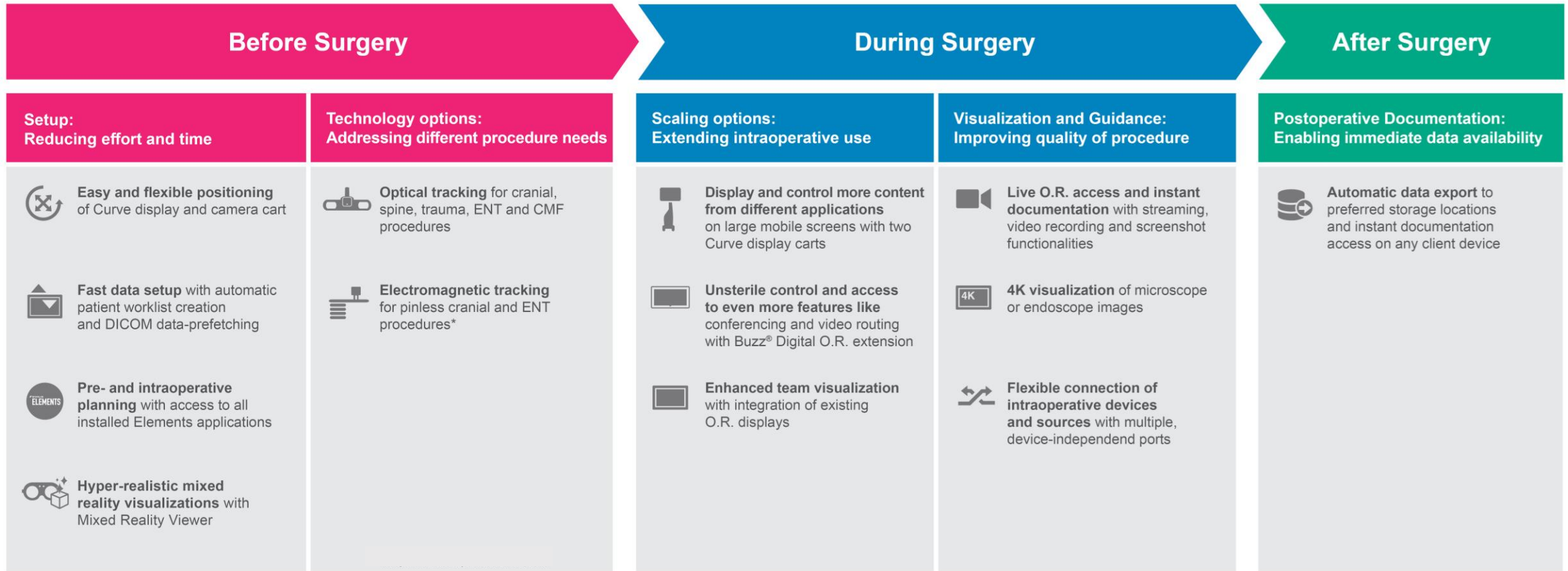# Curve®

Navigation

BRAINLAB

Curve into Digital Surgery

Curve Navigation is our most powerful and versatile image guided surgery platform that offers more than navigation—it's your mobile entry into digital surgery and simplifies workflow steps before, during and after the procedure.

With a light-weight cart featuring an extra large 4K display, you can plan, review, document and stream your surgery from anywhere in the O.R.

Curve Digital Surgery Workflow

Before Surgery		During Surgery		After Surgery
Setup: Reducing effort and time	**Technology options:** Addressing different procedure needs	**Scaling options:** Extending intraoperative use	**Visualization and Guidance:** Improving quality of procedure	**Postoperative Documentation:** Enabling immediate data availability
Easy and flexible positioning of Curve display and camera cart	**Optical tracking** for cranial, spine, trauma, ENT and CMF procedures	**Display and control more content from different applications** on large mobile screens with two Curve display carts	**Live O.R. access and instant documentation** with streaming, video recording and screenshot functionalities	**Automatic data export** to preferred storage locations and instant documentation access on any client device
Fast data setup with automatic patient worklist creation and DICOM data-prefetching	**Electromagnetic tracking** for pinless cranial and ENT procedures*	**Unsterile control and access to even more features like** conferencing and video routing with Buzz® Digital O.R. extension	**4K visualization** of microscope or endoscope images	
Pre- and intraoperative planning with access to all installed Elements applications		**Enhanced team visualization** with integration of existing O.R. displays	**Flexible connection of intraoperative devices and sources** with multiple, device-independend ports	
Hyper-realistic mixed reality visualizations with Mixed Reality Viewer				

*EM tracking not yet commercially available in the USA

53 cm / 21"

41 cm / 16"

Small
Footprint

Easily wheel the slim and light-weight display cart into the O.R. and bring it into its desired position

32"

Big
Picture

- The large 32" touch display provides 40% more viewing space compared to a 27" screen, allowing for clear viewing from any position in the O.R.
- 4K resolution offers 4 times more pixels compared to full HD for greater detail

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204 cm/
80.3"

128 cm/
50.4"

27.5°
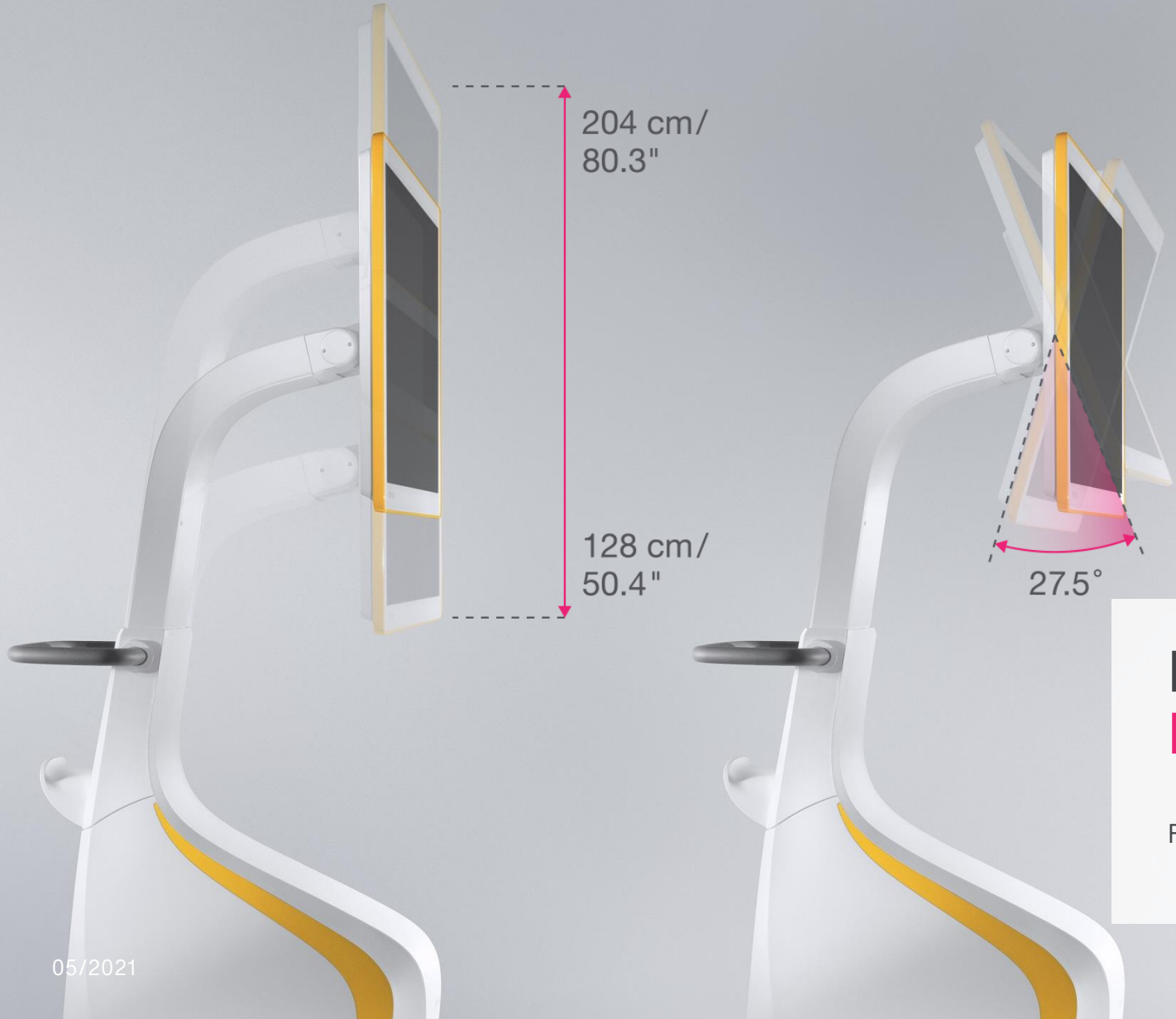
Display
Position

Flexibly adjust display height and tilt to suit your setup

05/2021

250 cm/
98.4"

100 cm/
39.4"

Camera
Setup

Position camera high or low to ensure an uninterrupted
line of sight

05/2021

±100°

±60°

**Camera
Alignment**

- Remotely align the motorized tracking unit via touch display
- The built-in HD video camera provides a large field of view for fast and easy fine adjustment*

05/2021

*Not yet commercially available

Data
Pre-Loading

Automatic patient worklist creation and DICOM data-prefetching reduce wait times before surgery*

05/2021

*Requires Origin Server Software
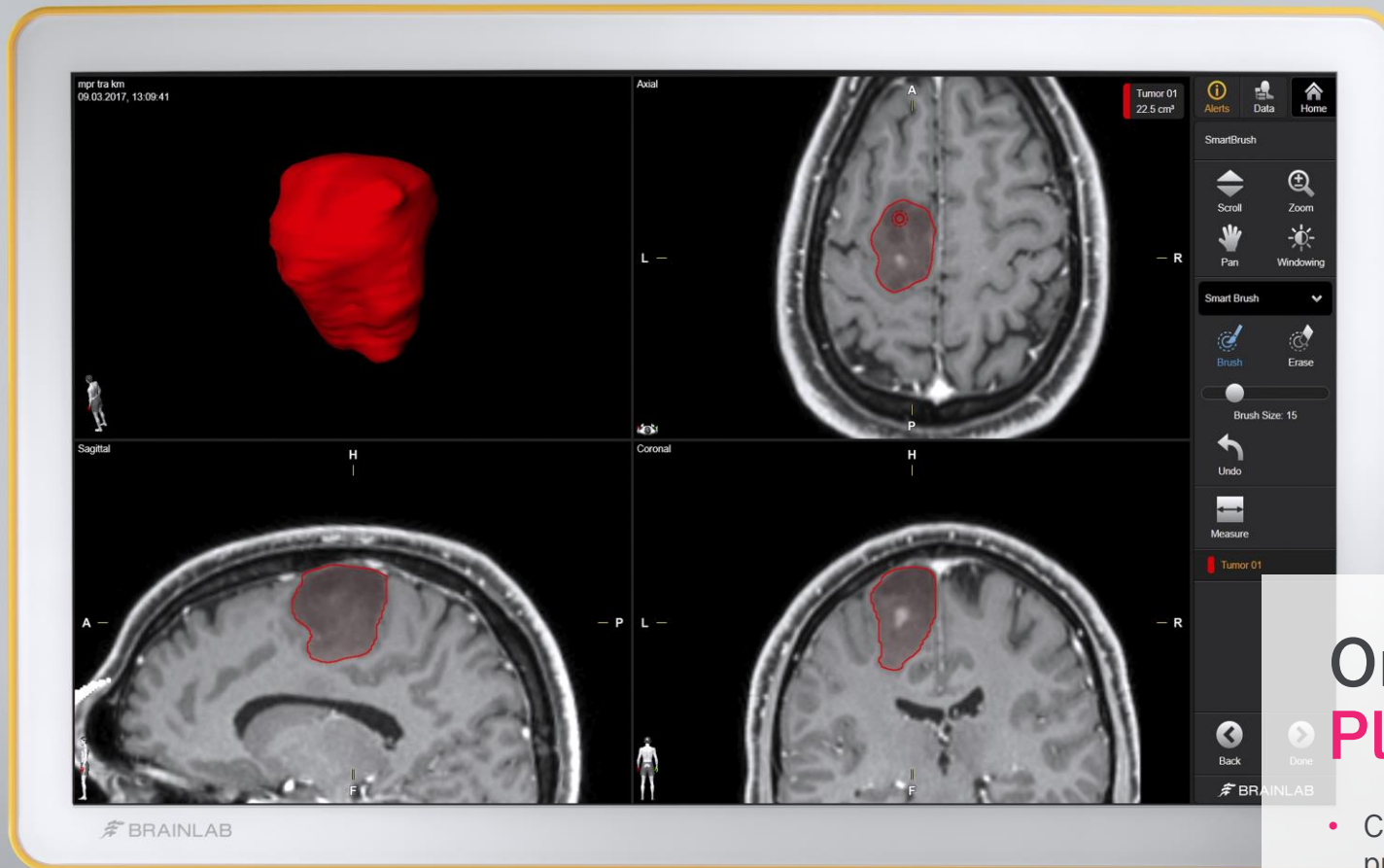
On-the-fly
Planning

- Create and optimize plans right before or even during the procedure with O.R. access to any installed Elements software
- Continue planning exactly where you left off using sleep mode, e.g. for system transport

05/2021
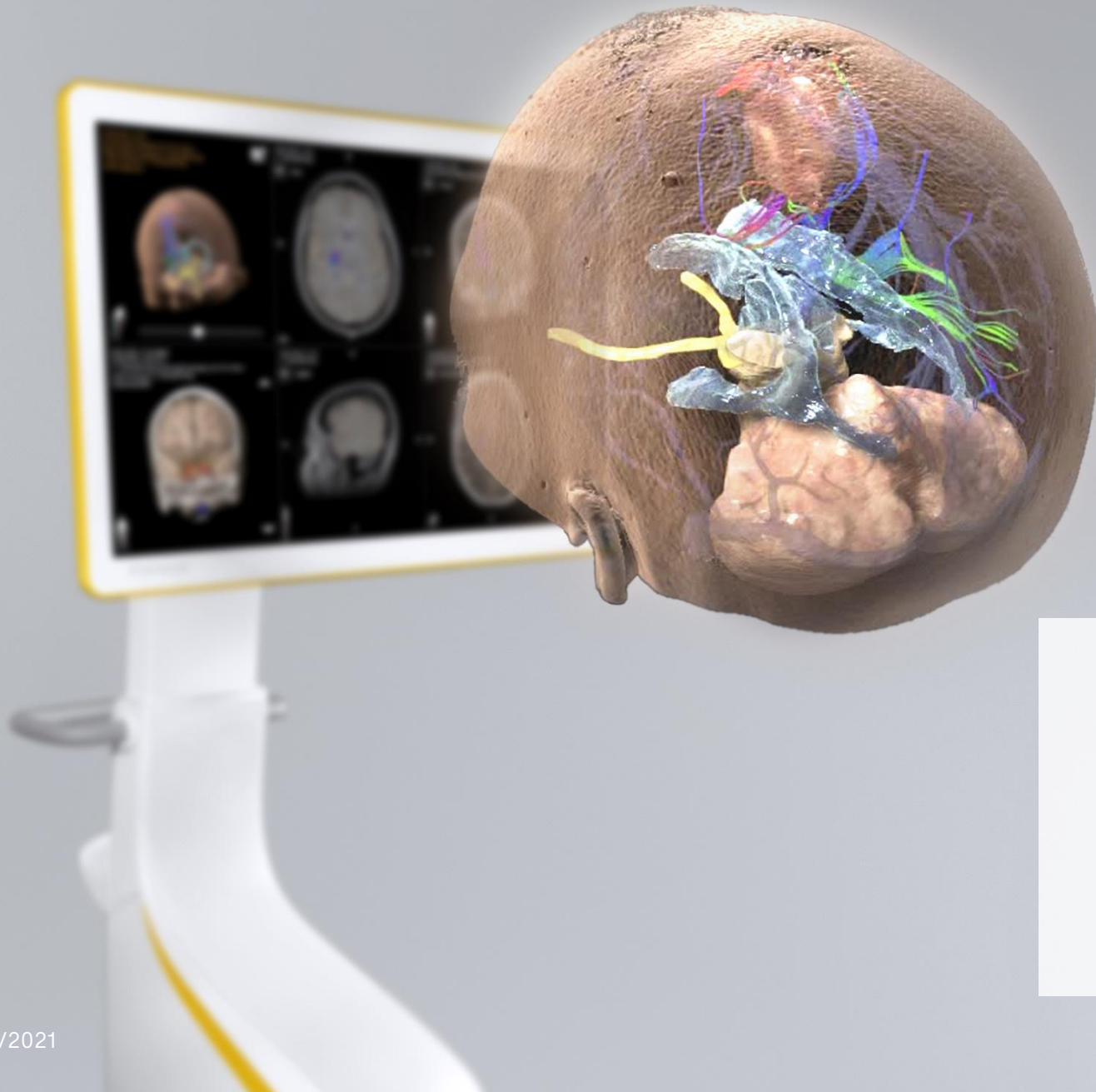
Mixed
Reality

Utilize Curve with the Mixed Reality Viewer to bring hyper-realistic mixed reality visualizations from the screen into the room

05/2021
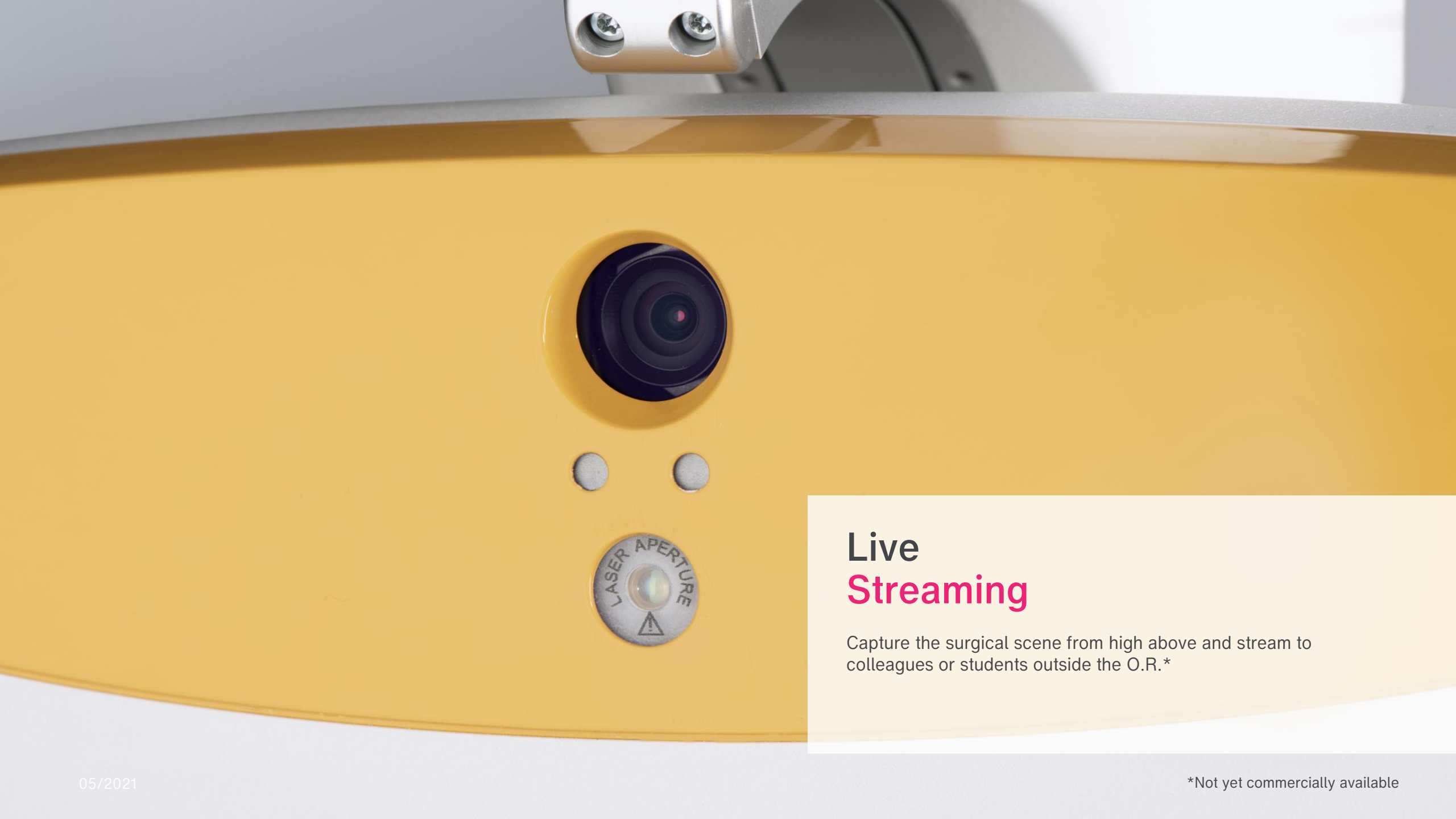
Live
Streaming

Capture the surgical scene from high above and stream to colleagues or students outside the O.R.*

*Not yet commercially available

Device
Integration

- Flexibly connect devices—from intraoperative imaging to Cirq® Robotics

- Curve recognizes certain devices like intraoperative ultrasound and automatically switches applications

High Resolution
Video

Experience a new level of detail with 4K microscope and endoscope images

Augmented
Reality

Inject surgical plans into the microscope head-up-display for augmented reality navigation

Live Imaging
Navigation

- Navigate in real-time with intraoperative ultrasound comfortably using two datasets on the large 32" display
- Overlay navigated 2D and 3D ultrasound images on preoperative data to instantly identify and assess brain shift

05/2021
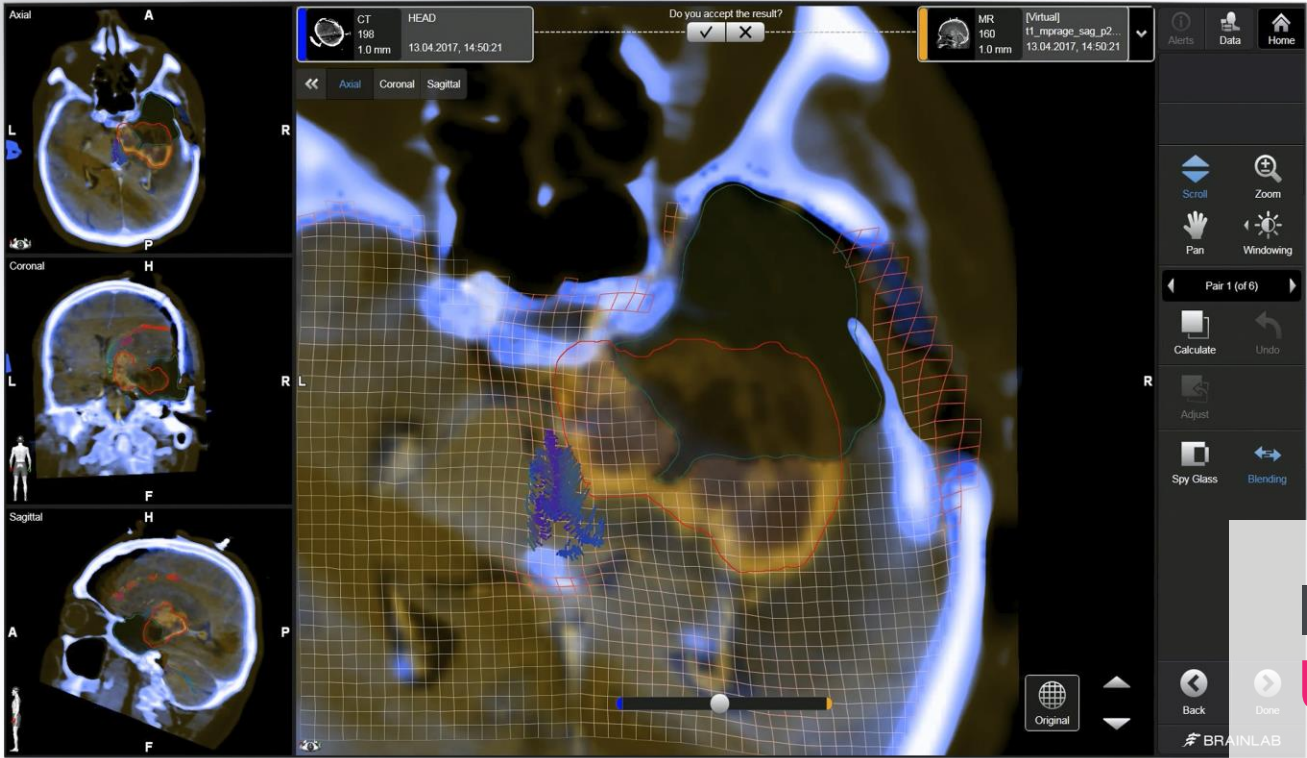
Intraoperative
Update

Thanks to its processing power, surgical plans are swiftly updated based on intraoperative CT images with Elements Virtual iMRI Cranial
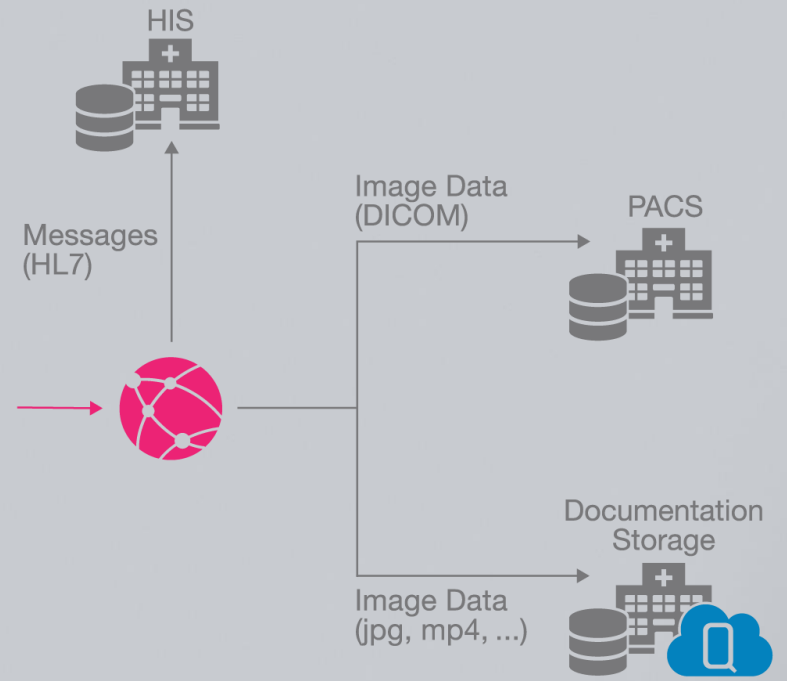
05/2021
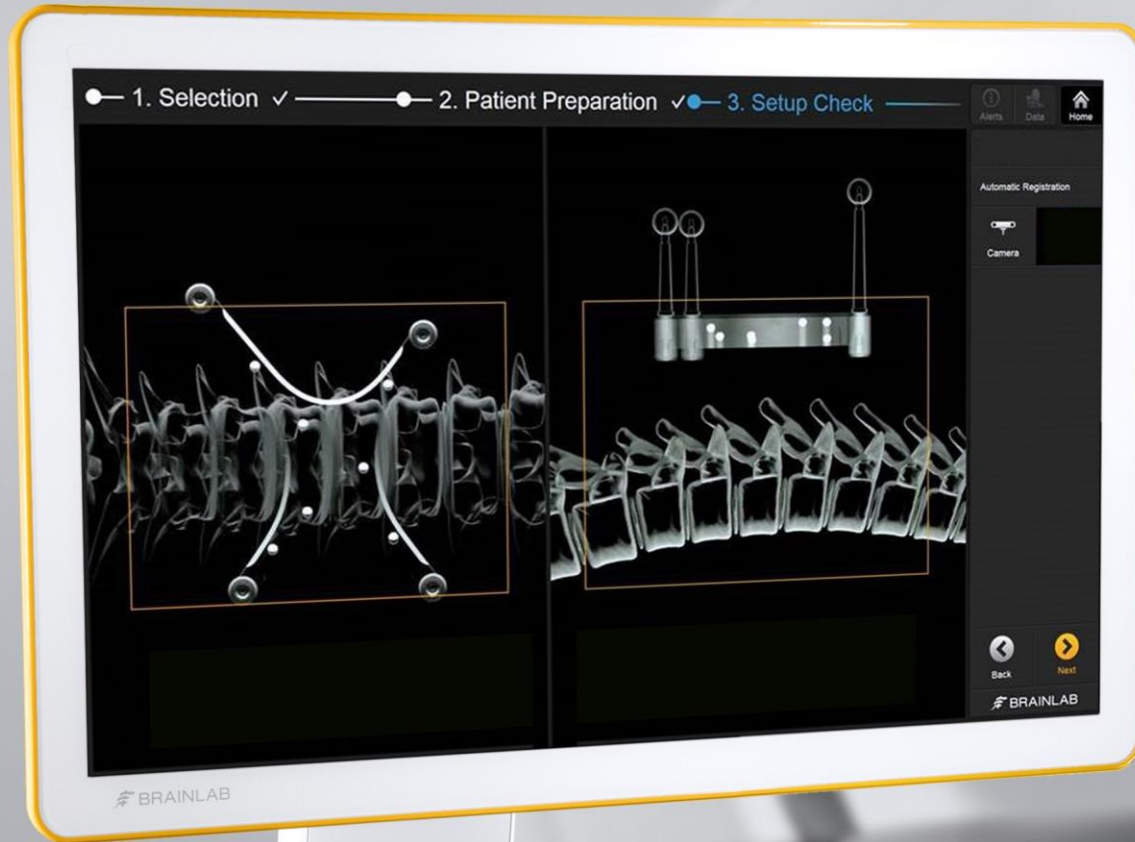
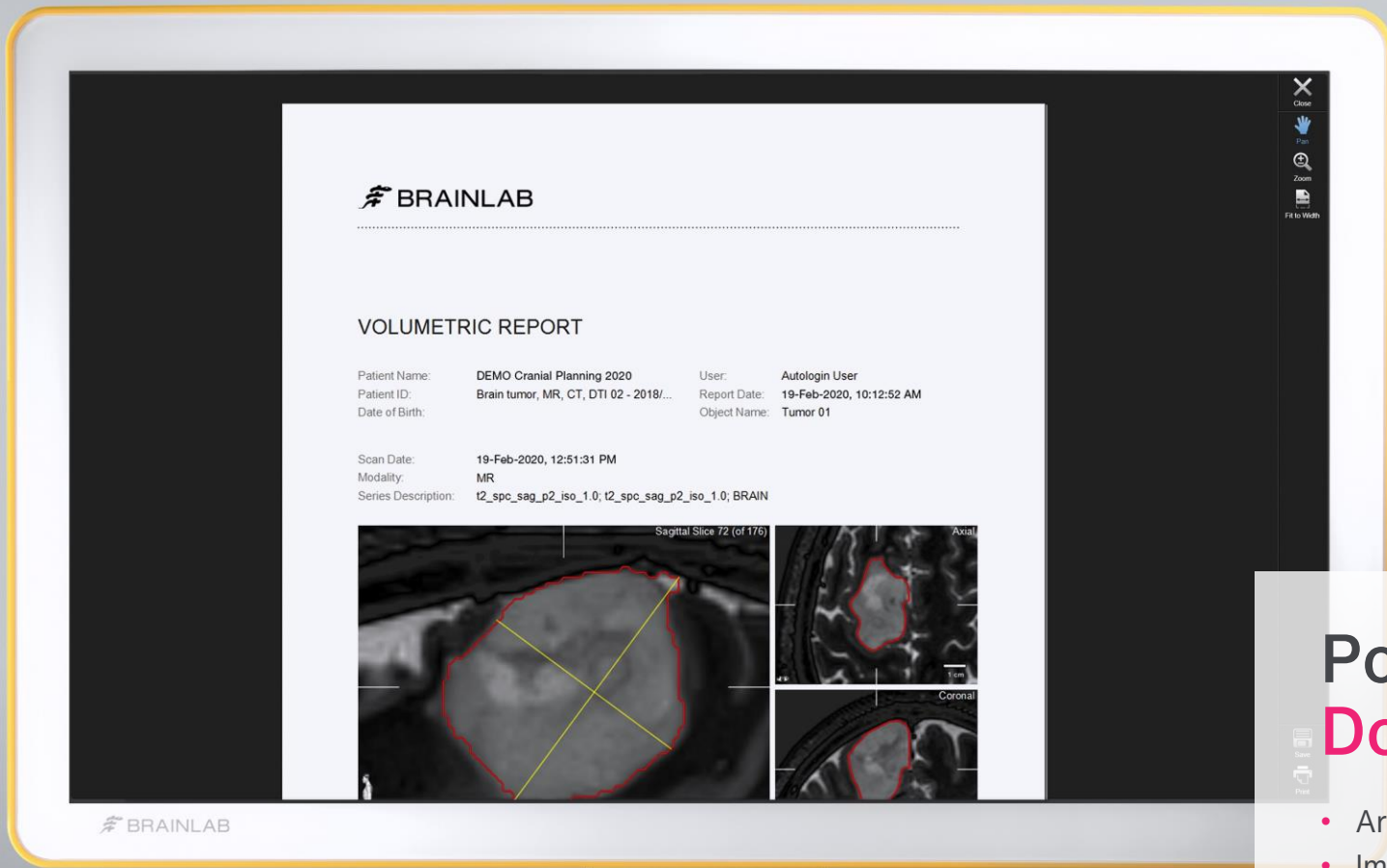# Automatic Image
Registration

Navigate on intraoperative scans immediately after acquisition and regardless of modality thanks to Automatic Image Registration
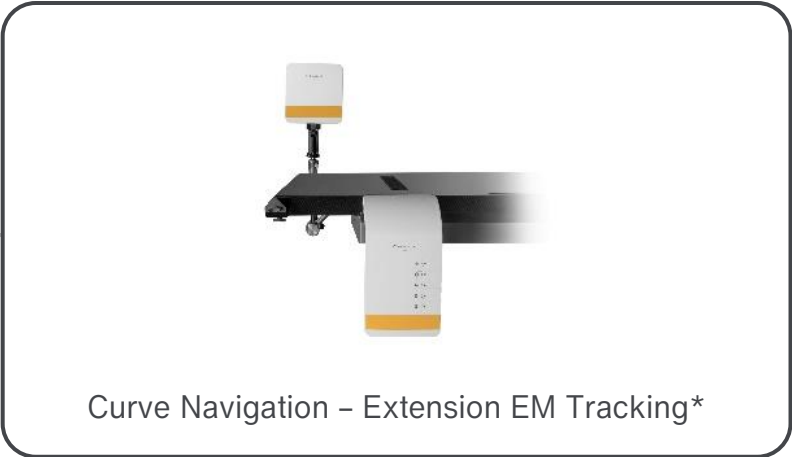
05/2021

Mobile Robotic
Imaging

- Bring automation into system positioning, imaging and verification with Loop-X Mobile Imaging Robot
- Enhance spinal surgery workflows with extra-large, high quality intraoperative 2D and 3D scans

HIS

Messages
(HL7)

Image Data
(DICOM)

PACS

Documentation
Storage

Image Data
(jpg, mp4, ...)

VOLUMETRIC REPORT

Patient Name:	DEMO Cranial Planning 2020	User:	Autologin User
Patient ID:	Brain tumor, MR, CT, DTI 02 - 2018/...	Report Date:	19-Feb-2020, 10:12:52 AM
Date of Birth:		Object Name:	Tumor 01

Scan Date:	19-Feb-2020, 12:51:31 PM
Modality:	MR
Series Description:	t2_spc_sag_p2_iso_1.0; t2_spc_sag_p2_iso_1.0; BRAIN

Postoperative
Documentation

- Archive all data manually or automatically*
- Immediately access exported files on any client device for review or patient consultation

05/2021

*Requires Origin Server Software

Platform Extensions

Curve Navigation System

+

Curve Navigation – Extension EM Tracking*

+

Curve Navigation – Extension Display Cart

*EM tracking not yet commercially available in the USA

Platform Extensions

Curve Navigation System EM*

Curve Navigation – Extension Optical Tracking

Curve Navigation – Extension Display Cart

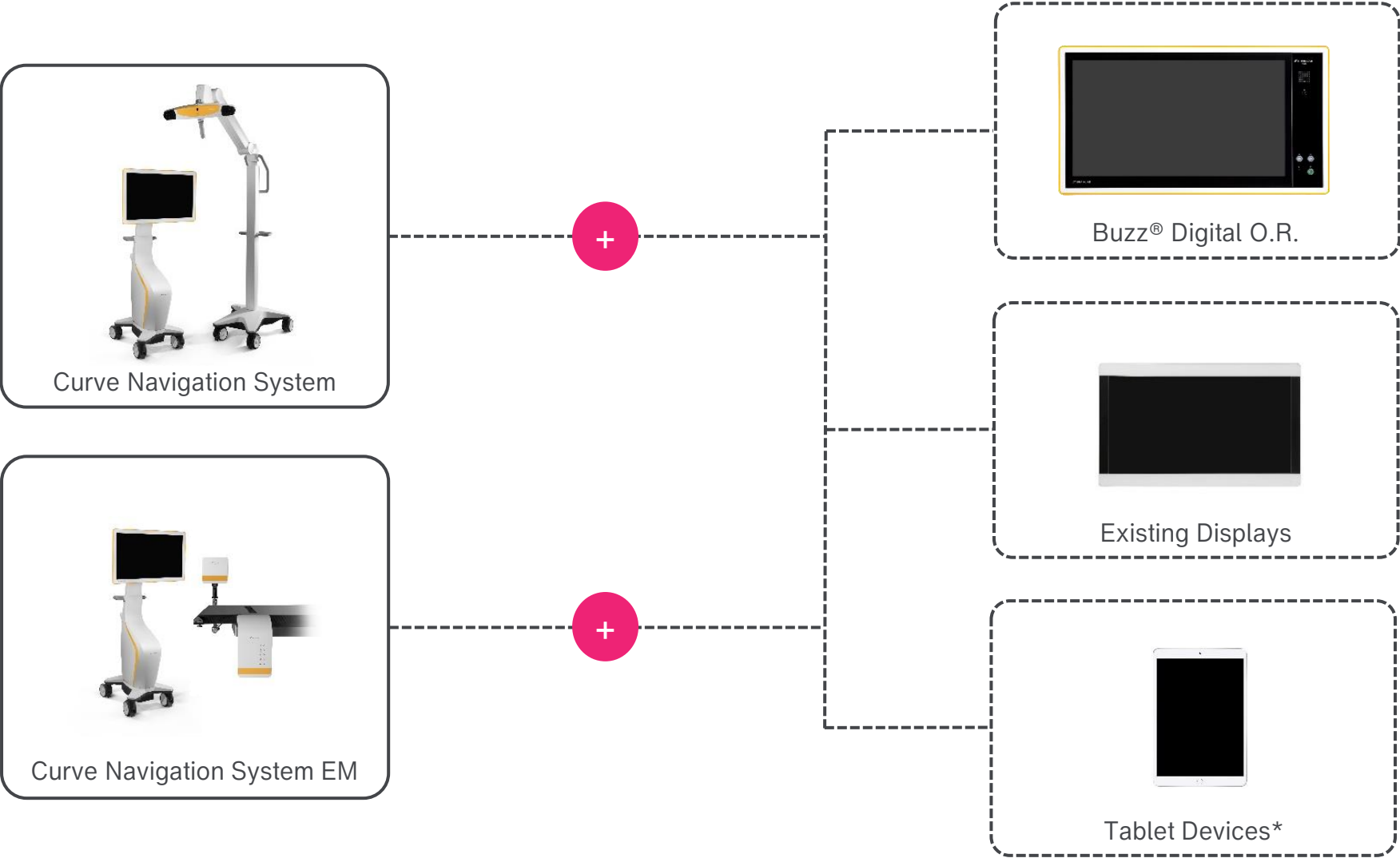*EM tracking not yet commercially available in the USA

Pair
Up

- Flexibly extend your setup with a second display cart to double visualization and control
- Two positions, twice the content—set up each Curve display with the applications you need
- Control each cart in the sterile field with display drapes

Electromagnetic
Navigation

- Choose to add EM tracking* to perform pinless procedures
- Large tracking volume and articulated arm allow for flexible setups

05/2021

*EM tracking not yet commercially available in the USA

Screen Extensions

Curve Navigation System

Curve Navigation System EM

Buzz® Digital O.R.

Existing Displays

Tablet Devices*

*Not yet commercially available

Team
Access

Add Buzz® Digital O.R. for additional access to the Curve screen, conferencing and more on a large 42" unsterile wall screen
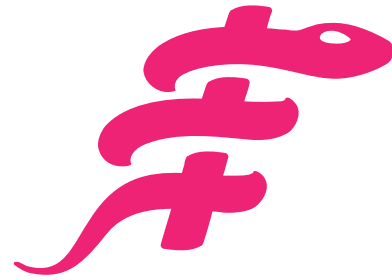
Screen
Integration

Connect up to two external viewing displays for efficient, customized data visualization

Wireless
Control

Easily take over control with a tablet* at any time during the procedure

05/2021

*Not yet commercially available

brainlab.com