OTT platforms, user research can help to derive the below expectations of users:

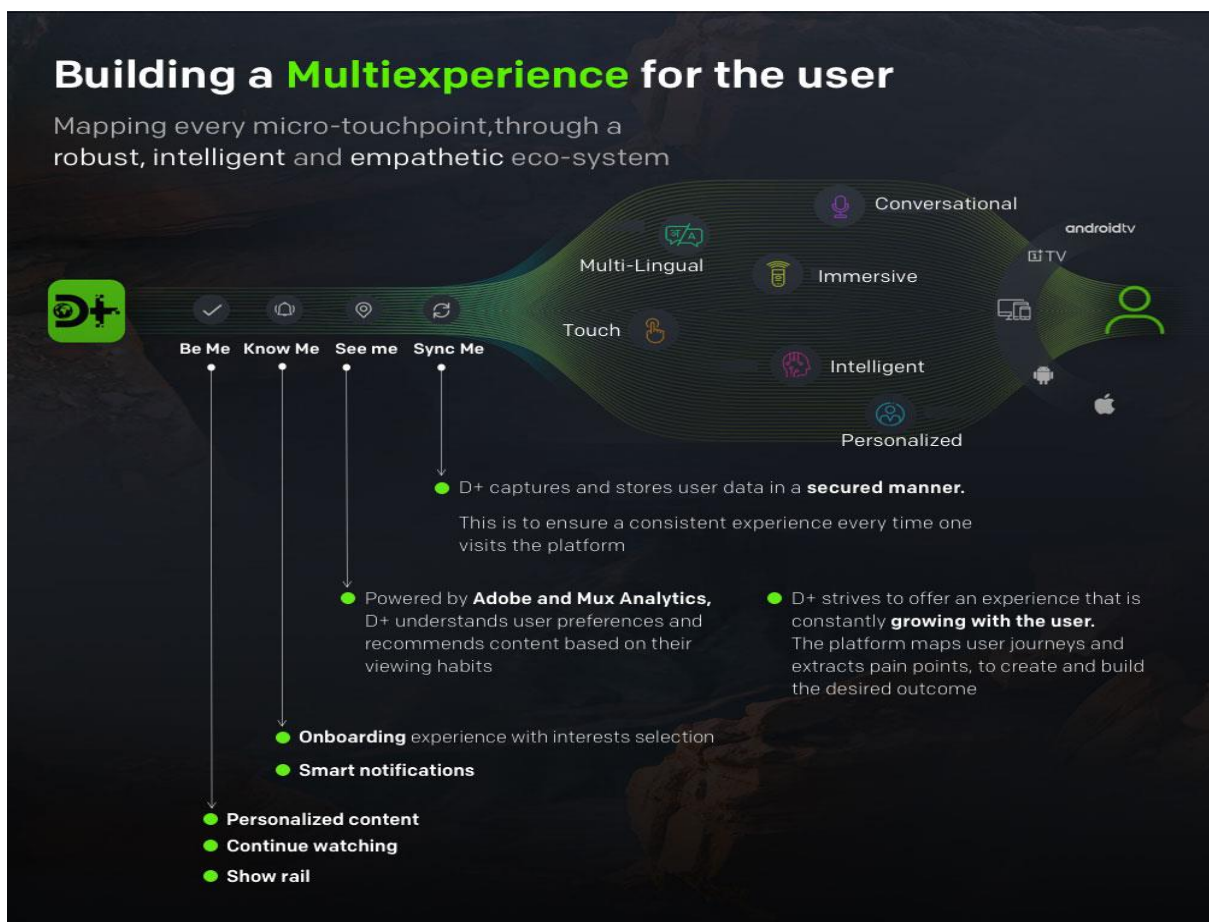
Expectations from an OTT platform: as a user

- see value in what is offered before making a decision.
- keep moving forward while watching content; it can be shifting from one episode to another or an alternate movie or series after a season.
- seamlessly navigate through the platform or complete their journeys (e.g. from logging in to paying).
- feel self-reliant or empowered and have their minds at ease while using the platform.

Building a multi-experience for users

Today viewers are consuming content on multiple devices. Seamless delivery of content on multiple devices is no longer an option for OTT players, it is mandatory.

While building the Discovery+ platform, the goal was to design and deliver a consistent experience across devices, regardless of where the user starts, continues, and ends the journey.

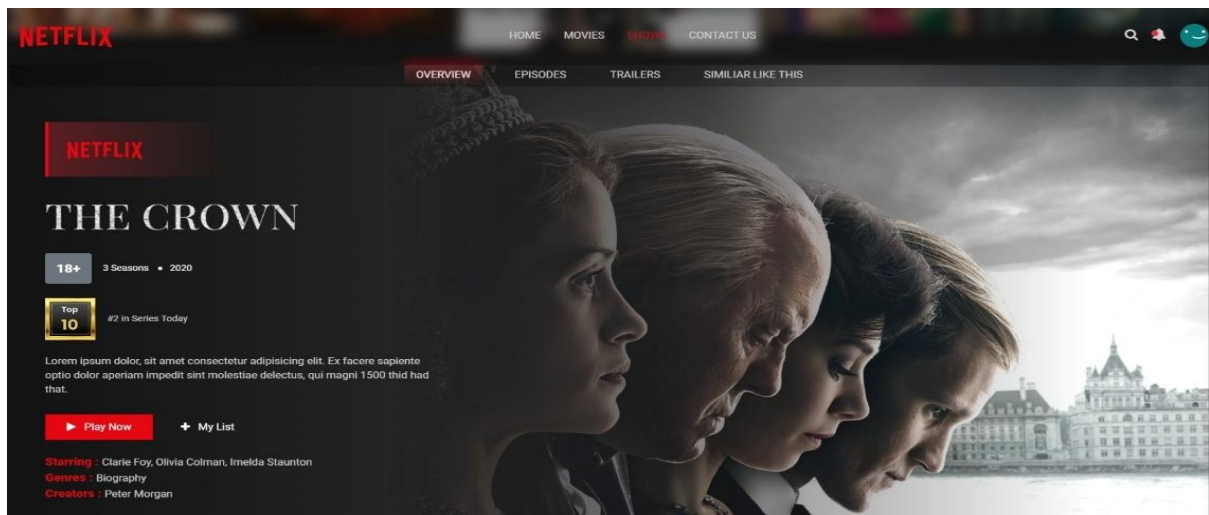


6.Outcomes(Design screenshots):-

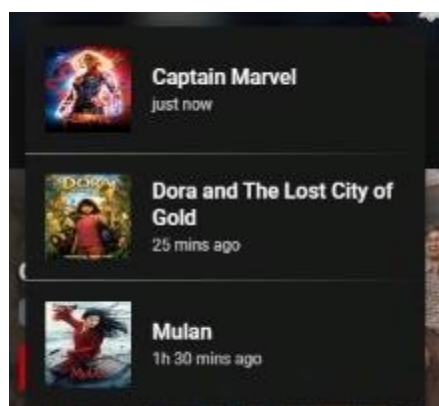
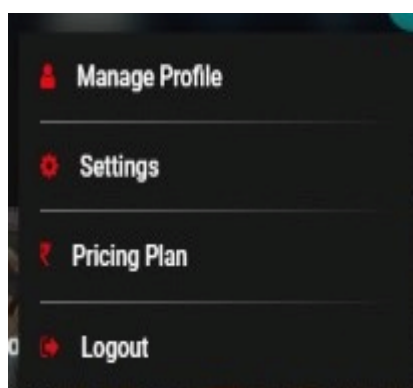
1.UX of content

With the proliferation of content on the OTT platforms, the challenge for OTT players is to ensure an easy experience. The faster and easily users can get to the content they like, the more likely they are to stay on. Some of the factors that help in this are:

- A clear segregation of the content types: since content is key on OTT platforms, the experience to discover and view the content has to be delightful and seamless. Clear segregation of content types helps in this aspect.
- Different treatment of content categories: live content and VoD content (VOD – Shows, Movies, or clips).



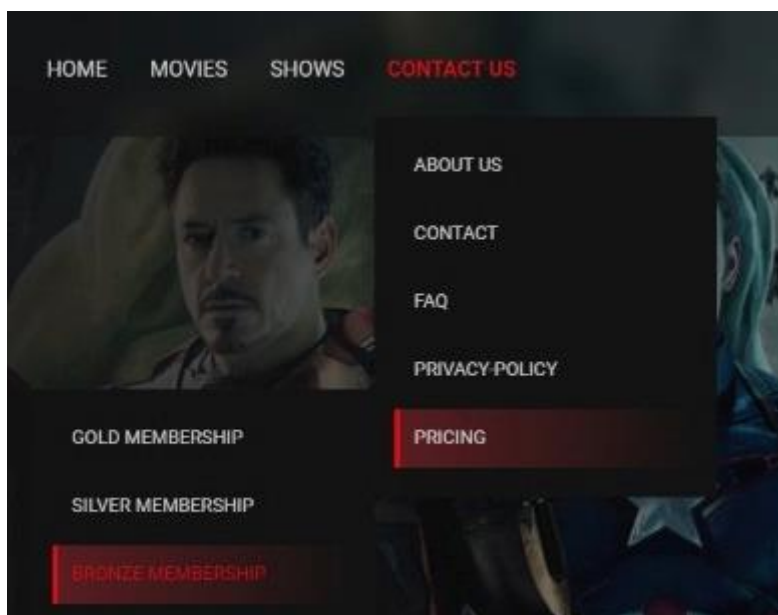
Easing the content discovery journey by defining clear navigation to browse content and finding what to watch and creating clear sections for premium, short-form content.



Menu items

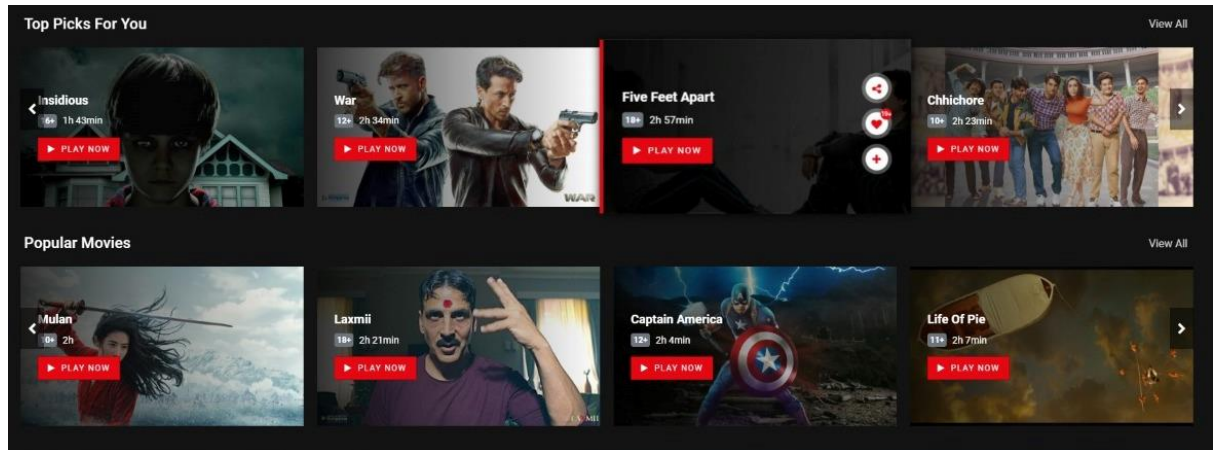
Menu items should be extracted from the configurations and place them in the footer. Menu items are customizable as well, which means that they can have different titles, icons, and order in different profiles. A profile can have unlimited number of menu items, but since it is not possible to fit all the menu items in the footer, only the first four items are shown in the footer and the rest of them are shown in the last tab so the footer can have a maximum

In addition to menu items' title and icon, the color also should be known which can be extracted from the configurations. suggest menu items for different profiles



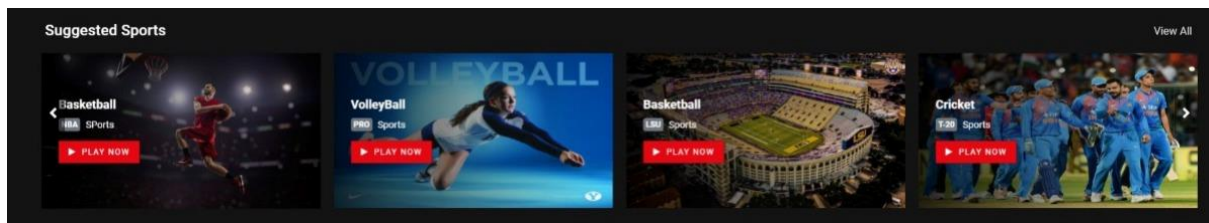
By having the containers, header and footers ready, the home page can be rendered for different profiles. Figure 6.10 shows different home screens from different profiles. The next step is the video details page implementation. By tapping on any video item, the corresponding video detail page gets opened.

Clear categorization by language, type of content (Movies, TV Shows, genres, audience segments).



Another way to speed up the process and make the onboarding process quick and interesting is to allow users to experience the app before asking them to sign up or taking them on a product tour. Hotstar previews popular content and lists membership benefits on the very first screen — and they feature a prominent free trial button. Going one step ahead – Netflix now lets users turn off autoplay previews. That means videos and movies won't begin to play trailers or video clips as they are looking for something to watch. Users can turn it every device at once.

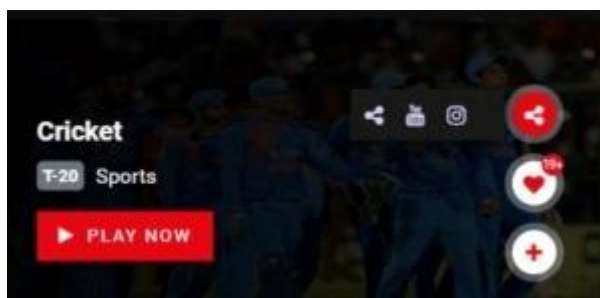
\



Subscription models

A subscription model provides predictable and recurring revenue for a long-term engaged user base. Subscription allow strategy, accommodating a broader, diversified income group of users over a fixed ‘one-price-for-all’ model. However, it is critical to choose a subscription model that fits the requirements of the viewers. For instance, most broadcast players getting into OTT have a yearly and monthly plan with free trials or free access to regular content. On the other hand, established players like Netflix will have subscription models that are only yearly or monthly.

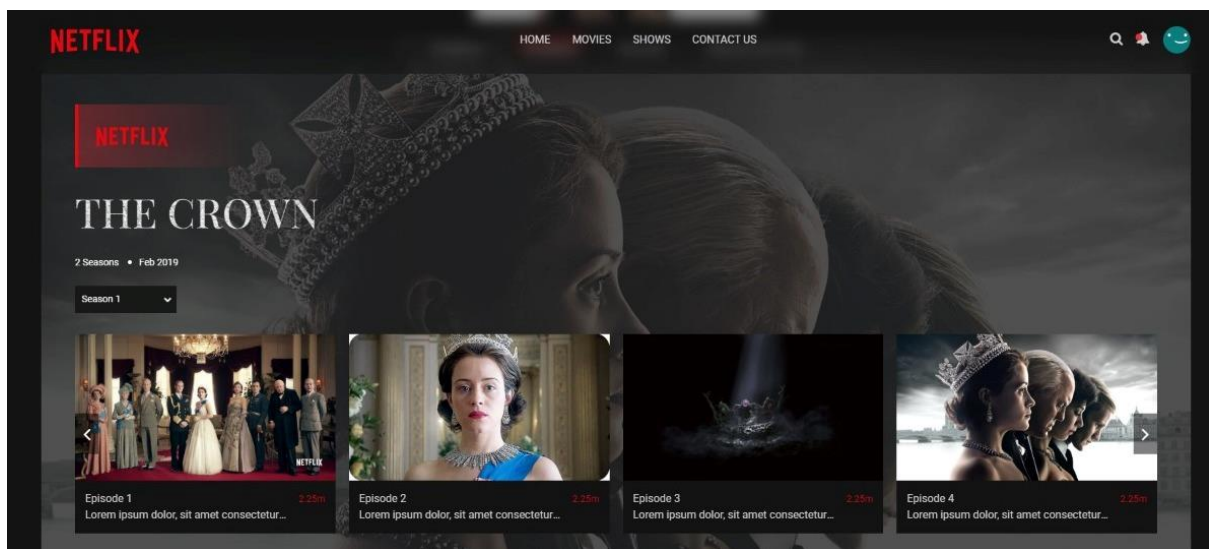
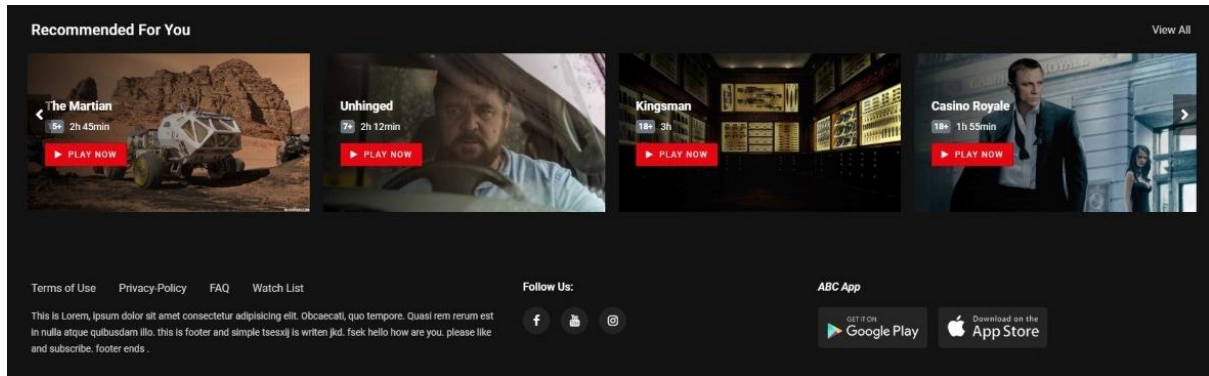
On Discovery+ the subscription model that was built-in was ‘free unlimited access to regular content’. However, to view premium content, an additional fee is charged. On Global Cycling Network, users can buy a monthly or yearly race pass to get unlimited access to the best cycling content.



Casting to a larger screen is another opportunity that can enhance user experience and help in driving the value for viewers. The Discovery+ app has the casting feature which is an easy way of connecting web, tablet, and mobile to a TV. The feature allows users to enjoy a big-screen experience with family and friends.

Another important aspect of adding value to users’ on-the-go viewing experience is by giving control of watching content at their convenience without the limitation of internet speed. In that case, the option for downloading the video for watching later enables the user to engage with the app and the content they like whenever they want.





7.Conclusion

As OTT becomes increasingly popular, more and more entertainment and media firms will develop their own OTT platforms to engage with the viewers. While the variety and quality of the content will be important to acquire new viewers, UI/UX will play a decisive role in retaining them. In the future with newer technologies, we will see interesting innovations in the OTT sector, but a simple and delightful user experience will remain the most important factor that will define the success of any OTT platform.

The goal of this study was to compare three selected cross-platform frameworks in the context of OTT Video-Oriented applications. React Native, Xamarin, and Flutter were compared to answer the posed questions.

The comparison suggests that React Native is possibly the best crossplatform framework among the three selected frameworks due to its features and functionalities which makes the most suitable option for Accedo and OTT Flow.

In most of the functional and non-functional criteria, React Native and Flutter were tightly competing and both offered acceptable feature and functionalities. Xamarin, in contrast, did not perform well in most of the cases and was eliminated. In the video-specific functionalities, both Flutter and React Native showed lack of enough support. However, React Native offered slightly better functionalities, which made it the least bad solution.

8. References

<https://www.robosoftin.com/blog/6-factors-to-consider-while-designing-a-successful-ott-platform>

Accedo, Ott flow, May 2019. [Online]. Available: <https://www.accedo.tv/ottflow/>.

[4] Brightcove, Ott flow, May 2019. [Online]. Available: <https://www.brightcove.com/en/ott-flow>.

Apple, Start developing ios apps (swift), Apr. 2019. [Online Available: <http://preferencelibrary/GettingStarted/DevelopiOSAppsSwift/>.

J. Bishop and N. Horspool, “Cross-platform development: Software that lasts”, in 2006 30th Annual IEEE/NASA Software Engineering Workshop, Apr. 2006, pp. 119–122. DOI: 10.1109/SEW.2006.14.

<https://www.diva-portal.org/smash/get/diva2:1343759/FULLTEXT01.pdf>