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BMX iX

Infotainment Summary

Pioneer of a new BMW age - the iX

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screens 

READ ME!

For this report we spent more than **50 hours** testing this car's infotainment system. Thousands of interactions were made and literally every possible button was used.

We went through **hundreds of use cases**, both stationary and while driving, and looked at the car as intensely as possible. We guess the only other people were probably its developers. This report represents only a fraction of our findings.

We captured the **entire HMI structure** and documented every possible click in a giant tree with hundreds of entries.

Therefore: [Contact us](#) if you have any questions about this infotainment system. We know almost everything that can be found out when using it.

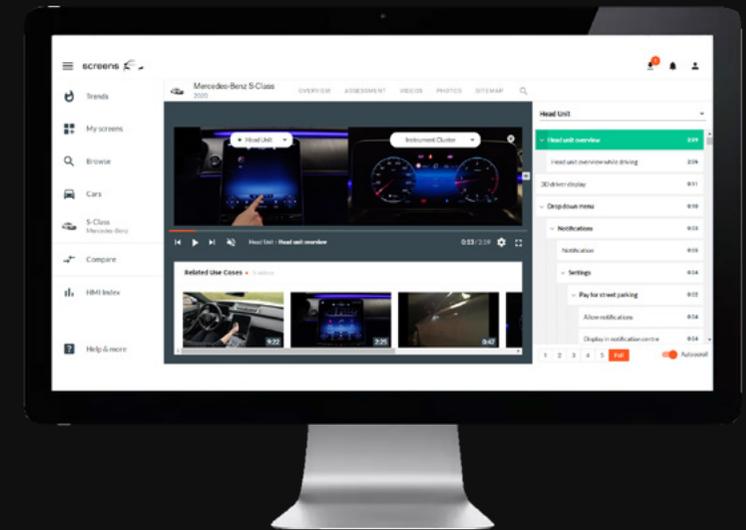
The best part about this:

We have **recorded everything** and made the video material available in a tool called screens. screens is an interactive video-based online platform, which enables you to **compare** the latest infotainment systems in-depth.

Whether it is ADAS, media, apps, navigation, speech or radio, operated in the Instrument Cluster, the Head Unit, the Head-up Display or in the Rear Seat Entertainment. You can check out every possible interaction on video. We render the videos searchable and interactive so you can find a particular sequence much faster than in the actual car.

Click [here](#) to create your **trial account** and dive deeply into the infotainment system right from your desk.

We are looking forward to your feedback!



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Overview

It is the pioneer of a new age - the electric vehicle age. Based on a vision, the BMW iX is a combination of electric power and SUV - and that with a kerb weight of 2.6 tonnes. With its eDrive technology and all-electric four-wheel drive, the BMW iX has the character of an electric city vehicle, but its equipment and SUV character also make it suitable for holiday trips and terrain outside the city. In other words, efficiency, or luxury. These exact two parameters should form the basis of the e-SUV.

However, interesting for us is the e-SUV's interior and the infotainment. The basis of the infotainment system is a curved display unit consisting of an Instrument Cluster and a Head Unit, which are positioned on the reduced dashboard. The dual screen system is based on the BMW Operating System 8, which promises intuitive operation. A Head-up Display is also part of the equipment of our BMW iX xDrive 40. The centre console is a real eye-catcher. The design is kept simple, but nevertheless catches your attention with elements such as the typical iDrive controller.

In addition to interaction via the touchscreen and gesture control, this also enables interaction by turning and pressing the iDrive controller. What you wouldn't guess from the completely transparent design - as always, direct handwriting via the controller is also possible. Basically, the centre console does not reach all the way to the dashboard, which means that the driver's and passenger's footwells merge into one another, so to speak. This creates a feeling of space, which is underlined above all by the minimalist mounting of the curved display. The underlying system is the BMW Operating System 8, which replaces the previously known iDrive version and, according to the manufacturer, can be operated intuitively and always remains up to date based on over-the-air updates (OTA). BMW OS 8, meanwhile, replaces the previously known iDrive version.

In the following report we will go into more detail about the various features, displays and input modalities.

🎮 CAR OVERVIEW



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Map in Head-up Display

The Head-up Display and its content and underlying technology are becoming increasingly important these days. By projecting content directly into the driver's field of vision, the environment is enriched with information. The most technologically advanced technology in this respect is, of course, the augmented reality enabled Head-up Display.

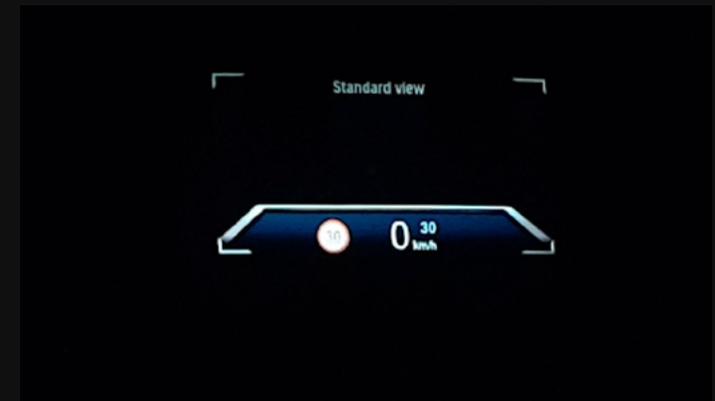
In the BMW iX, however, this function is not found in the Head-up Display, but in the Head Unit, as a supplement to the front camera content.

Nevertheless, the Head-up Display of the BMW iX convinces with very sharp images in the Head-up Display. Above all, the projection of the current route guidance as part of a map is a highlight that cannot be found in this form on #screensstudio. The roads are shown in light blue and the current position of the vehicle is indicated by a red arrow pointing in the direction of travel. The next navigation manoeuvre is shown in the lower part in the form of colour-highlighted arrows and in text form in the upper part of the map view.

Assessment

- + The design of the map view in the Head-up Display matches that of the Instrument Cluster and the Head Unit in terms of design and icon use, creating a uniform image.
- + Due to its colour design, the map view is easy to recognise, especially in dark lighting conditions. The content is also clearly recognisable in daylight.
- Depending on the road layout, many roads in the vicinity are sometimes projected into the field of view, even if they are not at all relevant to the traffic situation because the vehicle is not on this road.
- In contrast to augmented reality technology, the underlying function of supplementing what is happening on the road with relevant navigation information appears to be partially overloaded.

HEAD-UP DISPLAY



MAP IN HEAD-UP DISPLAY



Augmented-reality in Head Unit

The combination of static and dynamic displays is a technology that is currently of great interest. The underlying technology: Augmented Reality (AR). Unlike the [Volkswagen ID.3](#) and [Hyundai Ioniq 5](#), however, the technology is not part of the Head-up Display, but part of the Head Unit. In the [Cadillac Escalade](#) we already got to know this kind of integration of other displays with the AR enabled navigation feature in the Instrument Cluster. In the BMW iX the augmented reality elements are shown in the Head Unit. This means that when there is an upcoming navigation manoeuvre, the [display of the front camera](#) appears in the Head Unit and is supplemented with AR elements.

These include directional instructions and announced lane changes. The basis for this is formed by

- a single grey arrow pointing in the corresponding direction you are currently driving
- and an arrow in a box, which shows the upcoming direction of the manoeuvre and then turns into 4 up to 6 grey blinking arrows at the point of navigation manoeuvre. The blinking arrows can be located as a free-floating element or on the roadway when e.g. a lane change is part of the upcoming navigation manoeuvre.

When reaching a destination, a [flag](#) will be displayed at the respective spot. At the same time a finish line can be seen on the road itself.

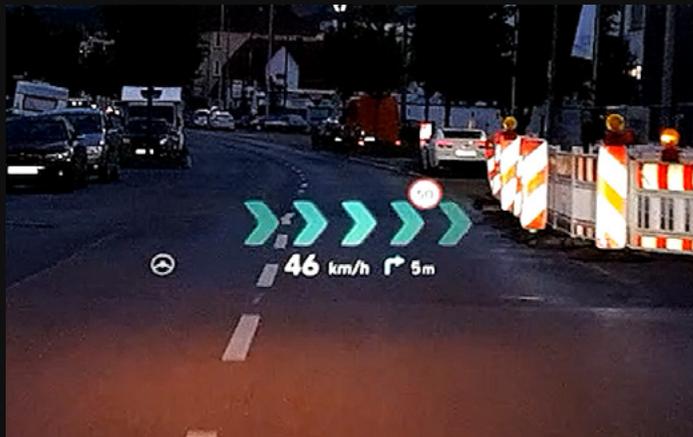
Assessment

- + The animations are very clear and sharp and the grey colour is not too dominant. There is no sensory overload due to animations too large or too short ahead.
- Unlike, for example, the AR animations of the Mercedes-Benz S-Class or the VW ID.3, there is no high-light colour to support the animation.
- In contrast to current technologies, the AR feature is not integrated directly in the Head-up Display and thus as a direct reflection on the current outside world. However, the eyes must remain on the Head Unit.
- In part, the animation seems a bit cluttered, as all three types of arrows for a manoeuvre are displayed, i.e. the arrow directly in front of the vehicle, the arrows on the road and the floating arrows.



Augmented-reality in ...

Head-up Display



© HYUNDAI IONIQ 5

© VW ID.3

© MERCEDES-BENZ S-CLASS

Head Unit



© MERCEDES-BENZ S-CLASS

Instrument Cluster



© CADILLAC ESCALADE

BMW IconicSound

The sound design of a vehicle is particularly important for electric vehicles, because electromobility must have a sound. According to legal requirements in Germany, every newly registered electric vehicle must produce an artificial sound from July 2021 (EU Regulation 540), so that cyclists and pedestrians can hear the vehicle acoustically.

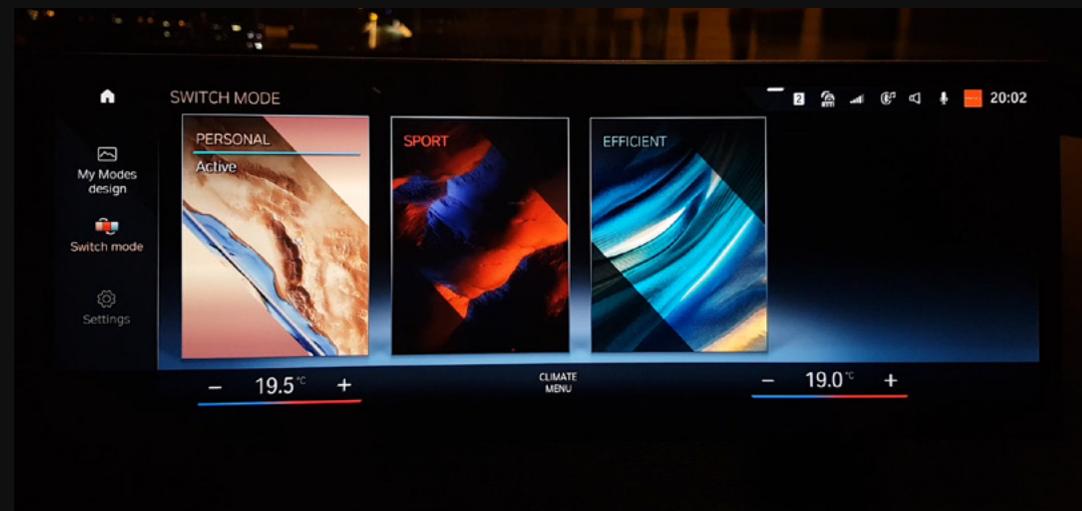
The design of the sound is not specified.

The main thing is that the vehicle can be perceived acoustically up to 20 km/h when starting. BMW even has its own department for this called BWM IconicSounds Electric, which, together with the famous film composer Hans Zimmer, is designing the sound concept for the i4 concept car, for example. In the My Drivemode feature, the user can directly control and experience this BMW IconicSound experience in the iX.

There are three modes to choose from:

- [Personal](#)
- [Sport](#)
- [Efficient](#)

Based on the selected sound, the display of the Instrument Cluster changes and driving sound is simulated.



Automatic parking

Automatic parking is not a new technology, but the automatic parking process is different in every vehicle and therefore also successful and intuitive to a different extent. Sometimes the process is activated via different types of buttons, in one manufacturer you receive acoustic instructions, sometimes the vehicle stops itself, sometimes it doesn't. In the BMW iX, automatic parking is controlled via the [Parking feature](#).

The vehicle automatically searches for a parking space. Once a parking space has been detected, the various parking options are displayed on the right side of the Head Unit. What's great is that the [search process](#) is also represented in the Instrument Cluster with an animation. An animation and a green icon consisting of a steering wheel and a „P“ make it immediately clear that Park Assist is currently active. However, the desired [parking process](#) is selected via the Head Unit.



Once a parking space has been selected, the [parking path](#) of the vehicle is displayed in the Head Unit and in the Instrument Cluster. The parking space is also marked in the sense of an augmented reality function. This way, the user can immediately see which parking space has been selected, how the vehicle is moving towards the parking space, how much distance there is to the surrounding vehicles and objects, and how the lane is changing.

Automatic parking

When the parking process has been completed successfully, the information „Parking completed: vehicle secured.“ appears in the Head Unit and in the Instrument Cluster and is supplemented by a sound.



Assessment

- + Thanks to the augmented reality function and the display of the parking path and parking space, the user can immediately see how the vehicle is now manoeuvring, which creates an enormous feeling of safety. Besides it is also possible to park out via the automatic parking assist.
- + The additional display in the Instrument Cluster also enables the driver to observe the current manoeuvre on the screen directly in front of his eyes. Safety instructions such as „Monitor surroundings and take control if necessary“ appear in the Instrument Cluster as well as in the Head Unit.
- + In addition to the parking space, how to move into the parking space, the distance detection and the driving lines are also automatically displayed. This provides a high level of information about the entire situation.

Overview

The Instrument Cluster of the BMW iX is basically controlled by the buttons on the right side of the multifunction steering wheel and is based on the same colour concept and design as the Head Unit. A kind of ball knob is used to navigate through the various features. Tilting it to the left or right makes it possible to switch between the three main features: [Content](#), [Layout](#), [Head-up](#) and [Driving assistance](#). The corresponding menu bar is always visible in the lower right part of the Instrument Cluster. Within a feature, you can switch through the submenus vertically by operating a vertical wheel placed in the middle of the ball-knob element.

The Content feature, as the name suggests, conditions the content of the Instrument Cluster. The selection consists of 6 content categories. The feature Layout contains the selection of the basic Instrument Cluster design and the associated content arrangement. There are 3 layouts in total. Depending on the layout selected, the content is either framed on the left and right or is only limited by a diagonal line in the left part of the Instrument Cluster. The Head-Up feature contains settings for the Head-up Display. The Driving Assistance Systems are controlled via the left part of the multifunction steering wheel and, depending on the selected display, are shown as small icons in the Instrument Cluster or entirely in the Assisted View.

Display Size 12,3"

IC OVERVIEW



Features & Content Distribution

The majority of the different elements is arranged in the first third of the infotainment system architecture.

The last elements to be operated are in the third level.

Features

Content

Layout

Head-up

Driving assistance

Number of clickable elements

4,6%

18,2%

77,3%

Infotainment Architecture Depth Level

Level 1

Level 2

Level 3



Overview

The 14.9-inch Head Unit consists of a horizontally oriented display that can be divided into four sections:

- **Lower bar** with shortcuts for the driver's and passenger's climate control, as well as access to the climate menu.
- an **Upper Bar** with shortcuts for Notifications, Traffic information, Data privacy, Media, Mute/unmute, Activation word, BMW ID and the Date and Time settings. It is also possible to pull down a drop-down menu.
- a **left-justified shortcut bar**. If you are on the home page, you have access to the menu, media, phone and navigation. The navigation bar cannot be customised. If you are in certain features, the submenus of the feature are displayed in this left-aligned bar in the form of an icon and the submenu title. If a submenu is selected, it is surrounded by a coloured frame. However, this is not uniform across all features. For example, if you open the Doors and Windows feature, the navigation bar disappears and the submenus are listed in individual tiles in the main area.
- the **main area**, whose design in the BMW OS 8 is characterised by rectangles and tiles and is marked by a background pattern consisting of lines running from the top left to the bottom right. The content of a feature opens from left to right. If a content is selected in a submenu, its view appears in the right part of the Head Unit.



Overview

But how exactly are the homescreen and the menu structured?

The general home screen can be reached at any time via a home icon in the upper left corner.

The home screen itself consists of nine widgets. The content contains categories such as Navigation, Media, Telephone, Personal Assistant, Journey Data, Weather, Route Preview, Traffic on route, Date and time and can be changed. It is not possible to assign the same content to two widgets. Depending on the content of the widget, shortcuts such as the Talk to me area of the Personal Assistant widget also belong to a specific widget.

The menu itself consists of 38 features (software version: 07/2021.60), which, similar to a menu layout on a smartphone, are represented as rectangular icons. Their arrangement can be changed and edited by a longpress.

The user can either display all applications or only the vehicle applications. A search field function is also part of the menu, which should make it easier to find applications.



Overview

However, the icons of the features themselves are not uniform in their design. While some icons are just a white icon on a coloured shaded area, some icons are coloured, such as Android Auto, Weather or Navigation. The colour-shaded background area of the individual icons attempts to generate content groupings of the features, that is:

- **Orange:** Radio, News, USB
- **Menthol:** BMW ID, Mobile Devices, Seat Comfort, Live Vehicle, System Settings, Interior Lighting, Automate Habits, Owner's handbook, Digital Key, Emergency Corridor, Wi-Fi connections; Exterior Lighting, Displays, Driving settings, Doors and Windows
- **Purple:** Navigation
- **Light blue:** Charging
- **Blue:** Weather, BMW Shop, BMW Assistance; Your Service Partner, Country Information
- **Green:** Telephone, Messages
- **Red:** Drive Recorder
- **Grey:** Android Auto, Apple CarPlay
- **Black (corporate design):** Spotify
- **Black and Red:** My Modes
- **Light green (corporate design):** Park now
- **Blue and red:** Climate control

It therefore seems that the colour coding at this point is not yet fully developed which makes an intuitive understanding tough so far.

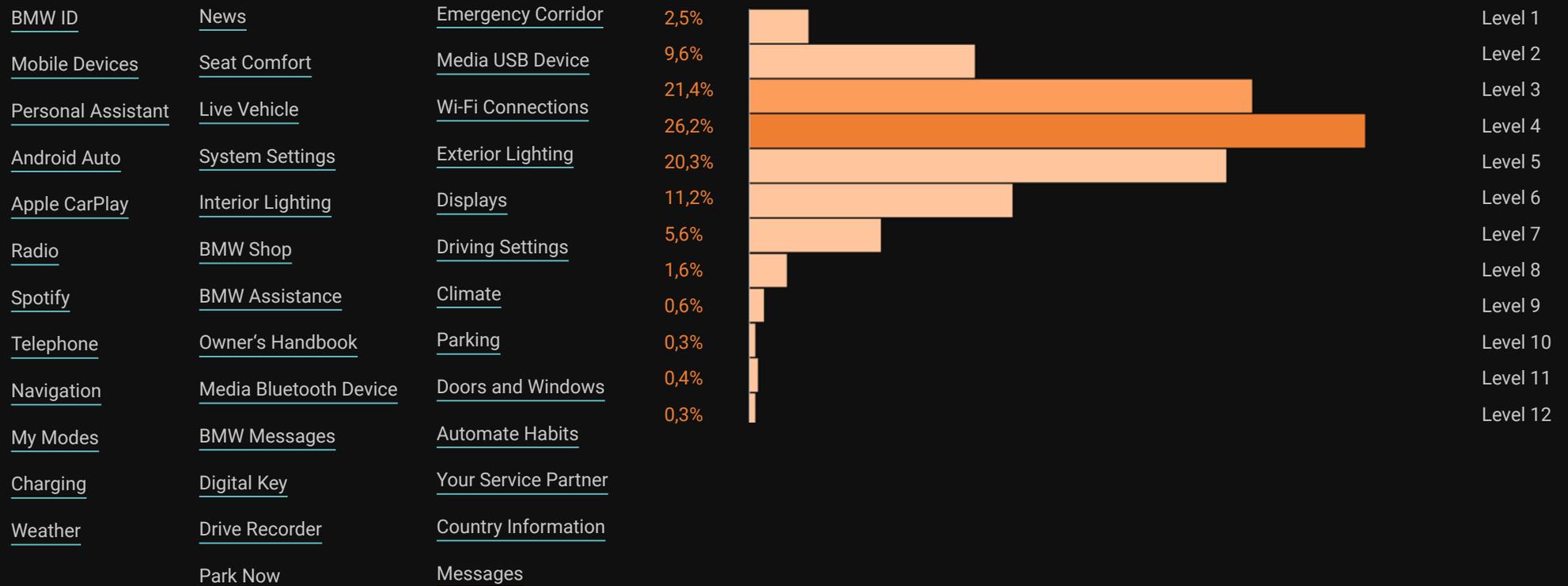


Features & Content Distribution

The majority of the different elements is arranged in the first half of the infotainment system architecture and can be accessed via touchscreen or control unit.

The elements of level 12 are part of the feature Live Vehicle as part of the tyre selection.

Features



Overview

The Head-up Display of the BMW iX is controlled via a menu item in the Instrument Cluster. You can choose between four views which determine the content of the HuD:

- [Standard View](#),
- [Directional View](#),
- [Assisted View](#) and the
- [Reduced View](#).

Based on the selection of the view, the focus is either on the display of standard information such as speed, detected traffic signs and navigation manoeuvres, a supplementary compass display, the animation of the activated [Driving Assistance Systems](#) or a minimalised style. Via the Head Unit, it is also possible to activate the Head-up Display in the first place, to determine the placement and brightness and to specify which content is displayed. This includes selecting which content is to be displayed regarding the distance information and the speed limit assistant. In addition, it can be selected whether content lists of the Telephone and Media features are to be shown [either in the Instrument Cluster or in the Head-up Display](#). It is not possible to display this content in both display units.

HUD OVERVIEW



Steering Wheel



Volume

Instrument Cluster/
Head-up Display control element

Menu

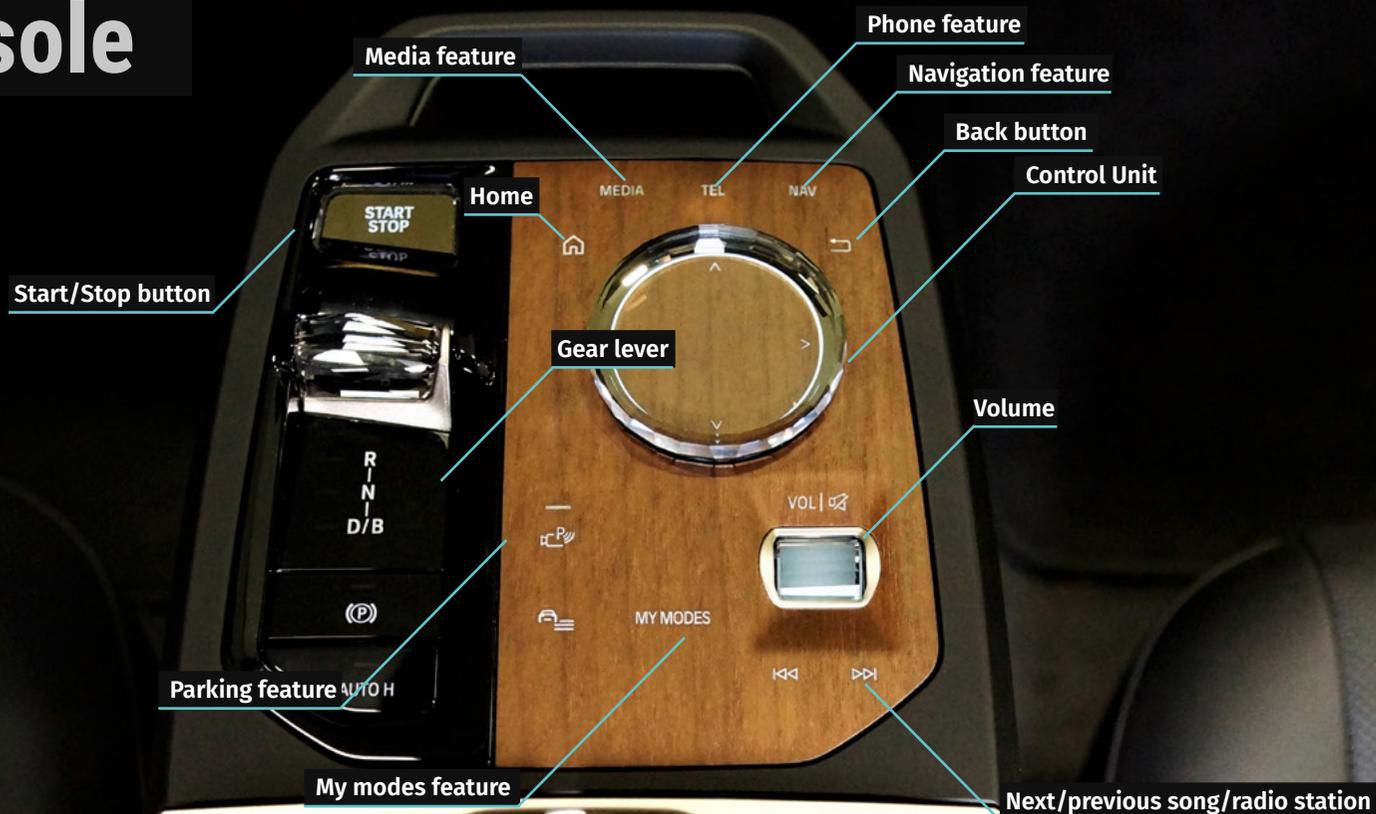
Voice control

Call functions

Distance control/
Assisted driving/
Speed limiter

Activate driving assistance system

Center Console



Equipment Level

xDrive 40

Display Sizes

Head Unit	14.9"
Instrument Cluster	12,3"

Software Version

07/2021.60

Input Modalities

- Touchscreen
- Speech
- Gestic
- Handwritten
- Control Unit

Application

My BMW

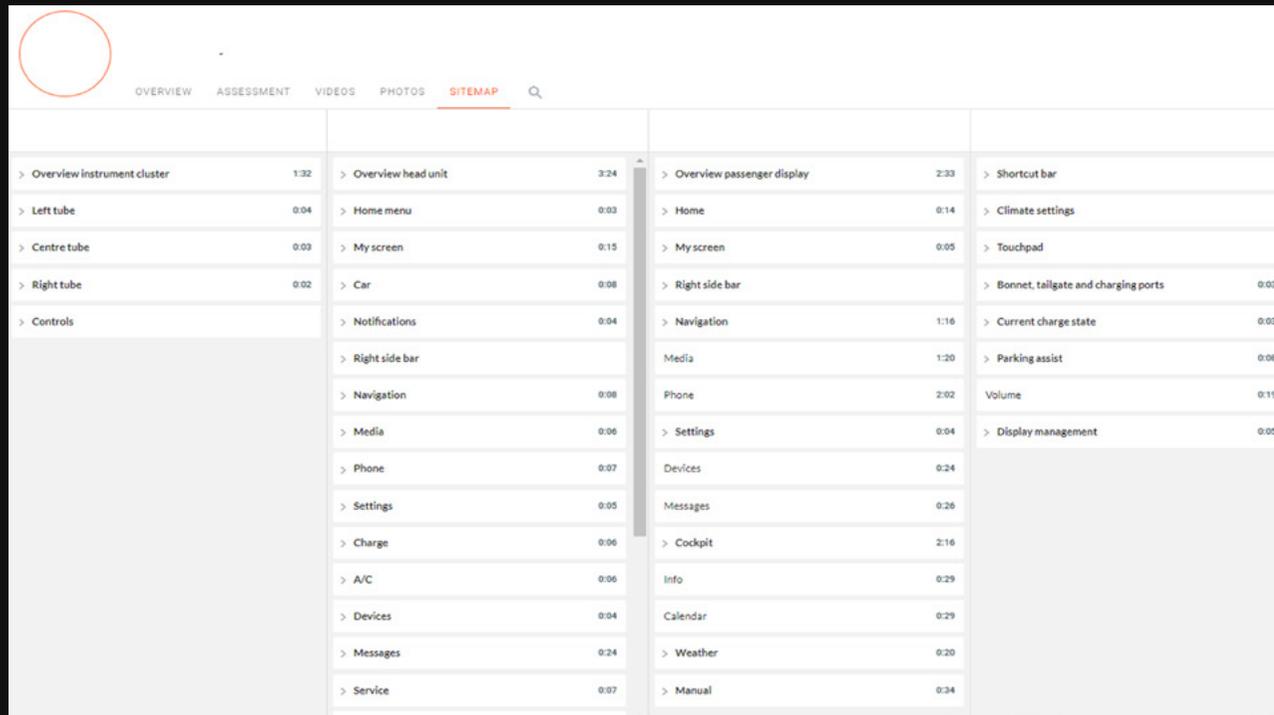
Connectivity



🎥 CAR OVERVIEW

HMI-Sitemap

This HMI tree is an exact copy of all clickable buttons in the infotainment system of this vehicle. To make the structure easier to understand, the **HMI-sitemap** also contains logical layers created by our HMI experts. Those layers do not represent any clickable buttons. Nevertheless, you can follow the original click paths, just as they would be in the actual vehicle. Click on the following link to navigate through the different displays and levels.

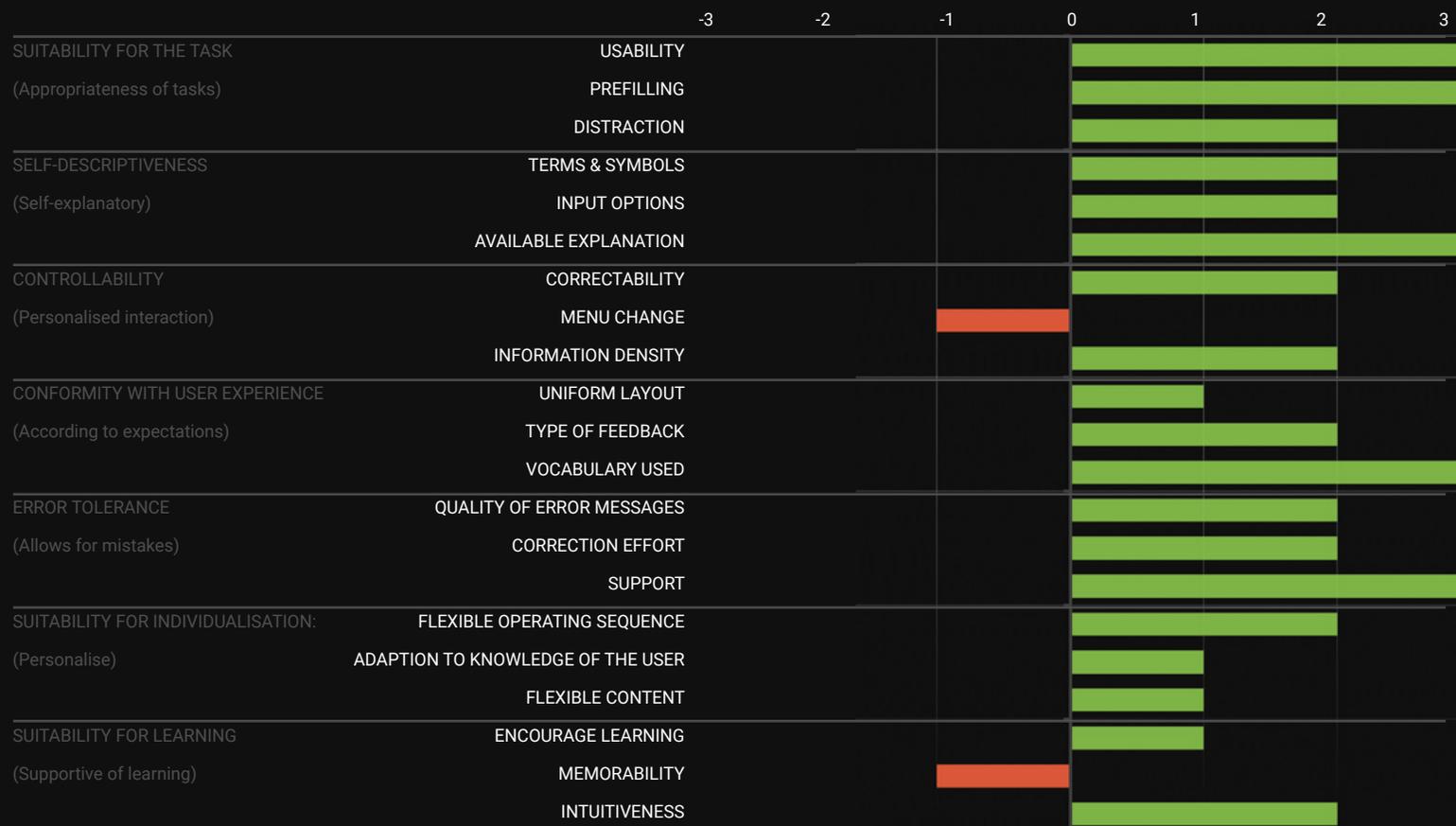


The screenshot displays the HMI-Sitemap interface, which is a hierarchical tree of clickable buttons and logical layers. The interface is organized into four columns, each representing a different display area. The top navigation bar includes a search icon and the following tabs: OVERVIEW, ASSESSMENT, VIDEOS, PHOTOS, and SITEMAP (which is currently selected). The tree structure is as follows:

Display Area	Item	Value
Overview instrument cluster	> Overview instrument cluster	1:32
	> Left tube	0:04
	> Centre tube	0:03
	> Right tube	0:02
	> Controls	
Overview head unit	> Overview head unit	3:24
	> Home menu	0:03
	> Myscreen	0:15
	> Car	0:08
	> Notifications	0:04
	> Right side bar	
	> Navigation	0:08
	> Media	0:06
	> Phone	0:07
	> Settings	0:05
	> Charge	0:06
	> A/C	0:06
	> Devices	0:04
	> Messages	0:24
> Service	0:07	
Overview passenger display	> Overview passenger display	2:33
	> Home	0:14
	> Myscreen	0:05
	> Right side bar	
	> Navigation	1:16
	Media	1:20
	Phone	2:02
	> Settings	0:04
	Devices	0:24
	Messages	0:26
	> Cockpit	2:16
Info	0:29	
Calendar	0:29	
> Weather	0:20	
> Manual	0:34	
Shortcut bar	> Shortcut bar	
	> Climate settings	
	> Touchpad	
	> Bonnet, tailgate and charging ports	0:03
	> Current charge state	0:03
	> Parking assist	0:08
	Volume	0:19
> Display management	0:05	

UX Assessment

The following evaluation is based on the assessment of our HMI experts, who evaluate the overall infotainment system in accordance with the seven criteria of the **DIN EN ISO 9241-110**: Suitability for the task, suitability for learning, suitability for individualization, conformity with user expectations, self-descriptiveness, controllability and error tolerance. If you have any further questions or questions regarding our evaluation, please do not hesitate to contact us.



A new vehicle every three weeks

We have analyzed over 350 vehicles and selected the most interesting ones in terms of infotainment systems. Currently we are providing a new vehicle in the database **screens** every three weeks. We will increase the number of units as soon as we can offer vehicles, available on the American and Asian markets in addition to the European market as well.



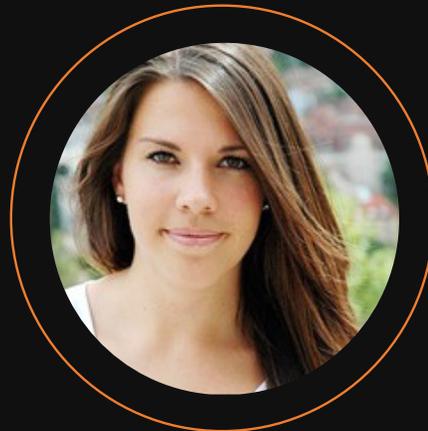
CW 4

Mercedes-Benz EQS

Feel free to contact our experts!

Do you have questions, suggestions, praise or criticism?

Do not hesitate to contact us! We spend almost 24/7 in the car and know (almost) everything about infotainment systems. You wouldn't believe how motivated we are to share this knowledge with you.



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