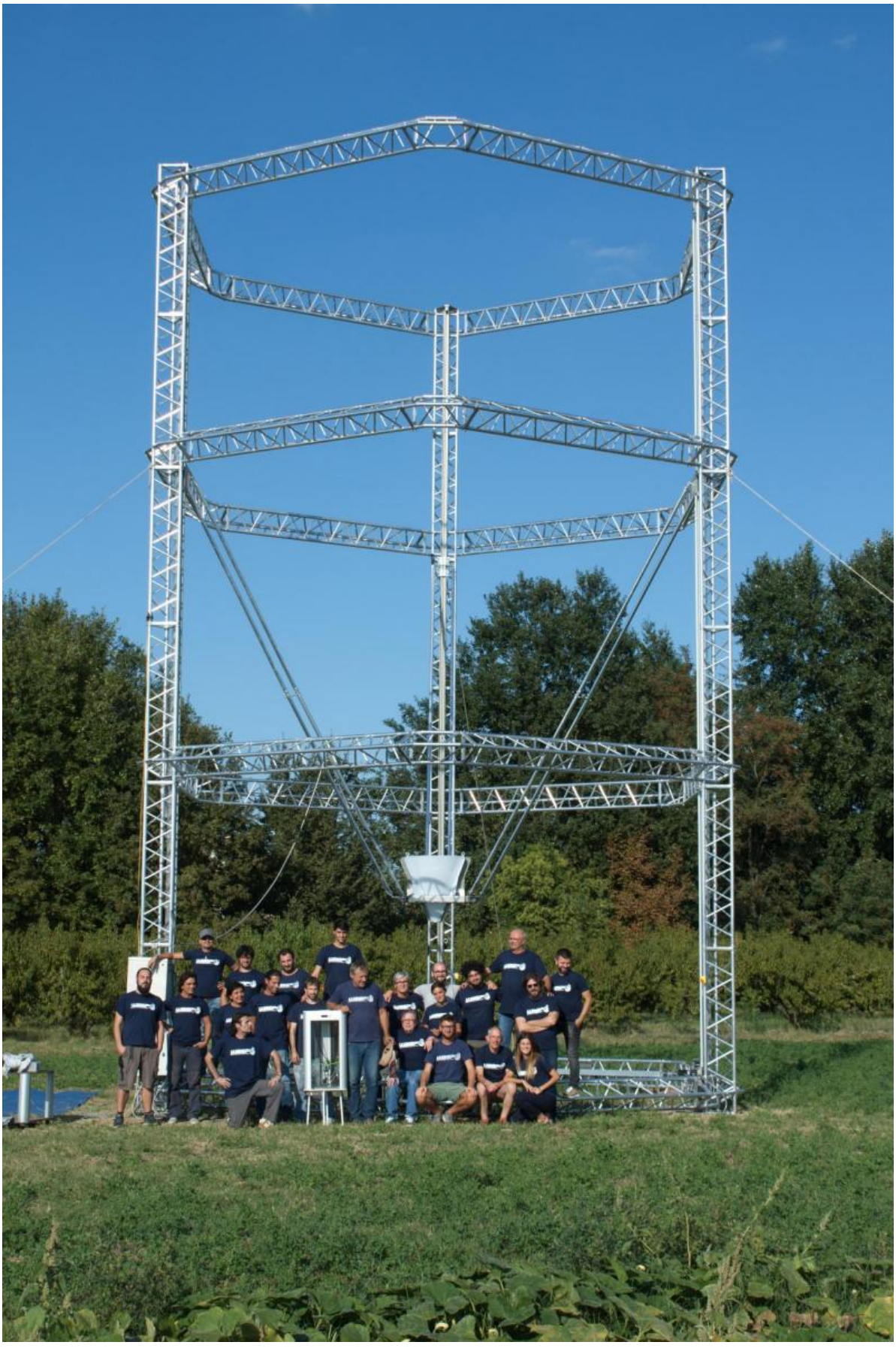
3-D printing: WASP praises Maker Economy model of home fabrication

September 23 2015, by Nancy Owano



Question: Can the construction energy expect big changes on the way? We have seen the headlines about drones building bridges fit enough for a human to cross and now there is news of a massive 3-D printer with its designers' aspirations to create low-cost houses using sustainable materials.

This latest house-building news comes from Italy, where the engineering group WASP (stands for World's Advanced Saving Project) has built a 12 meter tall 3-D printer for putting up houses for people who need them and might otherwise not have suitable dwelling. Supporters of the project said the houses can be built up quickly and efficiently.

Dario Borghino in *Gizmag* said that "Last year, the company showcased a 4.5 m (15 ft) tall printer that could work with simple but highly versatile materials such as mud, clay or natural fibers. Now, the company has gone even bigger with a record-breaking 12 m (40 ft) tall printer."

The BigDelta is envisioned as a solution for housing needs of a rapidly growing world population. The printer is also being promoted as suitable for use in disaster areas. At 12 meters tall, the printer can print structures using materials, said *Pocket-lint*, from clay to mud. These can be reinforced using small amounts of chemical additives.

This is a metal printer; it is designed to build structures layer by layer using the material funneled through a central nozzle, said *The Telegraph*. More on the nozzle from *Pocket-lint*: "The BigDelta uses a rotating nozzle that doubles as a mixer. (The rotating nozzle, doubling as a mixer,

keeps the printing materials homogeneous, said *Gizmag*.) As such, the printing materials are in the correct state for extrusion. "It reportedly only requires tens of watts to operate."

As *WIRED.co.uk* described it, this is a structure with a metal frame. It suspends a nozzle. In doing so, it uses very little energy to build the clay layers, which eventually turn into the basic structure of a house.

WASP is overall responding to a global problem which carries some staggering numbers. The group referred to international estimates that foresee by 2030 a rapid growth of adequate housing requirements for over 4 billion people living with a yearly income below $3,000.

Building houses with near zero costs using local materials would be a big help. The printer might also create homes quickly to help the displaced coming out of war-torn areas and disaster zones.

Pocket-lint said the printer also had the advantage of being designed to suit varied environments. The report said WASP is even working on ways to add insect repellant to the materials, so the buildings resist pests in places where that would be relevant.

WASP is not just talking about the often-heard concept of "affordable housing." Their vision is more global and more fundamental. They said, "We are talking about the Maker Economy, a new model where everything can be self-manufactured through shared solutions, These leverage on 3D printing and are tied to meeting life's primary necessities: work, health and housing." They referred to the Maker Economy as a new model with less dependence on "some unsurmountable entity that holds the productive monopoly."

Pocket-lint reported: "The town of Iglesias in Sardinia has apparently enquired about using the printers to build housing units."

More information: www.wasproject.it/w/en/press-release/