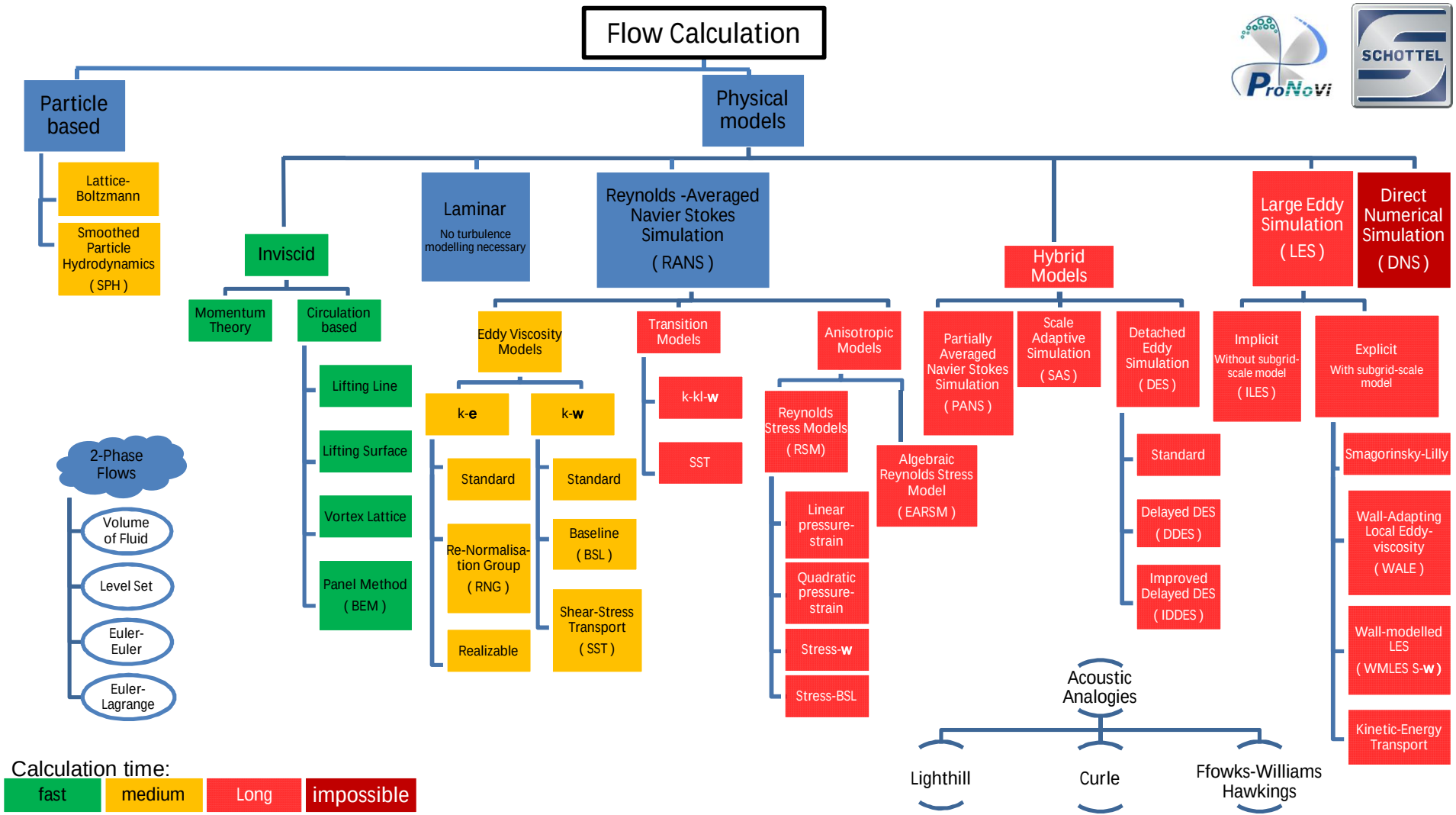
Flow Calculation
Particle based
Lattice-Boltzmann
Smoothed Particle Hydrodynamics (SPH)
Physical models
Inviscid
Momentum Theory
Circulation based
Lifting Line
Lifting Surface
Vortex Lattice
Panel Method (BEM)
Laminar
No turbulence modelling necessary
Reynolds -Averaged Navier Stokes Simulation (RANS)
Eddy Viscosity Models
k-e
k-w
Standard
Re-Normalisa-tion Group (RNG)
Realizable
Standard
Baseline (BSL)
Shear-Stress Transport (SST)
Transition Models
k-kl-w
SST
Anisotropic Models
Reynolds Stress Models (RSM)
Linear pressure-strain
Quadratic pressure-strain
Stress-w
Stress-BSL
Algebraic Reynolds Stress Model (EARSM)
Hybrid Models
Partially Averaged Navier Stokes Simulation (PANS)
Scale Adaptive Simulation (SAS)
Detached Eddy Simulation (DES)
Standard
Delayed DES (DDES)
Improved Delayed DES (IDDES)
Large Eddy Simulation (LES)
Implicit
Without subgrid-scale model
(ILES)
Explicit
With subgrid-scale model
Smagorinsky-Lilly
Wall-Adapting Local Eddy-viscosity (WALE)
Wall-modelled LES (WMLES S-w)
Kinetic-Energy Transport
Direct Numerical Simulation (DNS)
2-Phase Flows
Volume of Fluid
Level Set
Euler-Euler
Euler-Lagrange
Acoustic Analogies
Lighthill
Curle
Ffowks-Williams Hawkings
Calculation time:
fast
medium
Long
impossible