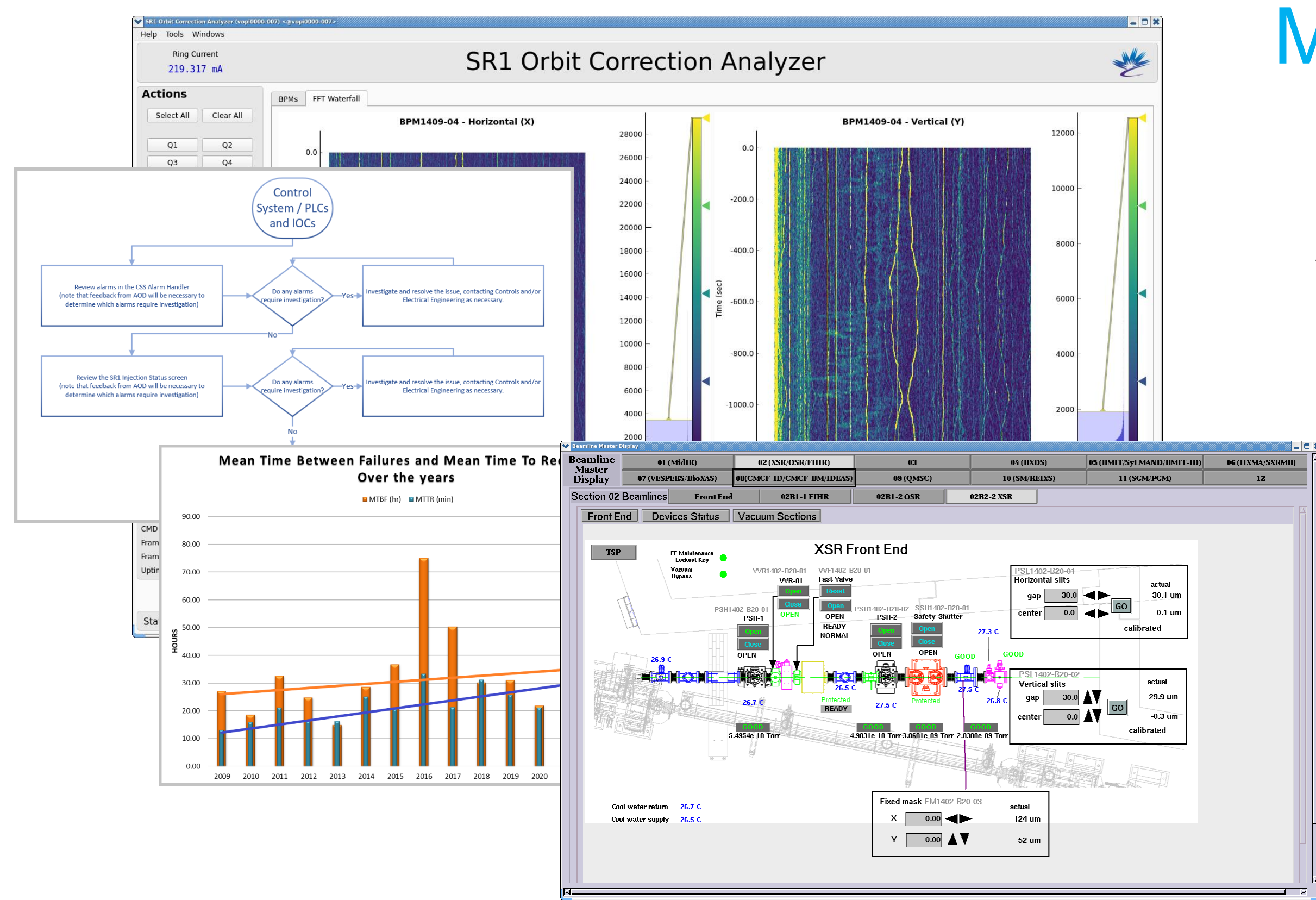# Operation Visual Aids
Tools that help accommodate cognitive ergonomics

Alexander Nikolaichuk, Canadian Light Source (CLS)

WAO 2023

Visual aids play a crucial role in the operation of CLS, providing valuable information to scientists, engineers, and operators in an easy to read and understandable form.

- Real time data about the machine's parameters and diagnostics
- Ionizing radiation monitoring systems help ensure safety
- Statistics charts help determine trends in equipment reliability
- Use of flow charts help improve usability and efficiency

VISUALS VS TEXT

65% of individuals learn best through visual means.

90% of the Information transmitted to the brain is visual.

The use of visuals has been found to improve learning by up to **400%.**

Visuals are Processed **60,000 times Faster** than text alone.

https://www.educationtoday.com.au/images/news/attach/news-5653-01.jpg
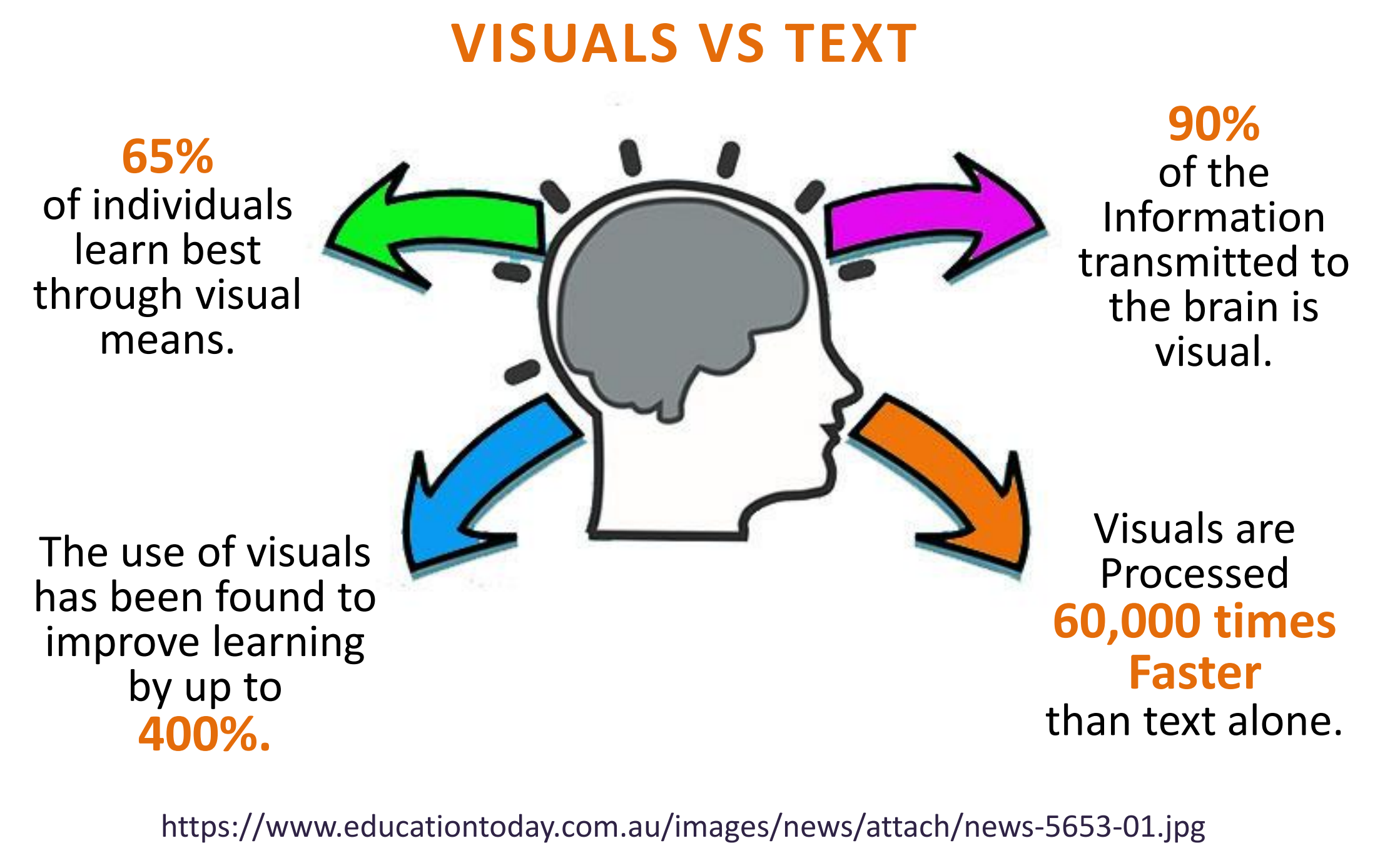
Monitoring

Operators' group mostly consists of representatives of two latest generations, who prefer visual learning and communication.

- Routine checks of the accelerator systems
- Instructions in the WIKI
- 24/7 support on a call basis
- Screens development accounting for cognitive ergonomics
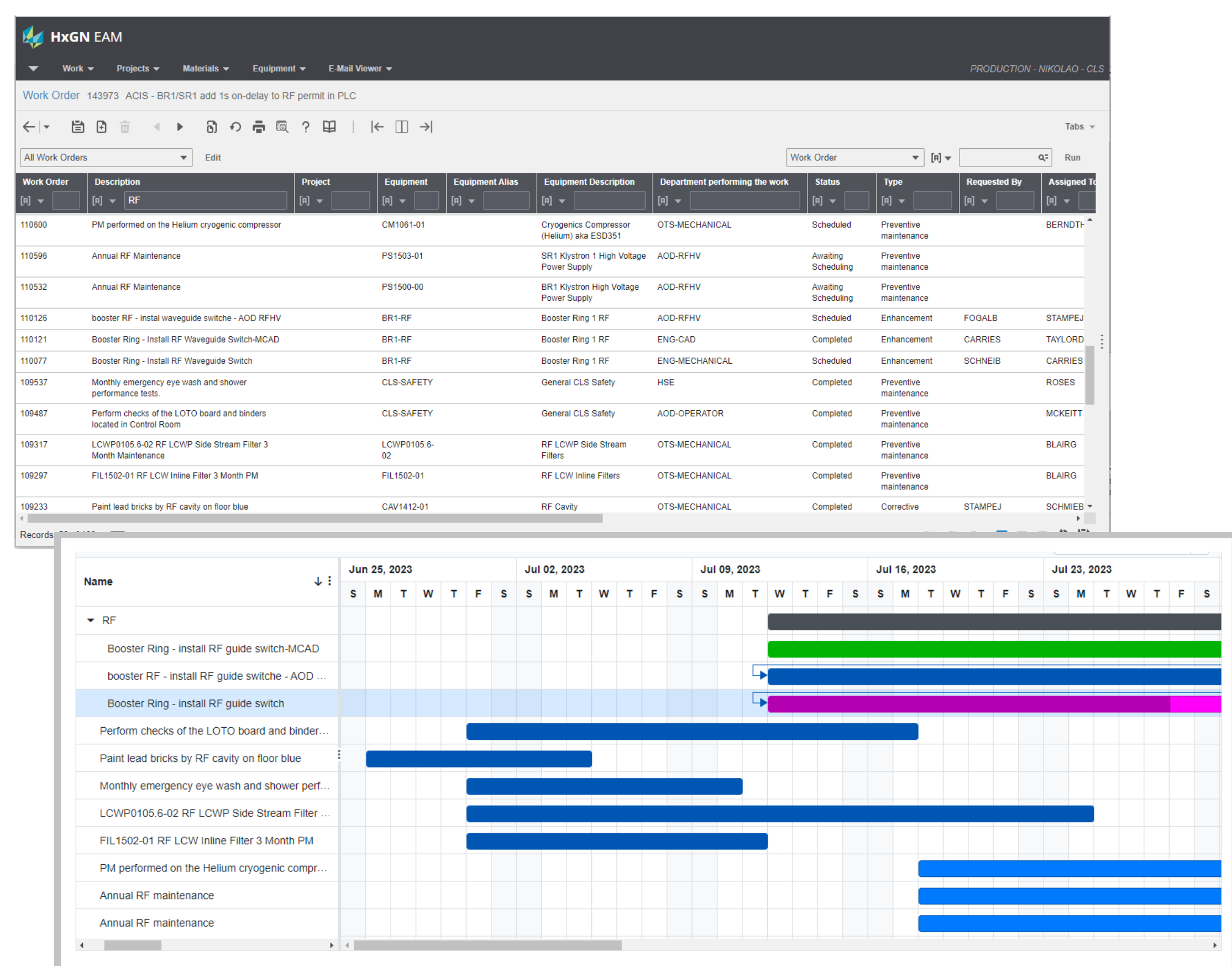- Operators participate in control screens improvement

Software

Real customization of control screens was achieved after Dr. Mike Bree introduced his ScreenBuilder app to the operators' group at CLS.

- Individuals design and layout their control screen
- Data can be grouped together for intuitive navigation
- Users choose appropriate user interface elements
- Colours can be chosen individually
- Python friendly
- CNSC audit pointed out the strong point of the personalized screens

Coordination

There is in development a Maintenance Activities Coordination online application. The application would visualize machine maintenance activities in the form of a Gantt chart.

- Easy to identify cross scheduled maintenance activities
- Maintenance tasks, repairs, inspections, and other activities
- Possible interferences of dependent activities
- Logical and safe sequence
- Expansion of EAM software functionality
- Shareable with stakeholders, team members, and anyone involved
- Enhance communication, transparency and the overall systems readiness

lightsource.ca