

## Multics

### User Support

- Detailed user manual
- Training tutorial

### Supporting Software

Various supportive software ensure smooth input generation and output post-processing. They include:

- Influence matrix generator
- Valve plate area generator
- Gear profile generators
- Post-processing script

### Test Validation

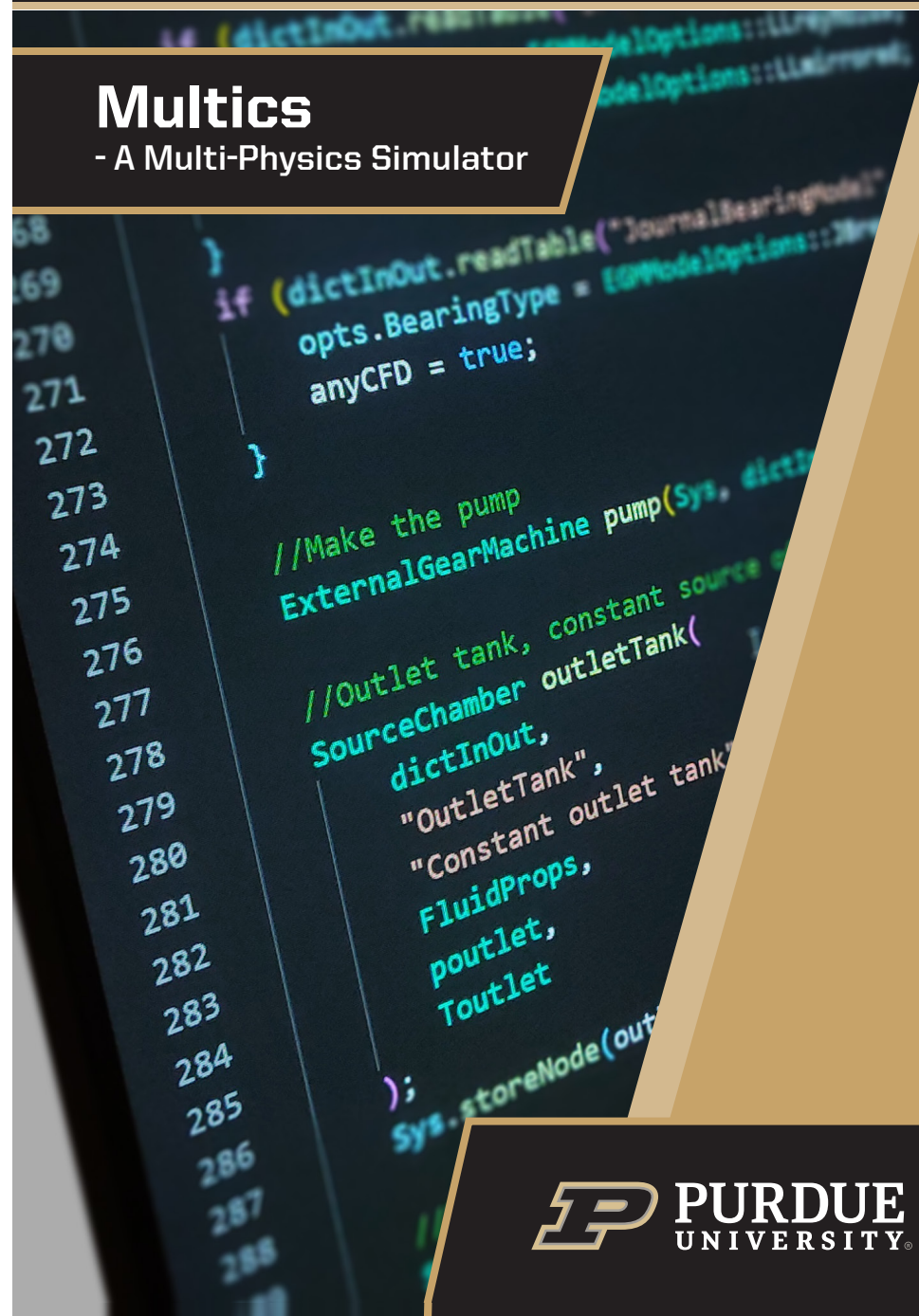
Extensive model validation of Multics has been performed at Purdue-Maha. Reference measurements:

- Pump and motor volumetric and torque efficiency
- Displacement chamber pressure
- Leakage flow and temperature
- Film pressure and thickness
- Film and body temperature
- Pressure ripple
- Cavitating conditions
- Friction analyses

# Maha Fluid Power Research center

## Multics

- A Multi-Physics Simulator



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### Web:

<https://engineering.purdue.edu/Maha/>

**Multics** is a multi-domain, multi-physics, interactive simulation toolset that is highly configurable for different types of positive displacement machines.

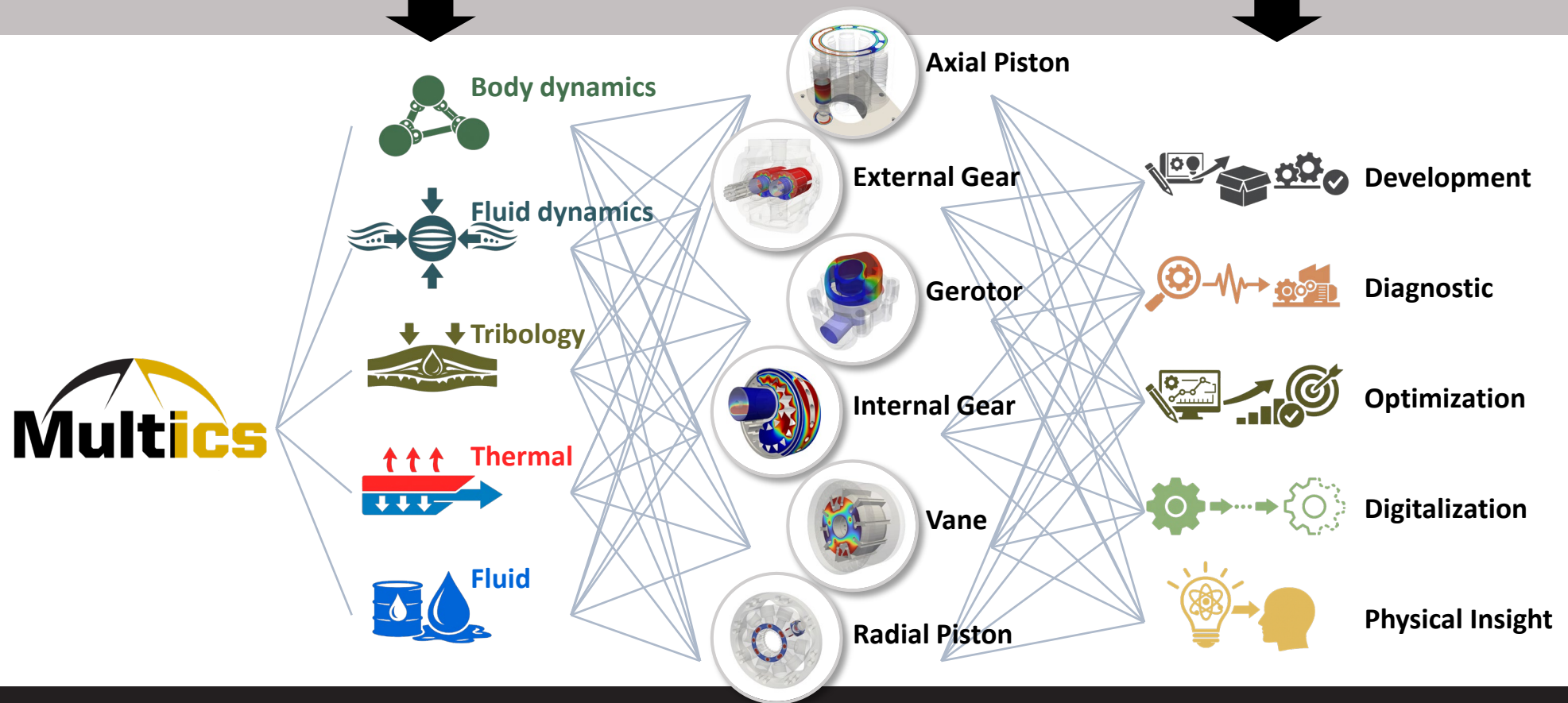
Multics has demonstrated value to Current Users/Project Sponsors (as of 2026):



Upgradable Physics

Pre-configured Template

Demonstrated Value



|                   |                     |                                   |                             |                     |
|-------------------|---------------------|-----------------------------------|-----------------------------|---------------------|
| Key capabilities: | Multi-body dynamics | Fluid commutation                 | Thermo-elasto-hydrodynamics | Transient thermal   |
|                   | Body micro-motion   | Fluid inertia                     | Mixed lubrication           | Non-Newtonian fluid |
|                   | Coupled dynamics    | Cavitation and incomplete filling | Wear prediction             | Asperity contact    |