



Alternative ways of working to make use of remote expertise

- With the spread of Covid 19, we and our clients are seeing the **following challenges**:
 - Technical support staff, contractors & suppliers are restricted from the sites they support
 - Highly skilled technical people (Operators / Maintenance Staff / Engineers) may not be able to attend due to isolation or sickness
 - Key decision makers (Plant Operators / Business Owners) may not be able to attend due to isolation or sickness
 - Construction teams are segregated from support teams (engineering, project management, stakeholders)
- This pack is intended to provide guidance to our Beca teams on **alternative ways of working to connect expertise remotely, particularly via digital tools**.
- We note that although this pack has been prepared to address short-term needs, the ways of working adopted can be **shaped to provide business benefits in long-term**, e.g. the creation of digital assets that will provide value in the future.

This pack includes*:

- 1. Bringing remote expertise to site** (from video-streaming using a tablet, to HoloLens)
- 2. Use of scanning to share site information remotely** (from 360 degree photos to Matterport to point cloud scans)
- 3. Remote teamwork** ways of working

** This is intended as guidance, please know that the details are indicative and that there may be site-specific items that need to be allowed for.*

Alternative Ways of Working

Bringing Real-time Remote Expertise to Your Site

The following options allow you / your clients to share site information without being physically there. For example: site inspections, commissioning or more immersive site meetings.

01

Video Calling

What you need

- Tablet / Phone with Skype / Zoom
- Internet connection (WiFi / Cellular)

Pros

- Quick & easy
- Two-way video calling

Cons

- Not hands-free

Technical assistance not required



02

Hands-free Video Calling

What you need

- Phone & head strap kit
- Internet connection (WiFi / Cellular)

Pros

- Quick & easy setup
- Using head strap for mobile phone
- Hands-free

Cons:

- Not immersive
- Can't share content

Technical assistance not required



03

Vuzix Blade

What you need

- [Purchase Vuzix](#) (\$1k)
- Internet connection (WiFi)
- Apps: Skype

Pros

- HD Camera
- Hands-free two-way Skype

Cons

- Not spatially aware (less capable vs. HoloLens)
- Could cause nausea

Technical assistance may be required to setup



04

HoloLens

What you need

- MS HoloLens (\$6k)
- Internet connection (WiFi)

Pros

- Immersive hands-free experience
- Ability to display text, images and PDFs on the user's view
- Untethered

Cons

- Could cause nausea
- Bulkier vs. Vuzix

Technical assistance required to setup and support



Alternative Ways of Working

Scanning to share site information remotely

01

360-degree Photos

What you need

- 360-degree camera

Pros

- Photo realistic
- Conveys a single location / issue well
- Quick & easy
- Cheap to store & access
- Livestreaming to a private YouTube channel (New Gear)

Cons

- Difficult to visualise a complex site / arrangement

Scan Costs – \$400 camera plus labour effort

Hosting Costs – low / minimal



02

Photogrammetry / Matterport Scan

What you need

- Scanning with Matterport camera
- Matterport account

Pros

- Quick to scan large areas
- Anyone can do
- Internet accessible models.
- Photo realistic
- Ease of navigating model
- 3D model available

Cons:

- Low accuracy of 3D models
- Limited use cases
- Limited security
- Specialist equipment required

Scan & Processing Costs – ~ \$500 / med. process room

Hosting Costs – \$100 per model (one area)



03

Vuzix Blade

What you need

- Laser scanner
- Post processing capability
- Cloud hosting account

Pros

- Quick to scan large areas
- High accuracy within individual rooms / areas – suitable for design.
- Discrete area scans can be integrated at a later date
- Internet accessible models

Cons

- Lower accuracy between rooms / areas
- Specialist equipment required

Scan & Processing Costs – ~ \$1.5k / med. process room

Hosting Costs – \$250 per month / room



04

Survey Point Cloud

What you need

- Surveyor & survey scanner
- Post processing capability
- Cloud hosting account

Pros

- High accuracy within areas AND between multiple scans / areas – suitable for detailed design work.
- Easy to integrate multiple scans into more complete site models
- Internet accessible models

Cons

- More time and effort required.
- Specialist equipment required
- Qualified surveyors required.

Multi-area setup – > \$2k

Scan & Processing Costs – ~ \$2.5k / med. process room

Hosting Costs – \$250 per month / room



NOTE: Costs are provided for comparison. Actual engagement costs will depend on the nature of any existing engagements, whether a job needs to be established, and on client needs.

Alternative Ways of Working

Remote Teamwork – Page 1 of 2

Current Way of Working / Issue	Technology	Cost	How	Ease of Implementation / Training
Remote Working	Skype Office 365 suite/Digital workspace/SharePoint OneDrive Microsoft Planner (equivalent to Trello) Slack	\$0 Slack is currently free due to virus.	Stay home	Working Remotely Training Remote Working LinkedIn Learning Series
Meetings, Face to Face	Microsoft Skype Zoom	\$0 Zoom is currently free due to virus.	If people don't have access to Skype, you could try using Zoom as an alternative.	Easy Training videos Zoom, Skype, Teams Tips and Tricks How to manage virtual meetings training video Time Management: Working From Home
Managing Teams	Skype Office 365 suite/Digital workspace/SharePoint OneDrive OneNote Microsoft Planner (equivalent to Trello) WhatsApp Groups	\$0	Daily 15min Team Stand Ups useful. Use current O365 stack to manage teams and work. Can use Trello or Monday if Microsoft products are not available.	Medium. Might need some deeper understanding of current Microsoft software available. How to manage virtual teams training video . Leading from a distance training vide .

Alternative Ways of Working

Remote Teamwork – Page 2 of 2

Current Way of Working / Issue	Technology	Cost	How	Ease of Implementation / Training
Project Reviews e.g. Design Reviews / Hazops	Skype Office 365/Digital workspace SharePoint/OneDrive Zoom 3D Models (Autodesk Navisworks / BIM360) RoundMe	\$0 Navisworks Viewer is free BIM360 check licence costs with Designer	Online meeting, designer/ engineering collaborator would share 3D model or RoundMe 360 degree images via Skype or teams.	Easy. Designer shares 3D models
Creating or Collaborating on Work	Office 365/Digital workspace SharePoint OneDrive	\$0	Use existing software. Ensure your work is in the cloud e.g. SharePoint or OneDrive for easy sharing and collaboration.	Easy
Brainstorming, E.g. with a whiteboard	OneNote Skype Whiteboard page Miro Coggle (Mindmapping App)	\$0	Meeting facilitator can choose preferred webtool and share with collaborators via Skype.	Medium. Might need some deeper understanding of current Microsoft software available

Who to contact

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