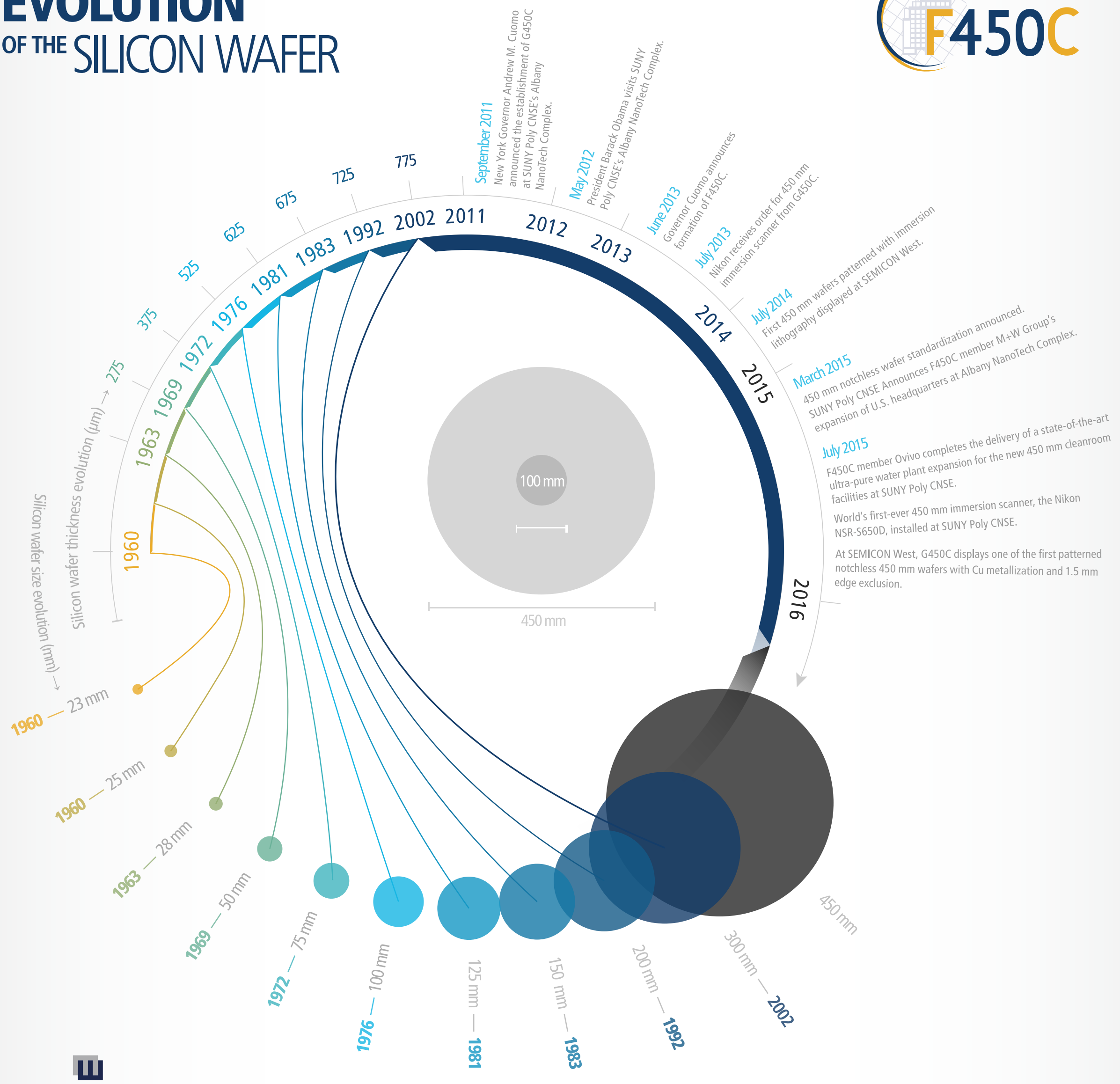
EVOLUTION OF THE SILICON WAFER

F450C



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F450C: Defining next-generation facility solutions for 450 mm wafer advancement

The Facilities 450 Consortium (F450C) brings together select companies for the purpose of enabling optimized 450 mm high-volume semiconductor facility design, construction and operation. The F450C cooperative model leverages industry alignment and collaboration as a critical enabler.

What is the 450 mm Transition?

The transition from 300mm-diameter to 450 mm-diameter silicon wafers in semiconductor fabrication will produce over twice the number of chips per wafer as a means for cost reduction in high-volume manufacturing. We are now at the point where the transition to 450 mm has become imperative to the continuing success of the semiconductor industry. This has led to the foundation of an industry/government partnership called the Global 450 Consortium (G450C) that is tasked with creating a path for new equipment and materials for this new wafer size. In parallel, the F450C emerged to develop the equivalent technologies for facilities.

What is driving the industry to larger wafer sizes?

Economic factors driving transitions to larger wafer sizes in semiconductor manufacturing

The economies of scale result in reduced fab cost per chip when more chips are made on larger-diameter wafers, while the economies of industrial supply chains create financial risks when more chips are made in parallel on larger wafers. Consequently, when sustained global demand for certain chip types reaches thresholds, companies building and running fabs to produce such chips can reduce overall costs by transitioning to the next wafer size.

What is the F450C?

- First-of-its-kind partnership of leading nanoelectronic facility companies, based at the NanoTech Complex of SUNY Polytechnic's College of Nanoscale Science and Engineering (CNSE).
- Multiple-company consortium guiding the effort to design and build next-generation wafer-size fabrication facilities
- Partner of the G450C