



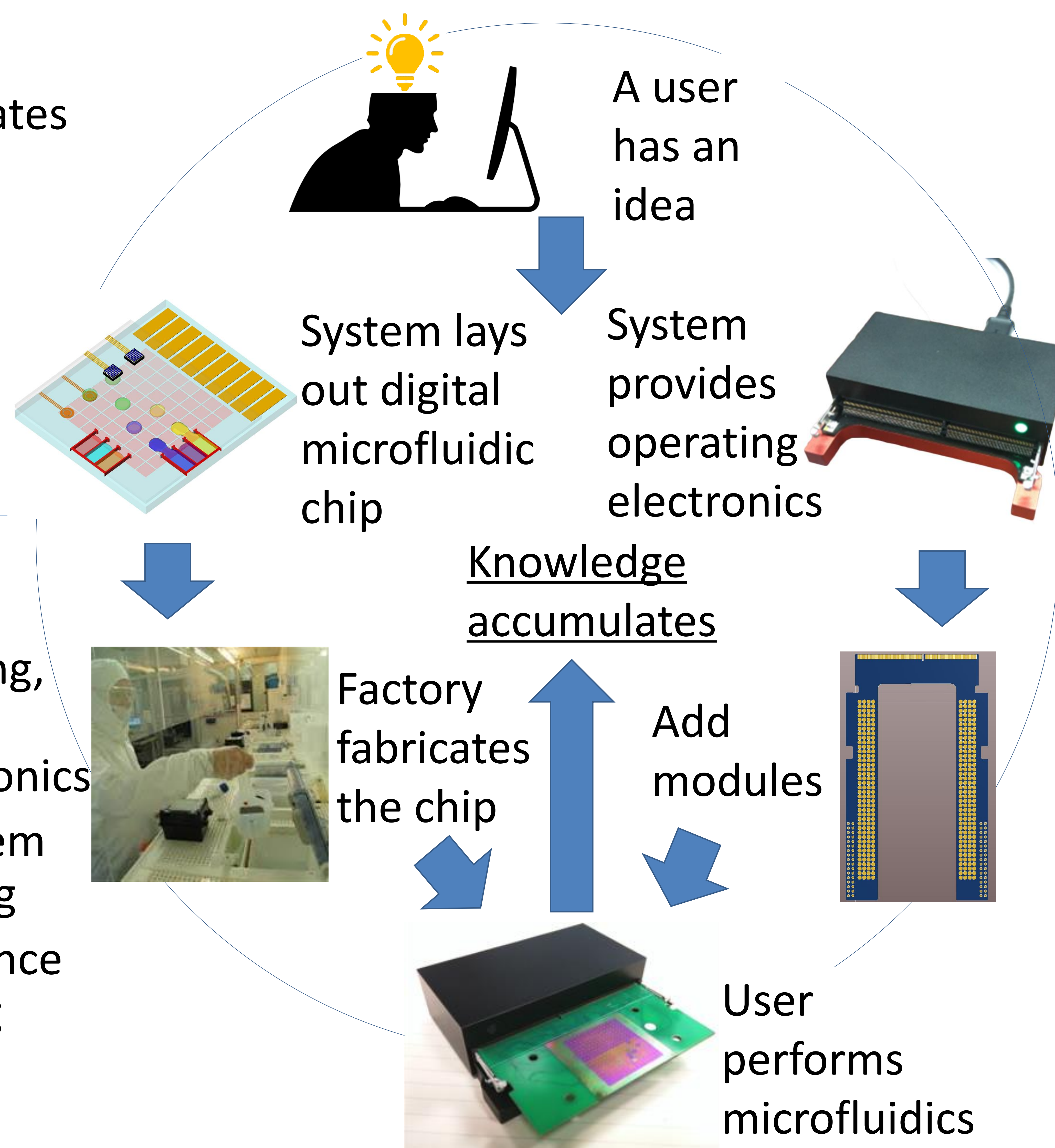
Cybermanufacturing: Cloud-Based Incubation Ecosystem for EWOD Digital Microfluidics
#1720499; 8/15/2017; CJ Kim and Lei He, University of California at Los Angeles (UCLA)

Challenge:

- Digital microfluidics operates liquids electrically with no pump
- Despite its simplicity and flexibility, the required technology limits the user base to mostly engineers

Solution:

- Build standard engineering, i.e., chip design, chip fabrication, control electronics
- Establish a cloud ecosystem that offers the engineering
- Users share their experience in the ecosystem, building collective knowledge



Scientific Impact:

- Scientific discoveries by collective efforts
- New applications found and validated by the users
- Increased user base will induce more engineering tools, leading to more scientific discoveries

Broader Impact:

- The incubation ecosystem will allow a huge user base -- chemists, biologists, hobbyists -- to use digital microfluidics
- The virtual lab will help K-12 education by allowing students design and perform own experiments safely