



GBM Works

Presenting a silent installation method for offshore foundation piles

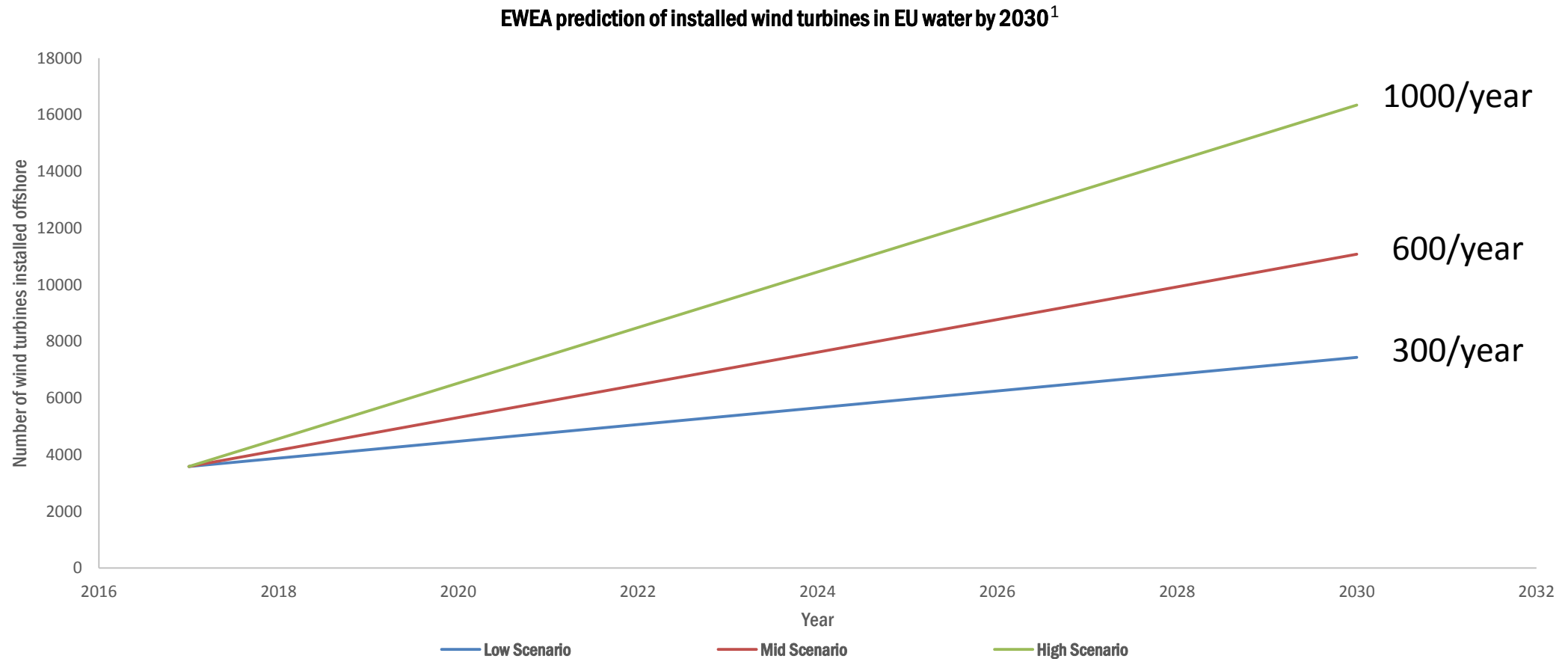
Supported by:  **TU**Delft

 **NWO**


Climate-KIC



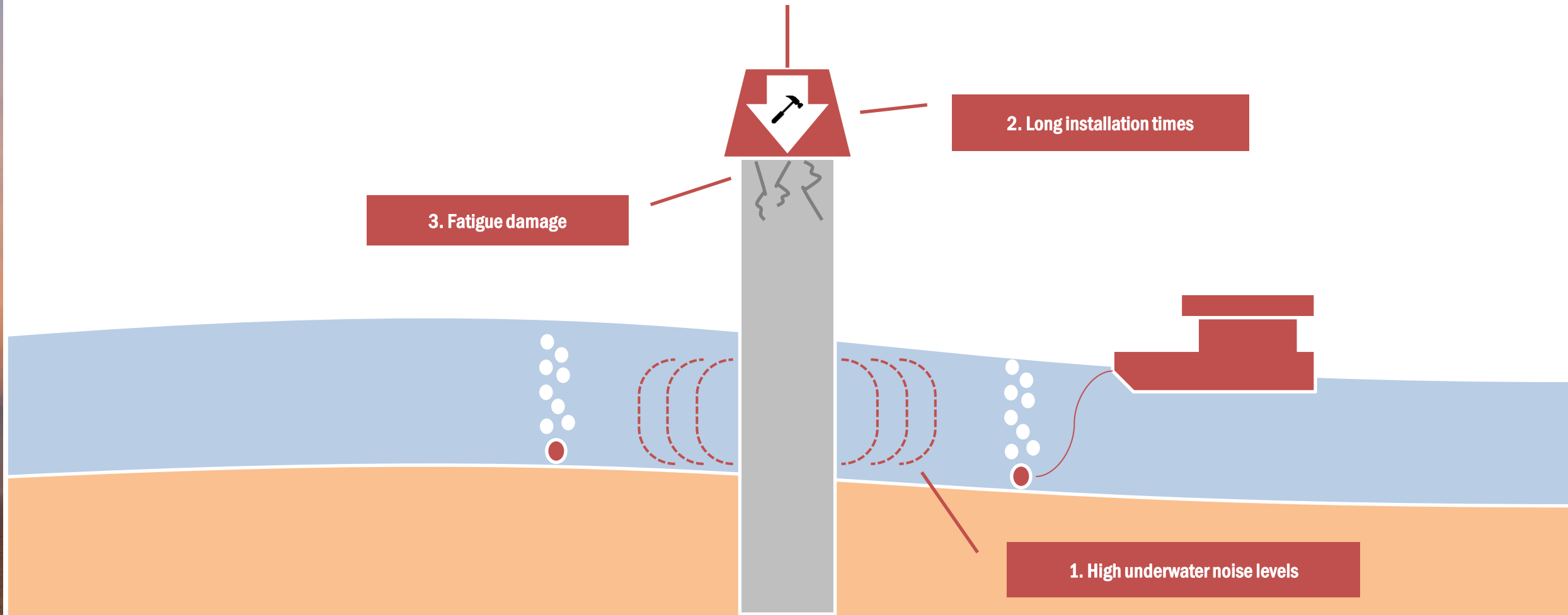
Growing Market for EU Offshore Windturbines



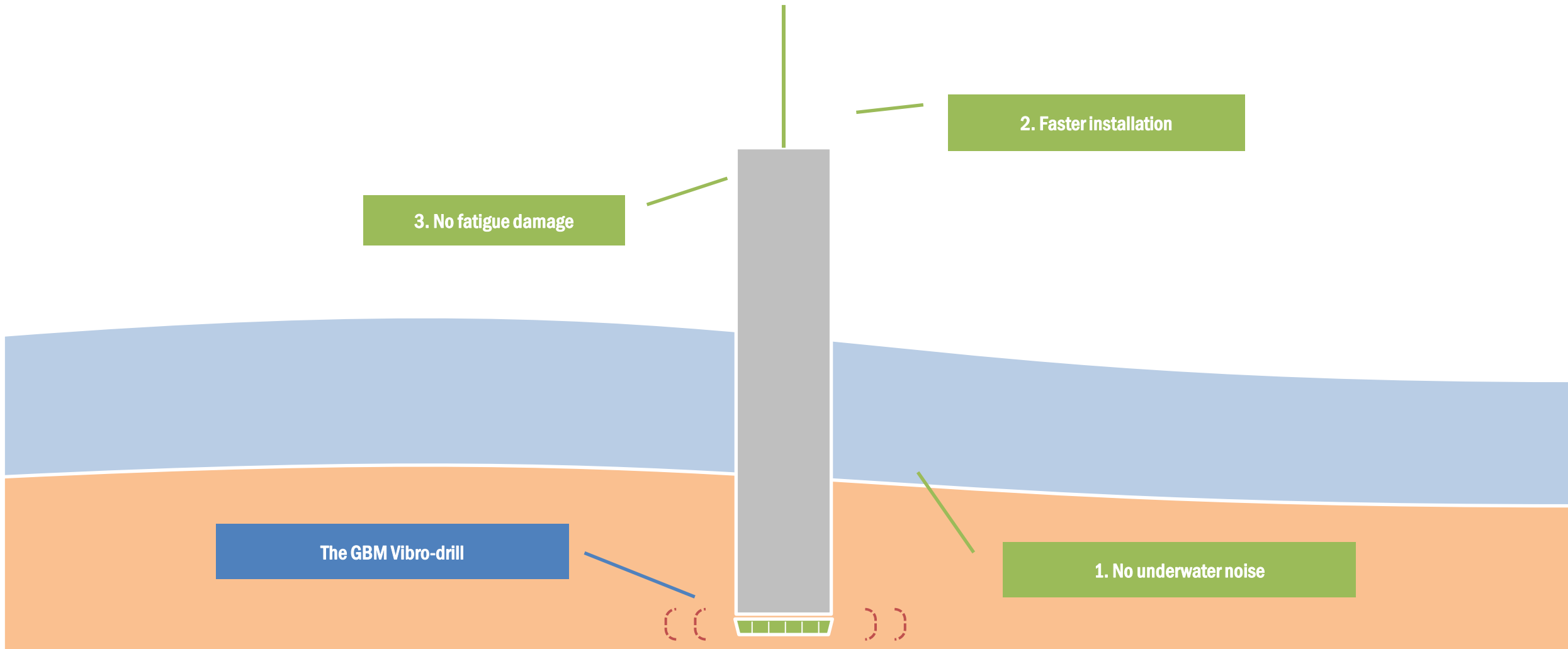


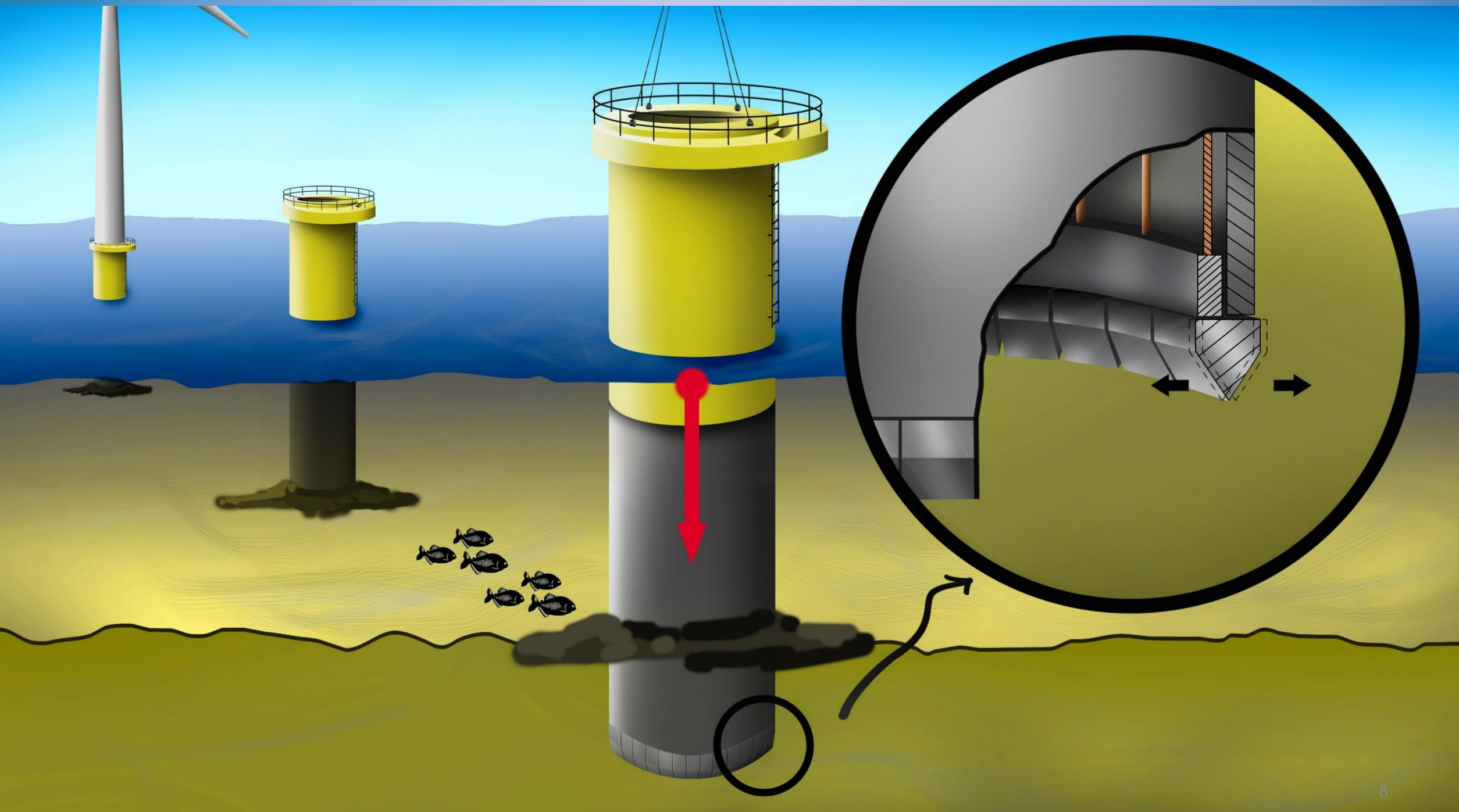


The problems with conventional piling methods



Introducing the GBM Vibro-Drill





Evaluation of installation procedure performed by ECN

Simulation set up:

- Based on Gemini Windpark
- 150 foundations using 2 ships

Findings:

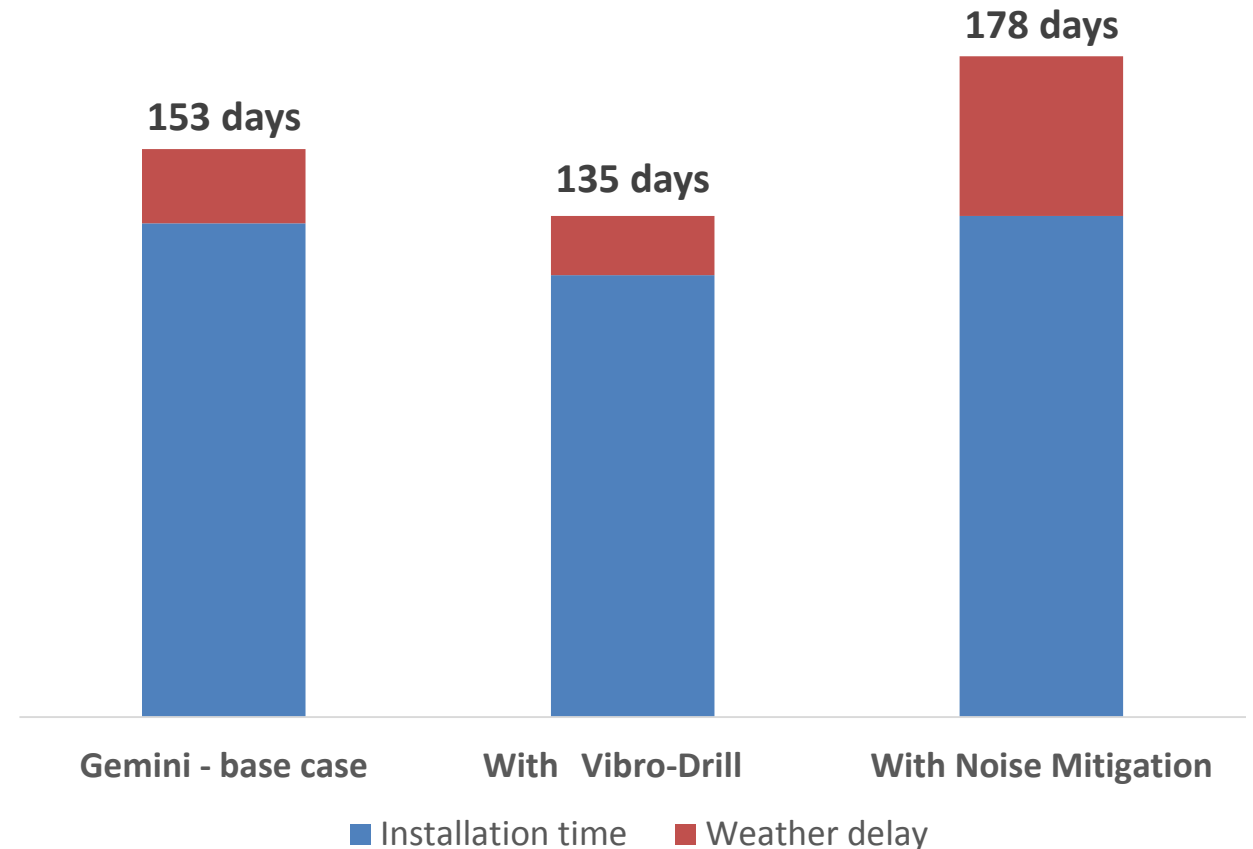
- Pile drill requires less steps during installation
- Secondary metal work can be pre-installed

Results:

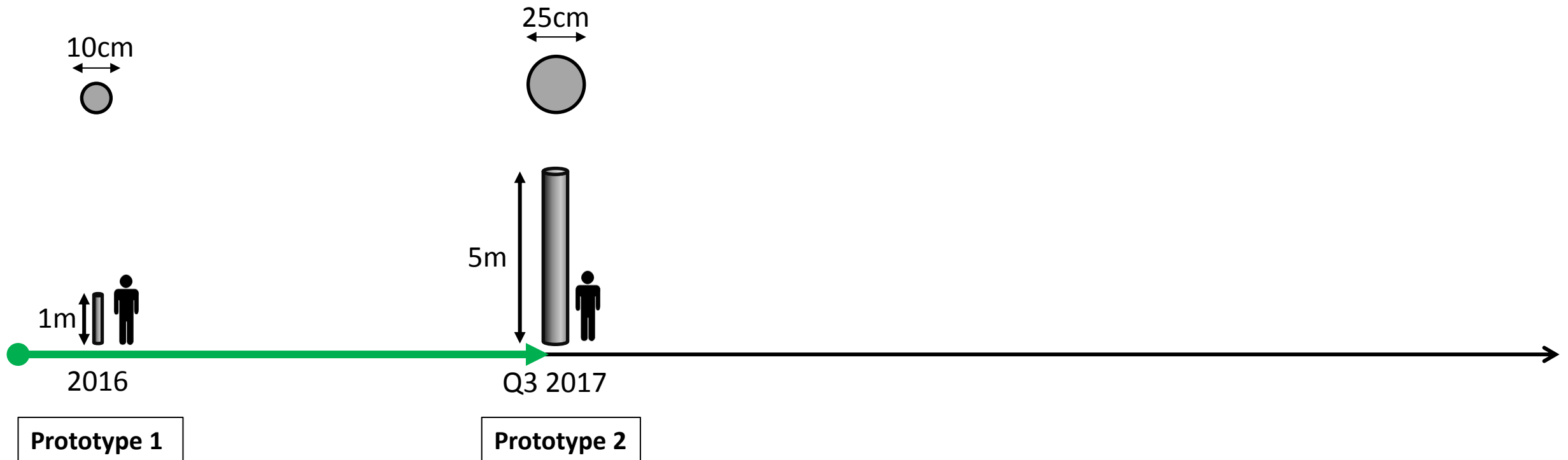
- Shorter installation time per foundation
- Smaller weather windows can be used
- Decreased risk of delay due to weather



Simulated number of days required to install 160 foundations at Gemini



Technology Prototypes



In contact with:

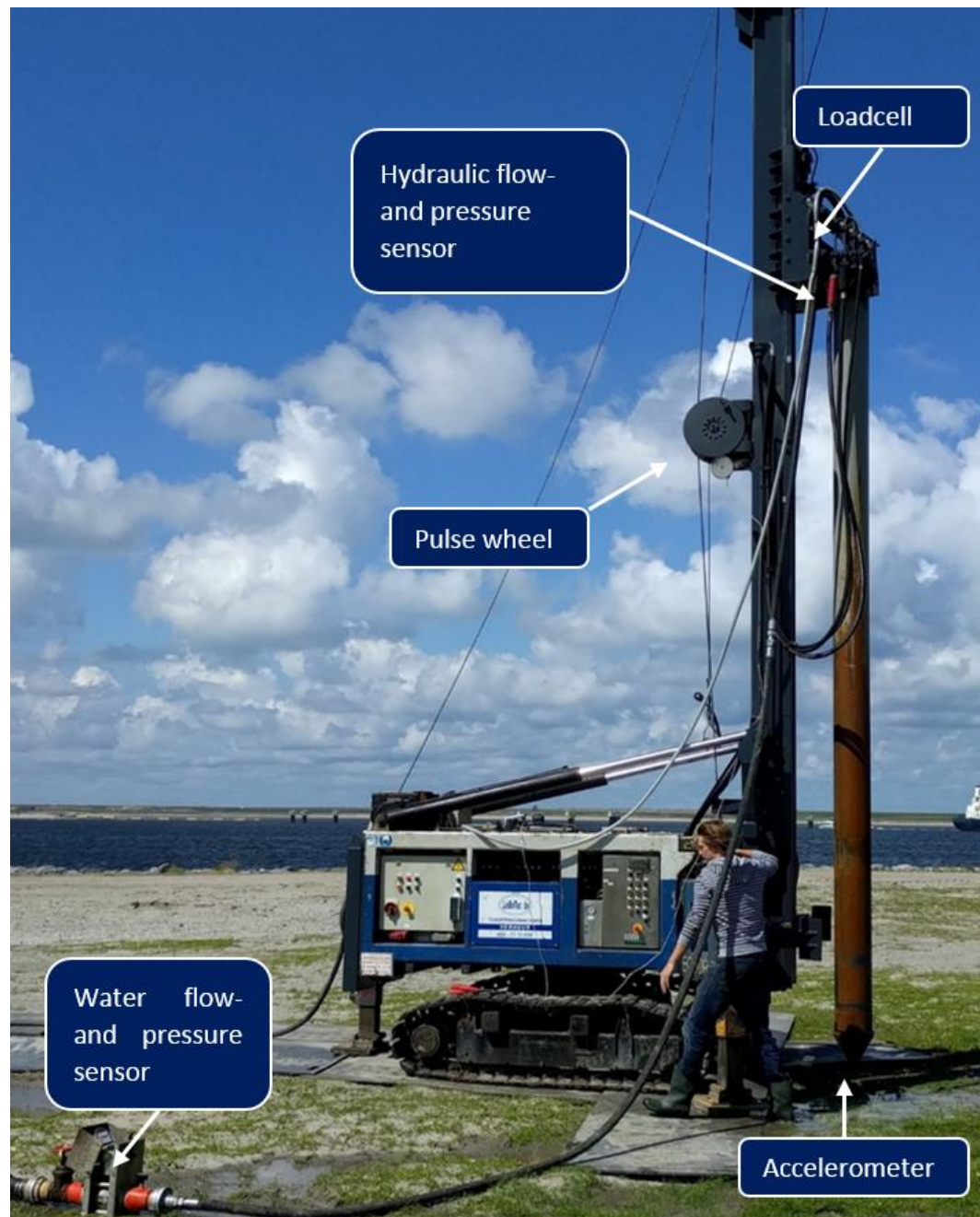


Prototype 1



Prototype 2

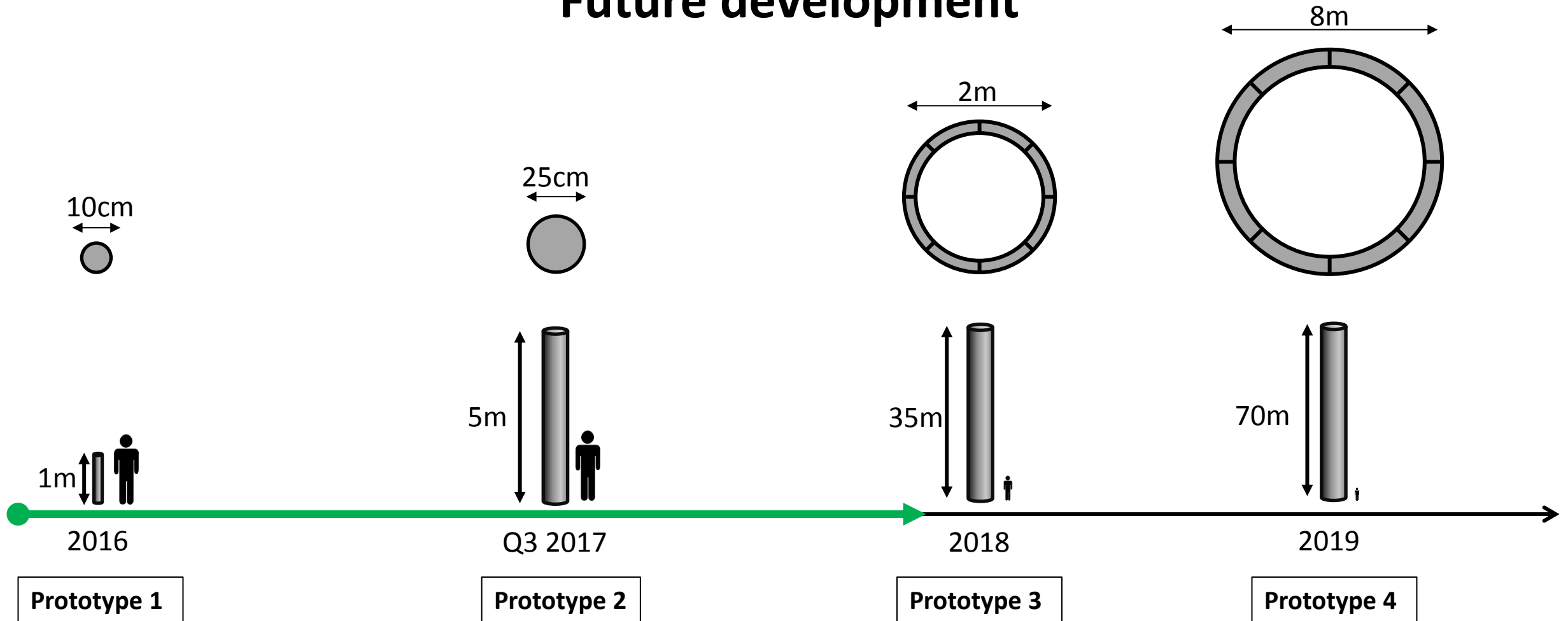




Lateral Bearing Capacity tests



Future development



Benefits of the GBM Works Pile Drill



Noise

Negligible sound production



Time

Faster installation



Operability

Decreased risk of weather delays



Scalability

Can easily be scaled to any diameter foundation pile



Fatigue

No fatigue damage during installation



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