BroadVision

Your personal IPTV/OTT-business advisor

#13

> p. 3

What is customization, and why does it matter to operators?

RDK: a flexible open-source platform for video services

> p. 11

Smart TV app: everything you need to know before the rollout

> p. 16

How after-sales services work and why operators need them

> p. 24

Table of Contents

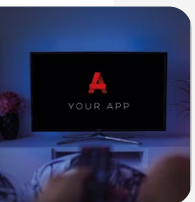# What is customization, and why does it matter to operators?

Author: Darya Pozharskaya

CUSTOMIZATION AND BRANDING OF CUSTOMER PREMISES EQUIPMENT (CPE) IS AN IMPORTANT COMPONENT OF THE OPERATOR'S BRAND POSITIONING.

In this article, Infomir experts guide you through the benefits of customization for operators and best implementation practices.

Customization and its tasks

The term "customization" is used in many areas of production: from clothing to electronics. This word means tailoring a product or service to the needs of specific customers. For example, customization can be applying a company logo to a batch of standard one-color mugs or T-shirts. In the telecommunications sector, customization is applied to CPE.

When planning a project, operators should not only think about the overall strategy, purchasing equipment, and finding their audience. It is equally important to consider the image, i.e., the uniqueness of your brand and what you offer. This way, you can stand out from competitors. Customized devices will help you with that.

CPE manufacturers make large batches of standard devices. To ensure that these products get a unique identity, they place visual elements that define a company: the service name, logo, colors, font, and other brand attributes.

Customization enables you to make a unique batch of set-top boxes from ordinary devices. This process offers two main stages: branding and setting up device software.

> **i**
>
> As a rule, the user's first impression of the service is formed from how the operator presents itself. A professional logo, high-quality design, and unique branded products will attract subscribers to your project. Conversely, unnamed companies offering dubious, cheap devices are unlikely to inspire confidence in potential customers.

▲ *In the case of customized devices, the operator's corporate colors and logo are added*

Subscribe

Branding CPE devices

It is in the operators' interest to provide branded devices to users. This can include placing brand attributes on the bodies of set-top boxes, remote controls, and packaging. Let's see how this may look, based on the example of customized set-top boxes manufactured by Infomir:

▲ *Set-top box body*

▲ *Remote control body*

▲ *Packaging*

Getting started with branding

To receive a batch of unique CPE devices, operators must provide a layout, complete a form, and agree on all the customization details with us.

Subscribe

▲ *When ordering branded devices, the operator must provide a file in an acceptable format, such as .eps, .pdf, or .psd*

Branding remote controls and set-top boxes

The service logo can be placed on the remote control and the body of the CPE device. To brand these devices, the operator should provide a logo in vector format. Based on this file, designers will develop several visualization options, enabling customers to choose the most appropriate one.

Unique packaging

Box branding provides operators with more options. For this purpose, you can not only develop your unique design but also place important information for users on the box, e.g., plan terms, lists of channels and pre-installed applications, etc.

Besides, branding may include the creation of a unique set-top box passport in particular. If required, the documentation can be tailored to show the service's logo and name using the operator's own unique font, colors, and design.

To put the customer's logo on the remote control and set-top box, Infomir uses single-color pad printing. The product is fixed on a special platform, and a stencil with the customer's logo is placed on it. Then, a plate with paint is lowered onto the product. When the stencil is removed, the pattern remains on the body.

Timeframes

The customization process is divided into two stages: approving the layout and making branded products. The first stage can last from a couple of days to several weeks. Coordination won't take much time if operators clearly understand what they want to get as a result and promptly prepare the necessary documentation. Production can take several weeks.

Subscribe

Software customization

The CPE software can be customized to meet the operator's needs. Each project is discussed with customers individually: there are no standard solutions in this area. Nevertheless, a number of elements are commonly customized. We will show several options for customizing software using the example of the Ministra TV platform middleware and explain what this gives to operators.

Logos and colors

In custom firmware, operators can create a unique boot screen containing their logo, corporate colors, slogan, and fonts. The boot screen is the first thing users see when the device starts. Of course, a good design will make a positive impression on customers and increase the operator's status in their eyes.

Localization*

Operators can take care of customer comfort and provide them with some non-standard functions. For example, if the default set-top box menu does not contain the language required by the operator, it can be integrated (i.e., the entire menu translated into any desired language).

Localization enables operators to provide certain services in a specific region, helping boost customer loyalty.**

Subscribe

Restricting access to system settings

Operators can prevent users from accessing advanced features. Settings can be used to prohibit users from registering another portal, resetting settings, replacing the firmware, etc. That means subscribers won't be able to use their set-top boxes to watch competitors' content. Such features can only be unlocked after entering a special key available only to operators.
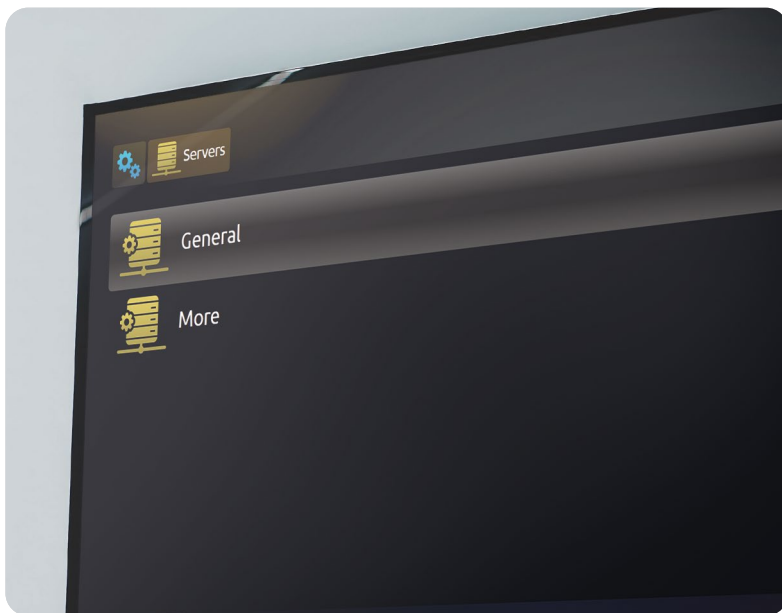
Hidden URLs

In custom firmware, you can hide the URL of the operator portal, and users won't be able to see it.

Why customize software

Service awareness

Those using branded products see the operator's logo every day. This way, you strengthen your brand.

Security

A hidden portal URL avoids unauthorized connections.

Preventing subscriber churn

Custom firmware enables operators to retain their audience. Subscribers won't be able to use their devices to view content from competitor services.

User comfort

Customization enables you to adapt the device to the needs of subscribers and operators, e.g., add the desired language or use a different time zone.

Reducing the load on technical support

If advanced settings are hidden, users won't be able to accidentally change them, which means that they won't need to contact technical support to restore the default ones.

Subscribe

Terms of creating an individual firmware

As with branding, how long the customized software takes to develop largely depends on how quickly operators and their contractors can discuss all the points and prepare clear terms of reference. The approval stage can take from one day to a couple of weeks. After that, engineers usually need 2–3 days to "assemble" the firmware.

Installing custom firmware

When the software is ready, it will need to be installed on CPE devices. It is preferable to update set-top boxes over the network. To do this, you want to arrange an appropriate network environment.

However, update options are selected individually for each specific case. For detailed information, please contact our technical support.

If operators later want to add new features or change customization options, developers can create a new version of the software for them. In this case, updating set-top boxes is easy as the functionality of the Ministra TV platform enables you to update the software of CPE devices automatically during the next reboot or create an individual schedule.

The customization mechanism enables you to create an exclusive design and software for standard CPE devices. Your set-top boxes will be perceived as unique equipment. This way, you strengthen your brand, increase its awareness, and boosts customer satisfaction.

Adding a language is discussed separately: we need to use a separate team to complete this task.

** Infomir integrates new languages only for the internal portal of set-top boxes. To make sure customers can use the new language, the middleware used by the customer must support it as well.

Subscribe

MAG520 MAG520 W3

Linux-based STBs: 4K, HEVC, surround sound

4K and HEVC Support

4x ARM Cortex-A53

Qubic casing

1 GB RAM / 4 GB eMMC

Linux OS

18 400 DMIPS

Built-in Wi-Fi Module*

IR remote control

LEARN MORE

*Only in MAG520w3

RDK: a flexible open-source platform for video services

THE RDK PLATFORM HAS BECOME AN INCREASINGLY POPULAR SOLUTION FOR IPTV/OTT OPERATORS. IT OFFERS THE ECOSYSTEM ALONG WITH DEVELOPMENT SIMPLICITY, AND THE NUMBER OF DEVICES RUNNING ON THIS PLATFORM HAS NOW EXCEEDED 60 MILLION.

Author: Alexey Kuznetsov

This article contains basic information about what RDK is, why the platform is becoming more popular, and who is involved in its development.

RDK made simple

RDK (Reference Design Kit) is module software for the quick rollout of new-generation video services. The platform enables operators to easily manage client devices and set up the user interface, while analytics help to improve service quality and business profitability.

RDK's tasks are to configure the video reception setup, organize the conditional access system (CAS), manage technical means of copyright protection (DRM), run the workflow, and check streams. The platform provides access to the RDK App Framework infrastructure, enabling partners to create and manage apps.

The software is based on the following open-source standards and components:

- Linux kernel and drivers
- OpenSSL crypto library
- Busybox libraries
- OpenGL API
- UPnP protocols

Operators use RDK as a baseline for integrating apps and services into their projects. The package includes support for the main subscriber equipment: set-top boxes, routers, modems, other devices, and parallel access networks (GPON, DSL, DOCSIS).

RDK is freeware and open-source, enabling developers worldwide to introduce regular improvements and new features to the platform.

The RDK community currently has access to more than 200 software components, allowing operators complete flexibility when setting up their products to meet the needs of their services. In fact, the platform is now used by 584 licensees worldwide.

Subscribe

Who develops and maintains RDK

A group of open-source software creators, RDK Management, develops and maintains the platform. It includes top-level video services, software developers, and system integrators such as CommScope, Kaon, Humax, and Technicolor. The creators publish open-source code for the RDK user community. In other words, the developers describe the platform as "created by operators for operators".

Why RDK is gaining popularity

The RDK-V branch is popular among operators. This platform is designed to integrate the RDK Video Accelerator set-top boxes and network equipment. Let's take a look at the main advantages of this solution.

The flexibility of setting up RDK allows for the quick rollout of video services in the IPTV market. With this platform, it's easy to add, delete, or edit the video service components. Furthermore, these actions don't depend on anyone to ensure operators have complete control when using RDK. At the same time, RDK-based solutions make it possible to stand out from competitors by building a bespoke UI.

Simplicity. RDK is used under a free commercial source code license, enabling developers worldwide to implement new features and fix bugs in their software. An updatable platform with a toolkit is available to the RDK community for this purpose. Moreover, the platform makes it possible to speed up the creation and editing of solutions.

Subscribe

App store. RDK gives you access to an entire ecosystem – Metrological App Store – where you can host a working app or develop one from scratch. The service is similar to Google Play for Android TV.

Over 300 apps are available on Metrological App Store. Among them are major streaming services, such as YouTube, Netflix, and Amazon Prime, plus apps from local operators.

Just like any global solution, RDK has its pros and cons. For example, most of the platform's software is open-source, meaning operators must comply with open license obligations when integrating CAS and DRM.

RDK Video Accelerator set-top boxes

RDK Video Accelerator is the operators' set-top box integrated with the latest version of the RDK firmware, access to the Metrological App Store, and the developer toolkit.

All RDK devices come with the same feature set:

- The latest version of RDK firmware
- 4K video playback
- Voice search (Tech4Home is used by default)
- Wi-Fi and Bluetooth

The device must be equipped with the following hardware for the system to operate correctly:

- Quad-core 64-bit CPU
- At least 1 GB RAM
- 100 Mbps Ethernet port
- HDMI port

This feature set enables you to roll out, control, manage, and modify an RDK-powered service.

Operator's participation

An integrated working solution powered by the RDK-V platform will require operators to add specific software components. These may vary depending on the services. Let's take a look at the key ones.
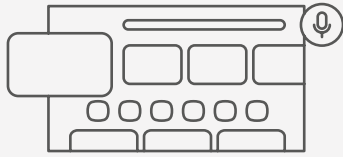
Subscribe

User interface

This is a way to stand out from competitors and make your service unique for subscribers. Thus, it's important for operators to wrap their screens in a bespoke package. They can do so by using Lightning, a Javascript-powered app and interface development environment.
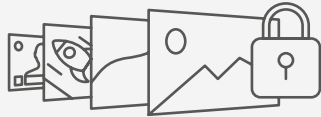
CAS and DRM support

Out-of-the-box RDK-V solutions support such DRMs as Widevine and PlayReady. However, some copyright holders may require other content protection systems. Furthermore, depending on their partner contracts and network, operators might need to connect additional CAS and DRM.

Operator's app

Currently, most video services use in-house apps to cast content, weather, and news widgets. Operators might want to migrate them to RDK. This software can be emulated by using either HTML5 or Lightning environments.

Software updates

RDK-V doesn't offer a standard mechanism for STB firmware updates but supports multiple ones for its development. To create one, simply contact the manufacturer of client devices.

Building the bespoke UI, software configuration, and platform's main modules will take time before an RDK solution can be rolled out. At the same time, operators have complete control of the service and client devices while being independent of software developers and STB manufacturers.

Google Play, YouTube and Android TV are trademarks of Google LLC.

Subscribe

Smart TV app: everything you need to know before the rollout

IT CAN TAKE MONTHS FOR OPERATORS TO IMPLEMENT THEIR IDEAS AND ROLL OUT AN APP.

YOUR APP

Author: Hanna Novikova

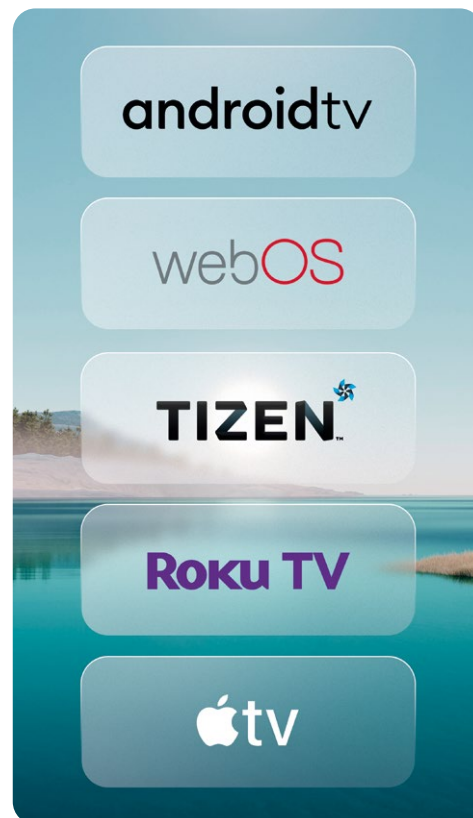This article will help you learn how to start development and save time.

Choosing a platform

Before choosing an OS, operators need to learn about their future clients' preferences and the most popular devices in their region. For example, **Roku** is the leading platform in the USA, whereas, in Europe, it accounts for only 5.4% of total viewing time, according to **Conviva**. Therefore, it's unviable to start a service with Roku in European countries. Instead, it's better to use Samsung TV, which takes 19.5% of overall content viewing time in that region.

What platforms are out there?

Operators choose between the two most popular systems when it comes to mobile apps: Android and Apple. The choice is much broader in telecommunications. There are five leading platforms at present: Android TV, webOS, Tizen, Roku TV, and Apple TV.

Here is a brief comparison of the top three:

	Android TV	WebOS	Tizen
TV sets	Sony, Philips, Panasonic, Hisense, Xiaomi mi, Kivi and others.	LG	Samsung
Technology	Java, Kotlin	JavaScript	JavaScript
Mobile app for device control	Google Home	LG TV Plus app	SmartThings
Screencasting	Chromecast	Miracast (compatible with Android and Windows 10)	Via compatible apps on Android and Windows 10, Screen mirroring via SmartThings

Subscribe

▼ *Share of viewing time by device*
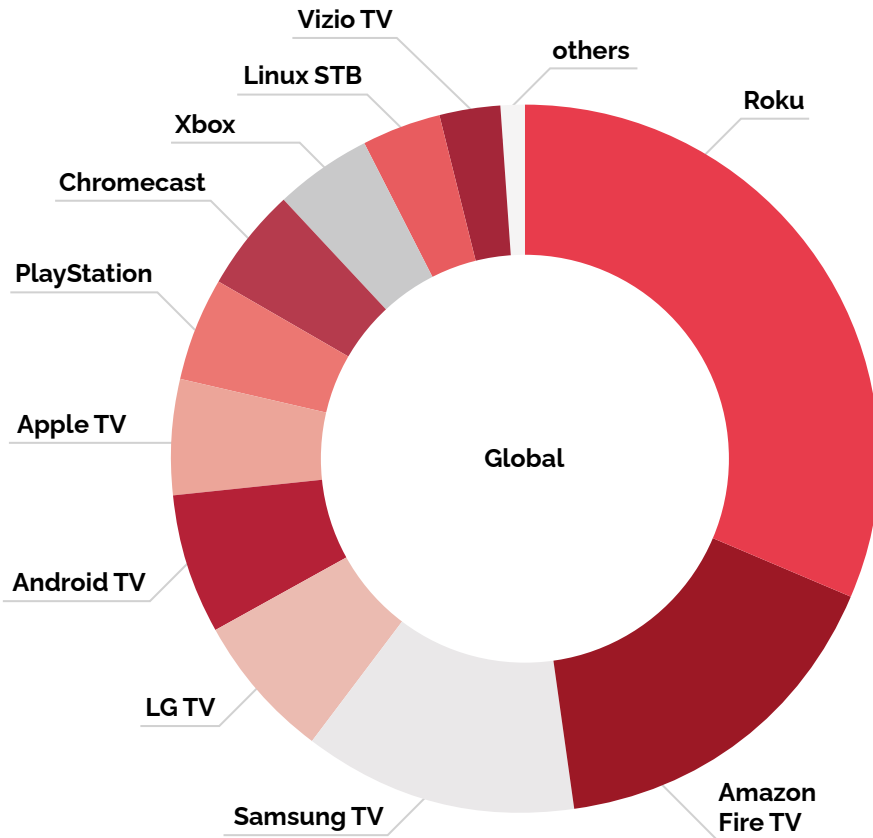
	Global	Europe
Roku	31.8%	5.4%
Amazon Fire TV	16.5%	12.3%
Samsung TV	12.8%	19.5%
LG TV	6.6%	10.7%
Android TV	6.5%	12.6%
Apple TV	5.3%	5.2%
PlayStation	4.8%	7.5%
Chromecast	4.7%	10.0%
Xbox	4.4%	4.0%
Linux STB	3.7%	11.7%
Vizio TV	2.8%	<1%
others	1.0%	<1%
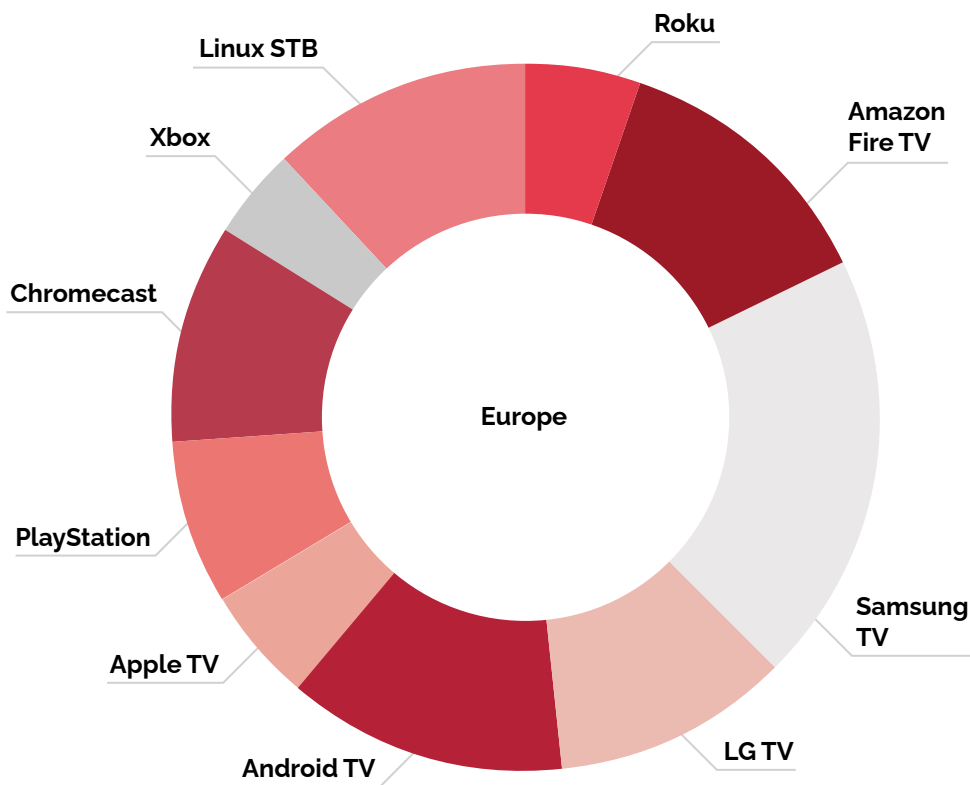
Source: Conviva's
State of Streaming Q4 2021

╱ BroadVision

Subscribe

Building a team

Developing a Smart TV app isn't very different
from developing a mobile app, so the basic team is the same:

- UI/UX designer
- Front-end developer
- Back-end developer
- Tester or QA specialist
- Project manager

Team composition may vary depending on the project.
For example, creating a mobile app or an app for a specific
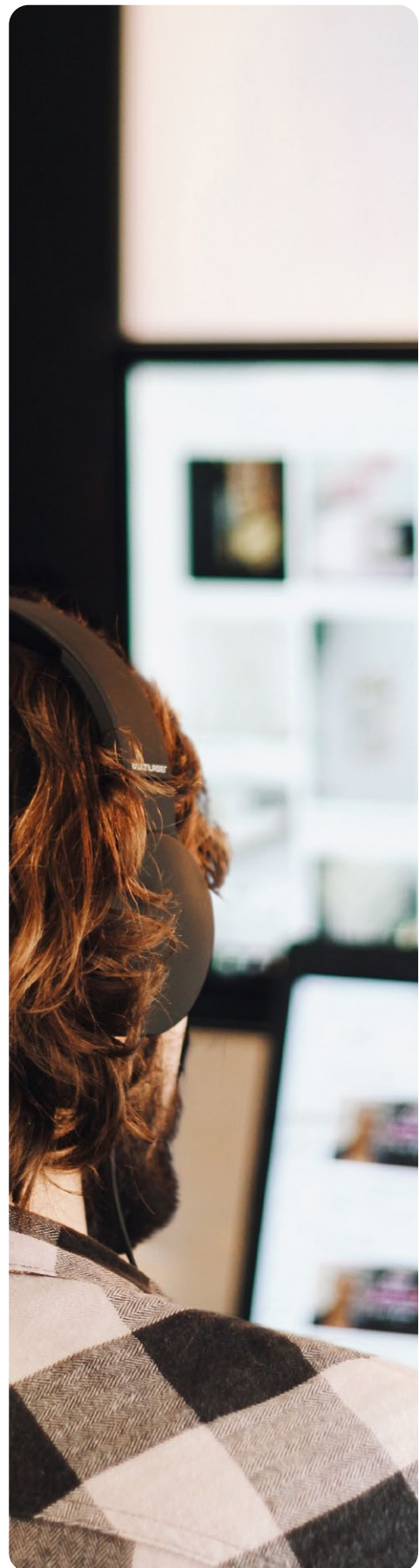platform will require a dedicated developer.

In contrast, the list of specialists can be shorter in some other
cases. For example, if operators use a SaaS platform, they
won't need a back-end developer because the client-side
UI implements all interactions. Using a ready-made solution
will simplify the workflow for designers and front-end
developers.

i

Additional positions:
who else delivers results

DevOps synchronizes software development stages
and ensures quick solutions for critical problems. This way,
teams introduce products to the market faster, integrate
updates, reduce costs, and solve other business tasks.

Business analyst elicits user requirements and finds ways
to meet them. For example, when integrating a search function,
a business analyst determines whether a simple algorithm
will be enough or whether AI is necessary.

Subscribe

Hiring a team versus individual specialists

Operators can hire a pre-assembled team or each specialist individually. Whichever route they choose, we recommend that they thoroughly examine the freelancer or team's portfolio and choose those with a successful track record in IPTV. Let's take a look at the specifics of each approach.

Hand-picked team

✓ Operators get to choose its composition by themselves, enabling them to find the best professionals for each position.

✓ In this case, team members will need some time to get to know each other, familiarize themselves with the project, assign responsibilities, and build communication. A team like this is likely to be less effective than an existing one. There might be miscommunication, confusion over responsibility for certain processes, and conflicts between individual specialists.

✓ Operators will have to manage teams personally or hire managers to ensure effective coordination.

Outsourced team

✓ Hiring a complete team takes less time.

✓ They already have experience in IPTV projects and can showcase their previously developed apps to operators.

✓ Such teams have already established communication. Their specialists most often use organizer programs they already know well. All of this helps create and roll out an app faster.

i

We recommend discussing the possibility of further cooperation with developers when signing a contract. Operators might find errors or wish to tweak the product's functionality after being launched in the app market.

Subscribe

Factors affecting development time

Once the operator (client) and the developer team (contractor) agree on project details, it's time to start the development phase. It can last from several weeks to several months. The time and cost of development depend on several factors.

Understanding the final product. To minimize the development time and costs, the client must provide the team with clear terms of reference and describe the desired functions in detail.

Otherwise, the contractor's work may drag on unnecessarily. If the operator doesn't have a clear vision of the finished app ("I want something like Netflix"), they'll need to collect additional information about potential clients and their technical capabilities. A business analyst will be required in this case.

Ready-made elements. The operator can prepare important elements of the future app beforehand, such as the design, thereby making development significantly faster.

Using an existing solution. Some developers like Infomir offer customization services for their official apps. It's the most effective and low-cost way to create products for Smart TV.

The expert team creates a branded app tailored to the operator's needs based on an existing technology. We wrote more about this in the article **"What is customization, and why does it matter to operators"**.

Features. This part is similar to the previous one. The time it takes to create an app is directly proportional to the number and complexity of its functions.

Ensuring app quality

To avoid costly mistakes and create the highest-quality product, it's important to thoroughly test your app after development.
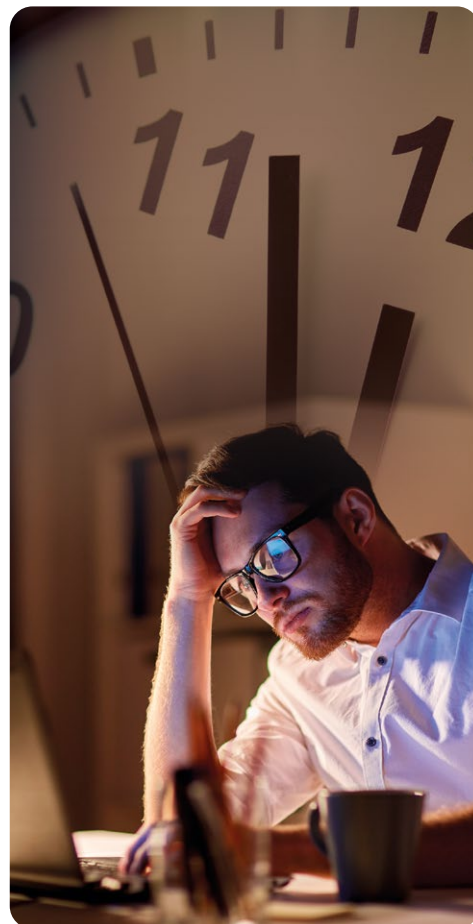
Start with the main functions

If you have limited resources, draw a line between the core functions and those that are simply useful for the project. An app can't exist without the former, as they hold the key value for users— for example, a player.

Useful functions improve user experience and can be added in the next release. It can be delayed view, multiscreen, or recommendation engine.

Subscribe
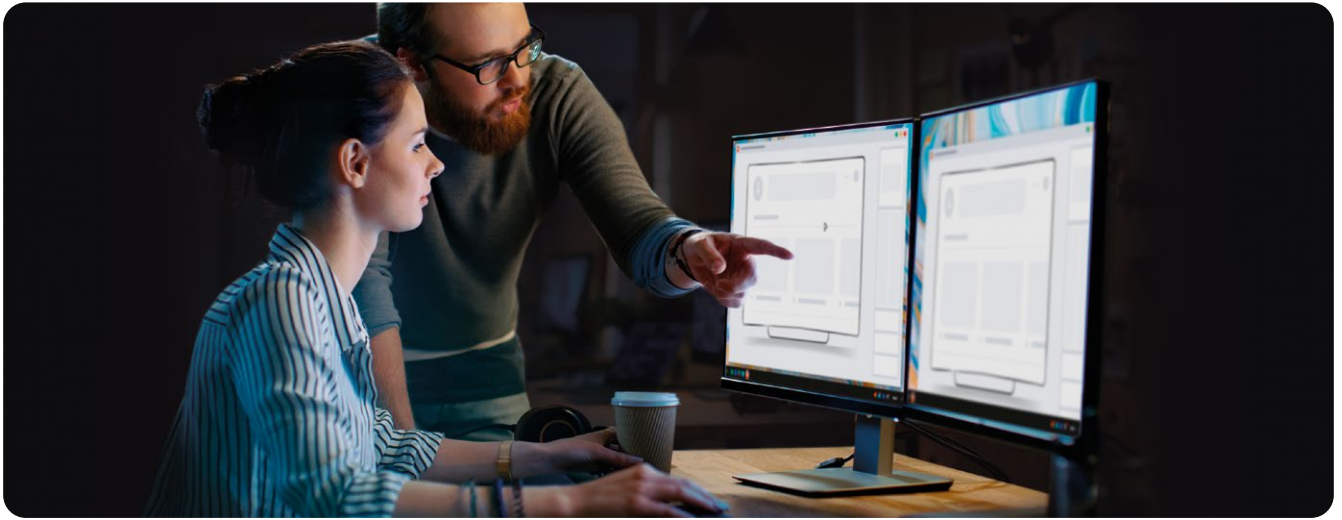
User interface

TV screens are wider and larger than on other devices, something which should be considered when developing the app. Users watch TV from a distance of several meters. That's why the interface shouldn't contain small fonts or unreadable graphic elements.

Besides, there are TV models that support auto-rotate screens, such as Samsung's The Sero. Apps that support auto-rotate screens will be the most future-proof and competitive.

Picture quality

Supporting all modern video formats and displaying them correctly on different devices is an important requirement for apps. The service's software must adapt to the varying pixel numbers and maintain video proportions during playback on devices with different aspect ratios to ensure this.

Network

The function of TV apps depends on the connection to the data network. Make sure that the service works even at slow Internet speeds. It must display errors correctly and enable buffering.

To create an app, operators need to assess their financial and time constraints, collect as much information as possible about user preferences, and choose the right platform. It's better to prepare detailed documentation beforehand and use a ready-made solution to cut costs and save time when developing an app.

Subscribe

MAG522
MAG522 w3

High-performance Linux-based STBs powered by the Amlogic S905X2 chipset: the best user experience

4K and HEVC Support

4x ARM Cortex-A53

Linux OS

1 GB RAM / 4 GB eMMC

Built-in Wi-Fi Module*

18 400 DMIPS

LEARN MORE

*Only in MAG522w3

How after-sales services work and why operators need them

Author: Alexey Kuznetsov

IT'S IMPORTANT FOR IPTV/OTT PROVIDERS TO NOT ONLY SELL THEIR SERVICES BUT ALSO RETAIN SUBSCRIBERS. THE REASON FOR THAT IS SIMPLE: THE OPERATIONAL COST OF ACQUIRING NEW CUSTOMERS IS HIGHER THAN THAT OF KEEPING EXISTING ONES.
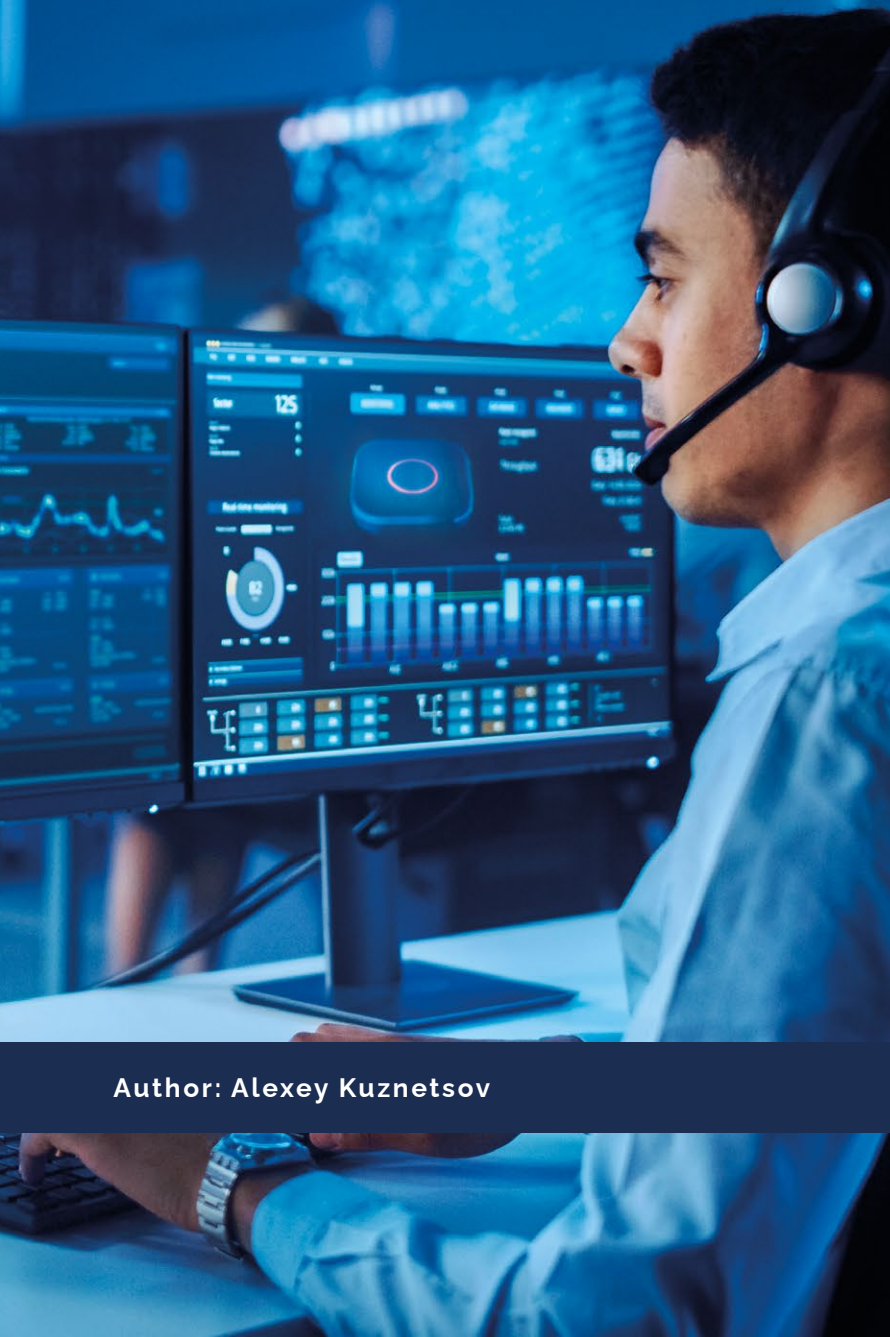
In this article, we'll delve into after-sales services — one of the tools to win the customer's trust and boost the company's income.
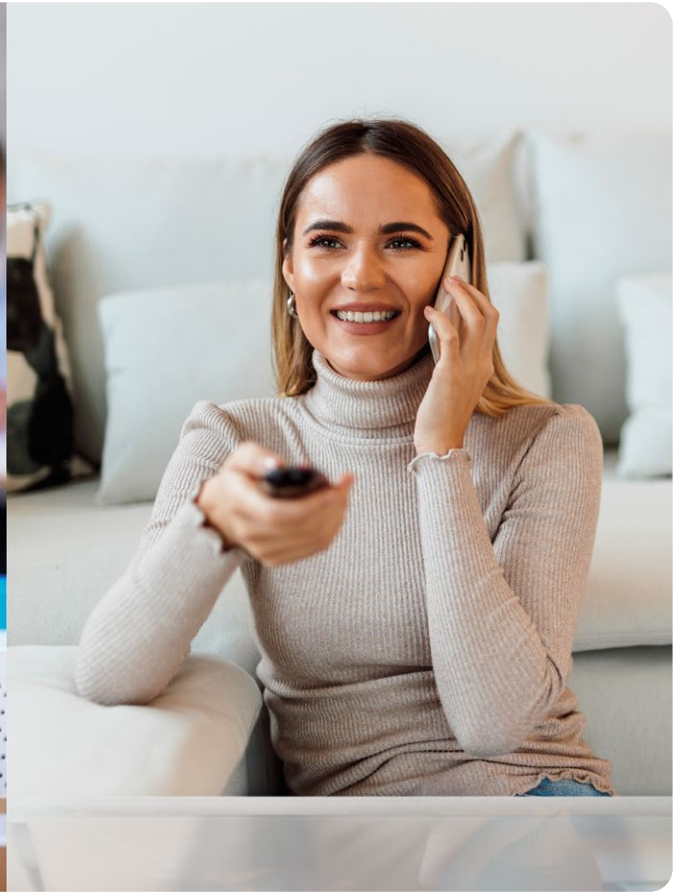
What are after-sales services?

After-sales services are a set of services for customers who purchased products from an operator or distributor. This support includes consulting about how the product works, its maintenance, replacement, and updates.

The after-sales department can bring additional profit, enhance brand credibility, and boost customer loyalty.

What do after-sales services include?

After-sales services come with the four key components:

- Warranty service
- Post-warranty service
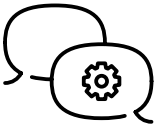- Technical support
- Software updates
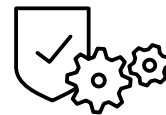
Warranty service

If the equipment fails during the warranty period, operators or distributors must accept the customer's request, take the broken device, and find out what caused the problem. Based on the results of this check, tech experts decide what to do with the device. If the problem wasn't caused by the user and the device was operated according to the user manual, it gets replaced or repaired before being returned. If the user caused the problem, they are offered assistance under a post-warranty service.

Subscribe

Post-warranty service

This has the same purpose as warranty service but applies after the warranty period ends (or if the terms of use were violated) as a paid service. Customers use it when it's more viable to fix old equipment than buy new devices.

Technical support

In this department, employees help troubleshoot software or system errors in the equipment or video service and advise on setting up and using devices. It can be either a paid or free service. It can also offer several tariff plans with different features.
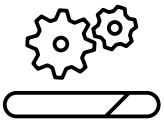
Software updates

Streaming TV technology is continuously evolving: new video and audio codecs emerge, and content protection is modernized. To make sure an older product can keep up with the modern market standards, operators must regularly update client devices.

How to organize the workflow of an after-sales department?

An effective after-sales department requires qualified staff, a convenient toolkit, and a tech lab.

It can take a while to find engineers for the after-sales department and organize their work. The engineering team must have a wide range of knowledge in addition to programming and database skills. Training these specialists may require from three to six months.

After that, they'll need the tools to work with clients and as a team in an effective and coordinated way. Comprehensive help desk solutions are one such example. This software helps automate tech support and customer service processes. It stores and organizes information about customers, facilitating comfortable interactions. It also helps track business processes and keep them up to date.

Subscribe

The tech lab is needed to simulate the situations that lead to device breakdowns, such as operating conditions, the use of third-party software, or network load. It helps detect rare problems and find ways to fix or bypass them.

What are the benefits of after-sales services?

After-sales services help operators boost their competitiveness, customer loyalty, sales, and get detailed feedback about their products and services.

The after-sales department can become a source of additional profit if it offers paid tech support packages and post-warranty services. This department provides a 50–100% return on operational costs.

In addition, there are the less obvious but still considerable benefits of brand recognition, higher and repeated sales, and customer loyalty. Users will trust the operator, knowing that a broken device or service failure will be fixed in the shortest possible time.

Also, the user needs to know that the device will support modern content types for the next 3–5 years. If customers are confident about the product quality, they will choose a tried brand when buying or leasing the next device.

It's important to collect customer feedback. Operators that offer after-sales services get detailed and reliable reports on the pros and cons of their business. It can help them improve their service, prevent errors, and devise more accurate development and sales strategies for upcoming products and services.

After-sales services are a complex tool to retain your customers and attract repeat sales. By organizing this department the right way, a company can boost its income, constantly keep in touch with its customers, and effectively develop its brand at a minimum operational cost.

Subscribe

This issue was created by:

◀ *Project founder*
Igor Oklander

◀ *Project manager*
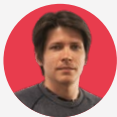**Aleksandr Vlasenko**

◀ *Editor, author*
Darya Pozharskaya

◀ *Editor, author*
Alexey Kuznetsov

◀ *Author*
Hanna Novikova

◀ *Designer*
Pavel Oreshchenko

◀ *Designer*
Danylo Tkachenko

Editorial

We're happy to present our thirteenth issue. We hope you'll enjoy reading our magazine as much as we enjoy working on it. Sign up for our newsletter and share this issue on social media. It's the best way to show us that you like what we're doing.

And feel free to let us know what you would like to see on the pages of BROADVISION next time. E-mail your ideas and suggestions to us broadvision@infomir.com.

Let's grow together!

BroadVision

Subscribe

BroadVision

Your personal IPTV/OTT business advisor

im infomir