Bridging the Divide: Telepresence Robots in GLAMs for Inclusive Information Access in a Smart Society

Keynote Speech

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Starting Point

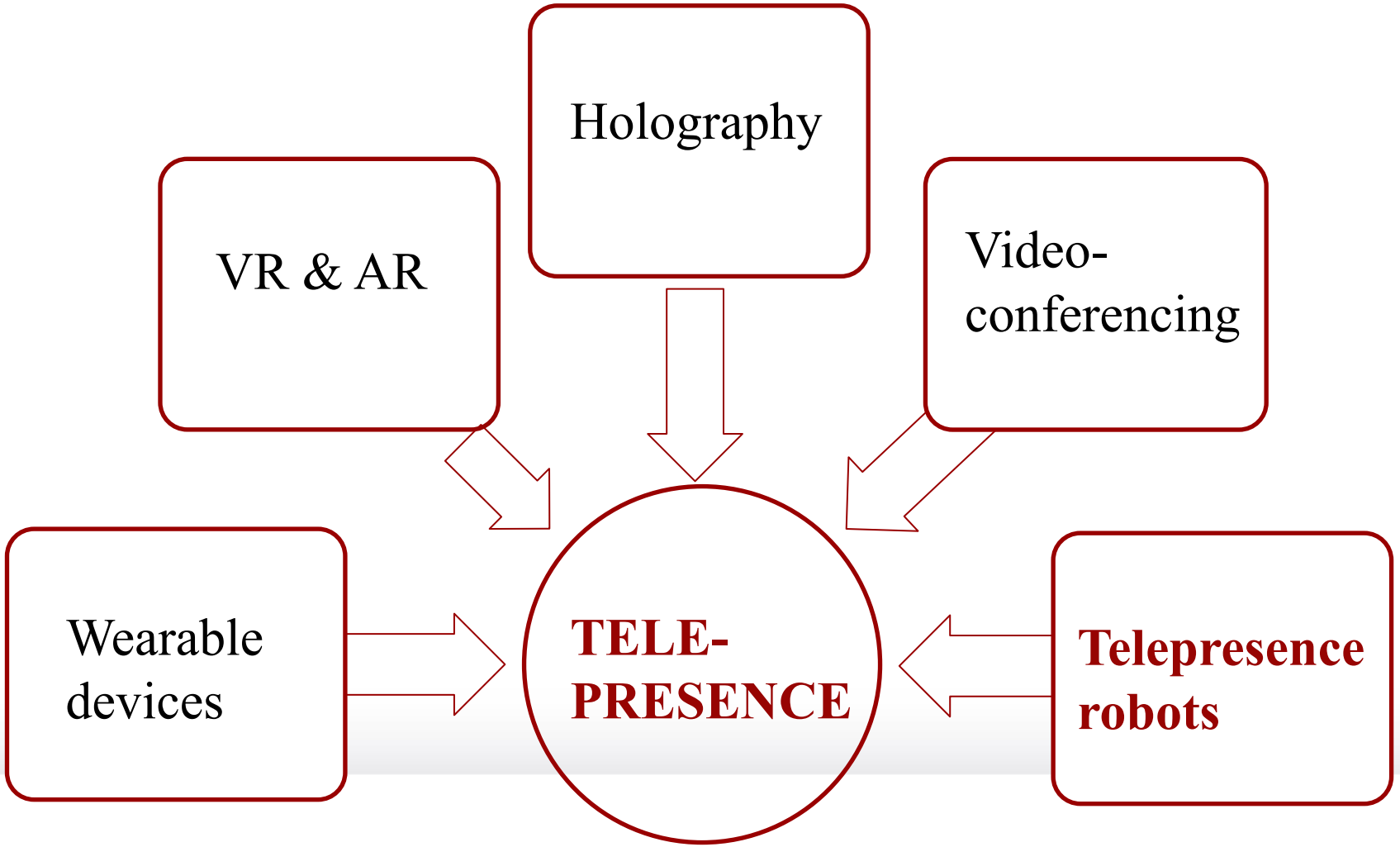
- Libraries and other memory institutions have always been places where people can access knowledge, learn diverse things, and protect our collective wisdom and cultural heritage for the future.
- However, with the rapid advancements in technology and the growing demand for remote access to information and services, GLAMs are faced with the challenge of providing inclusive services beyond their physical boundaries.

Telepresence

- In this regard, telepresence offers solutions for the GLAM sector.

Telepresence, originally coined by Marvin Minsky (1980), refers to the utilisation of multimedia elements such as sound, vision, and touch to authentically replicate the experience of being physically present in a remote physical location.

Telepresence



Telepresence

Telepresence robots are mobile wheeled devices controlled remotely and equipped with a wide array of interactive features such as cameras, speakers, microphones, screens, and sensor-assisted motion control that facilitate smooth communication and remote collaboration.

TPRs provide not only the capability for the operator to see, hear, and communicate through the technology but also to navigate and explore the desired surroundings.

Examples of Telepresence Robots

Examples of Telepresence Robots

Ohmni

Double 3

Ava

Kubi Classic

Meeting Owl Pro 360

Some of the best TPRs of 2022 include Ohmni Robot by OhmniLabs, Double 3 by Double Robotics, Ava by Ava Robotics, Meeting Owl Pro 360 by Owl Labs, and Kubi Classic by Kubi

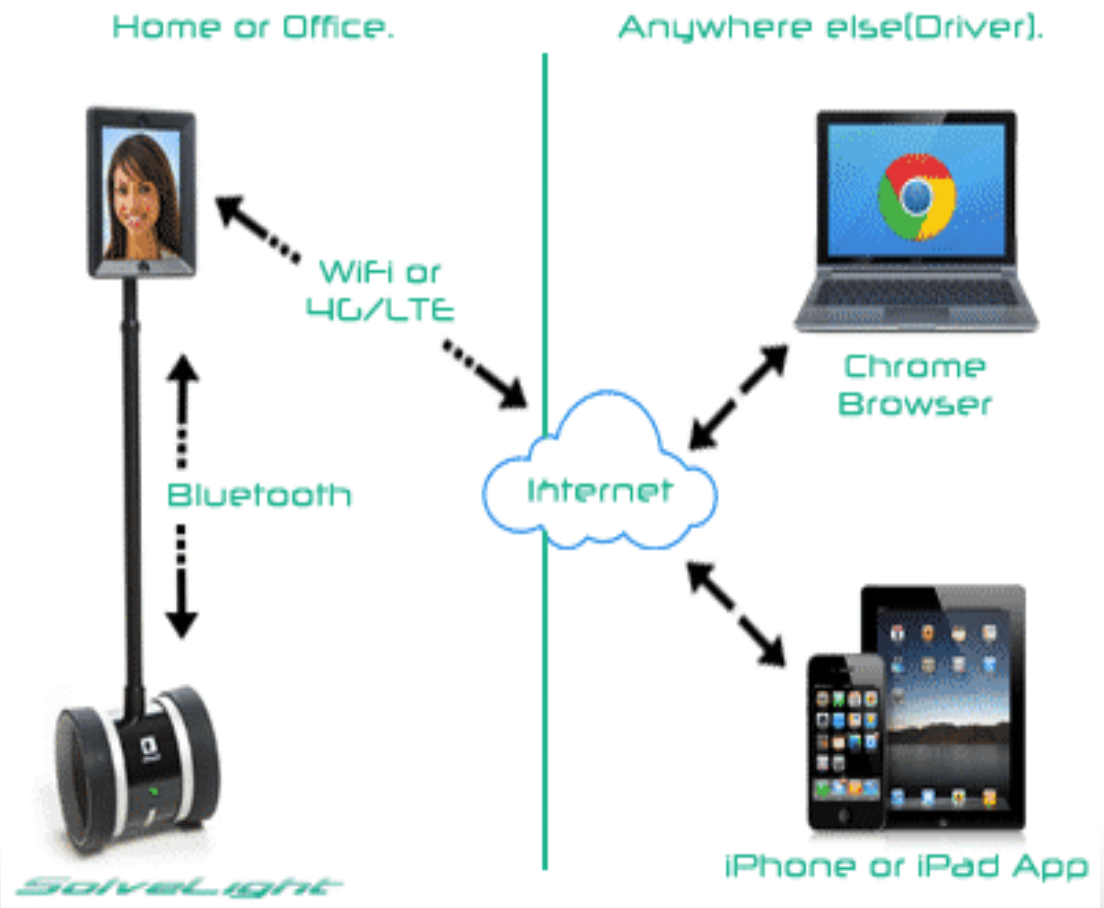
Examples of Telepresence Robots

Ohmni

Double 3

Temi

Examples of Telepresence Robots



The use of TPRs

Benefits & Limitations of TPRs

Benefits

- Remote Presence
- Cost and Time Savings
- Flexibility and Accessibility
- Improved Collaboration
- Increased Engagement
- Enhanced Learning Experience
- Remote Inspections and Monitoring
- Personal and Family Use
- Security
- Global Connectivity

Limitations

- Cost
- Internet Connectivity and Reliability
- Limited Autonomy
- Physical Limitations
- Social Acceptance
- User Experience and Adaptation
- Privacy and Security Concerns
- Latency and Delay

References

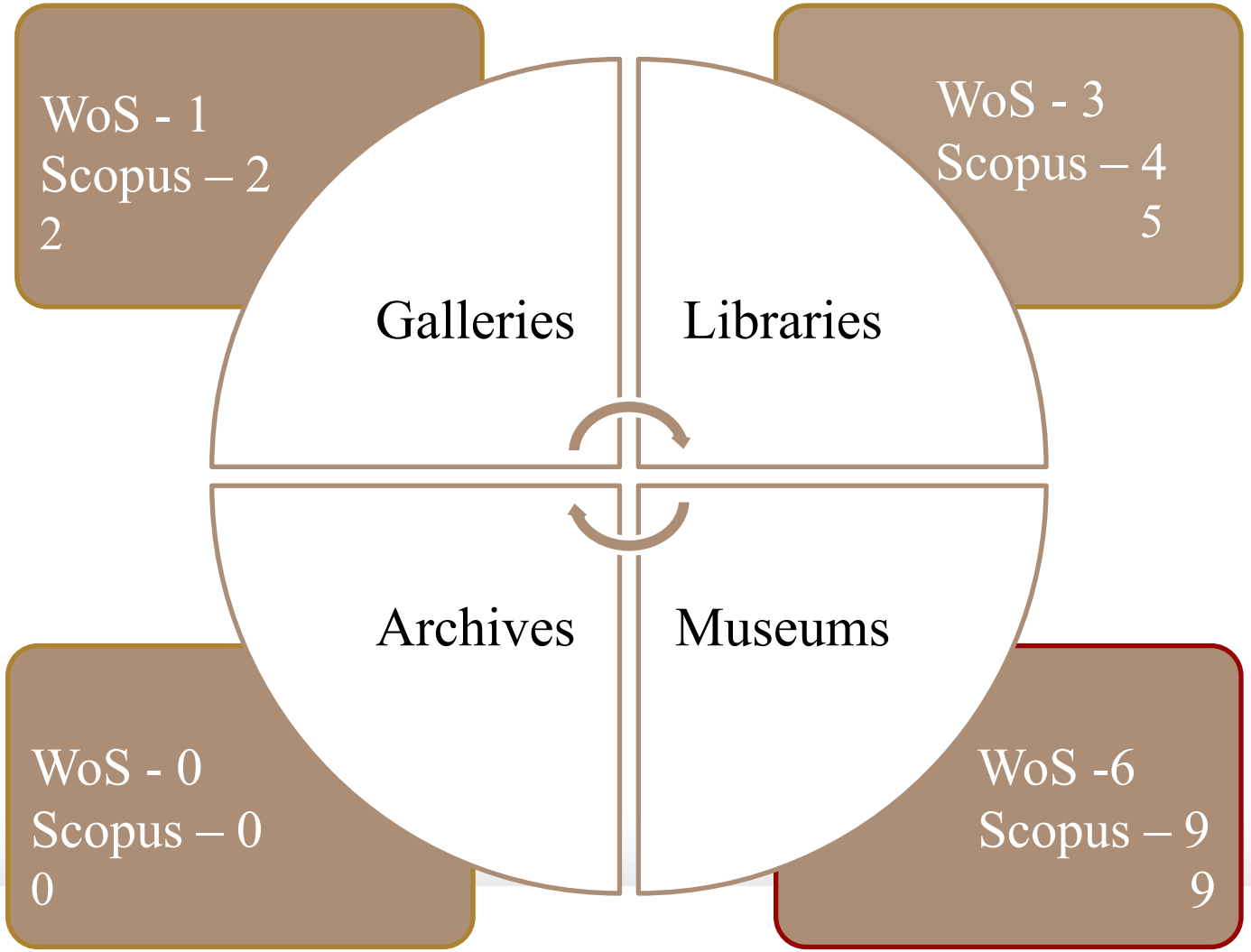
TPRs still remain as **novelty** for early adopters.
In comparison to other technologies such as videoconferencing, the use of TPRs has not yet achieved mainstream adoption in professional settings (Reis et al. 2019).

Lei et al. (2022) further emphasised that the acceptance of TPRs is hindered by **low perceptions of usefulness.**

For the successful adoption of TPSs more widely, it is important that everyone in a public space feels comfortable around them, understand what they are and are happy to interact with them and help them if needed (Boudouraki et al. 2020).

Results: Web of Science & Scopus

The use of TPRs in the GLAM sector has been little discussed in the literature.



16 publications

TPRs in Libraries

- Virtual Assistance
- Remote Reference Services
- Virtual Tours
- Guest Author Talks and Events
- Remote Storytelling Sessions
- Distance Learning Support
- Virtual Meetings and Collaboration
- Interlibrary Collaboration
- Accessibility Support
- Library Outreach
- Serving multiple locations

TPRs in Libraries

- Western Michigan University Library introduced TPRs in 2015 and was the early adopter in testing the collected data on its perceived usefulness (Guth & Vander Meer, 2017).
- Central Library at the University of Texas - Arlington, hosted a robot petting zoo in April 2015 and had a programme where distance users could check out a TPR to meet with people and attend events (Guth and Vander Meer, 2017)
- The Mary Idema Pew Library, in collaboration with the IT Department, at Grand Valley State University houses the Atomic Object Beam Technology Showcase, a space where students can experience emerging tech on display, including TPRs (Raths, 2015).

TPRs in Libraries

- Atlanta University Center experimented with the VGo robot in a variety of applications including using it as a tour guide for new or prospective students (Decker, 2015).
- Baylor University used the VGo robot to allow K- 12 students in Texas to tour the library, including an educational exhibit, without the need to organize a full-scale field trip (Logan, Orr, Holgersson, 2012).
- King Library on the Oxford, Ohio campus of Miami University used the Double Robotics TR on two different floors of the library to answer questions remotely (Hartsell-Gundy, 2015).
- Chulalongkorn University, Thailand, introduced a TPRs to allow users to engage in real-time interaction with the librarian via the robot.
- Eastern International University, Vietnam, used TPRs in the library (Nguyen et al., 2022).

TPRs in Galleries

- Virtual Guided Tours
- Virtual Exhibition Openings
- Art Conservation and Research
- Accessible Art Viewing
- Interactive Art Installations
- Event Hosting and Performances
- Remote Art Classes and Workshops
- Gallery Outreach and Partnerships
- Remote Art Sales and Exhibitions

TPRs in Galleries

- The University of Massachusetts Lowell (UML) and The Revolving Museum, Massachusetts used TPRs in galleries.
- The Fine Arts Museums of San Francisco are using TPRs for remote visits.
- The Smithsonian Institution's National Museum of American History, which has been using TPRs since 2015 to allow remote visitors to explore their exhibits.

- Hastings Contemporary and Avant Gallery, UK, used TPRs for remote visits during lockdown.

TPRs in Archives

- Remote Archival Tours
- Remote Research Access
- Virtual Exhibitions
- Remote Consultations
- Preservation Monitoring
- Collaborative Cataloguing
- Digitization Assistance
- Accessible Archival Viewing
- Remote Training and Workshops
- Conservation and Restoration Support
- Inter-Archival Collaboration
- Archival Outreach

The National Archives and Records Administration (NARA) in the United States has been using TPRs since 2014 to allow remote visitors to explore their exhibits.

TPRs in Museums

- Virtual Tours
- Virtual Events and Exhibitions
- Remote Access to Artifacts
- Guided Tours and Interpretation
- Interactive Exhibits
- Visitor Services
- Remote Workshops and Education
- Curator Talks and Lectures
- Accessibility Support
- Conservation and Maintenance
- Outreach and Collaboration

TPRs in Museums

- Carnegie Museum of Natural History (US) has used TPRs to help museum visitors engage with the living exhibits. TPRs allow to explore insects. The robot allows the visitor to act as his own tour guide by offering the visitor control over what he sees. They have also implemented a TPR program called "Special Guests" to enable a visit for people who cannot attend the museum in person.
- The Computer History Museum in Mountain View, California (US)
- National Museum of Australia in Canberra, Australia
- The de Young Museum in San Francisco, (US)

Beer and Takayama (2011) found that seniors wanted to use TPRs to attend concerts or sporting events, and visit museums or theatres. Therefore, a number of TPRs have been placed in museums.

Conclusion

- TPRs offer a wide range of benefits that can significantly improve remote communication, collaboration, and access to various opportunities, help to experience more social presence, greater sense of togetherness, making them a valuable tool in today's interconnected world.
- TPRs can offer numerous benefits to the GLAM sector, enhancing customers/visitor experiences, enabling remote engagement, and improving overall operations in the GLAM sector.

Thank You for Your Attention!

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