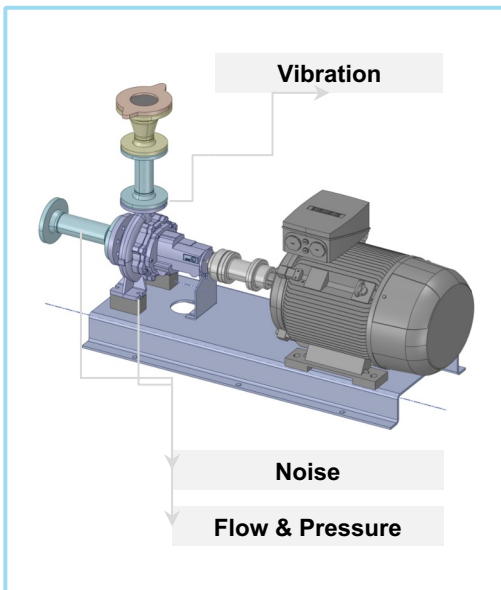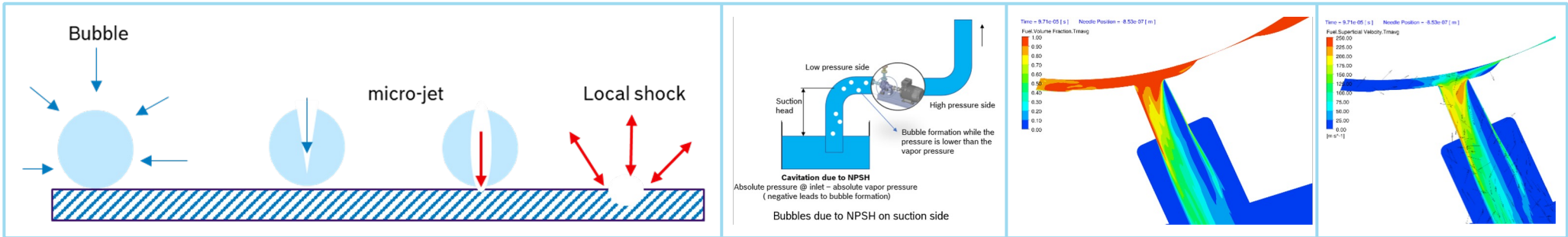# Anticipating cavitation in centrifugal pumps:
A use case on prediction and prevention

Challenges

Our client was facing productivity challenges due to cavitation issues occurring in their centrifugal pumps.

- The centrifugal pumps were experiencing performance issues and facing failure due to mechanical damages caused by cavitation.

Solution

Bosch was onboarded to locate the invisible source of the problem and perform root cause analysis.

- We applied our APM framework, powered by Bosch's Digital Twin IAPM, to predict erosion patterns and synthesize the pump cavitation phenomena. It is a hybrid modeling approach led by physics-based simulations and ML algorithms.

Business outcomes

Once the APM framework was implemented, the client experienced the following benefits:

- Revealing cause-and-effect scenarios, IAPM insights identified and eliminated the root cause.
- OEE improved substantially through a reduction in unplanned downtimes.
- Templatized solutions were adopted to enable easy scalability by leveraging a single innovation for multiple deployments.

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