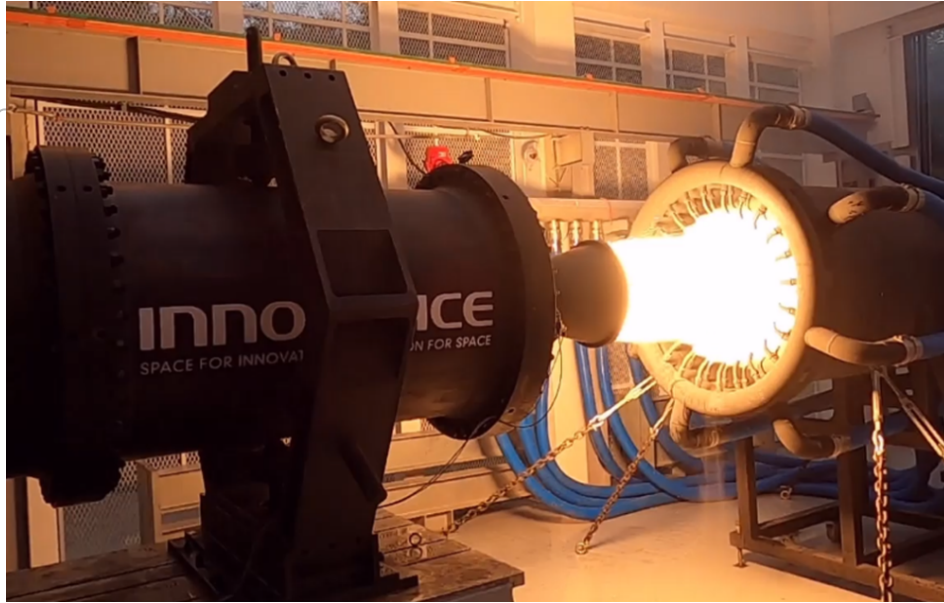


# Additive Manufacturing & 3D Printing News Roundup (Week of June 15–22, 2025)

## Industry News (Launches, Investments, M&A)



South Korean rocket startup **INNOSPACE** launched an in-house Advanced Manufacturing Division to 3D print its own rocket engines and key components. This move is expected to cut production costs by up to 50% and speed development, giving **INNOSPACE** more control and competitiveness in the commercial launch sector <sup>1</sup> <sup>2</sup> . Notably, the division passed certification under the ISO/ASTM 52941 standard for aerospace-grade metal AM (the first in Korea to do so) <sup>3</sup> .

- **Strategic Alliances:** Italian robotics firm **Comau** and 3D printer maker **Roboze** formed a strategic alliance to integrate six-axis industrial robots with high-performance 3D printers for on-demand fabrication. Their joint solution targets automotive, aerospace, energy, and racing sectors, enabling just-in-time production of complex polymer and composite parts without traditional tooling <sup>4</sup> . This partnership aims to drive agility, reduce waste, and reshore manufacturing for global OEMs.
- **Sustainability Investment:** Canada's **Tempus 3D** received a C\$250,000 government grant to advance plastics recycling in 3D printing. The Trail, B.C.-based service bureau will use the funding (via the CleanBC Plastics Action Fund) to prevent 3D printing plastic waste and recycle post-consumer recyclate into high-quality parts <sup>5</sup> <sup>6</sup> . The project is one of 34 initiatives supported this year to fight plastic waste and create green jobs in British Columbia.

- **Government Funding:** At the Paris Air Show, the **UK government** announced over £250 million of public-private investment in “green aerospace” projects, including the use of laser powder bed fusion (PBF-LB) additive manufacturing for large aerostructures, turbine components, and hydrogen-powered flight <sup>7</sup>. Officials stated this funding will help drive innovation toward net-zero 2030 goals and boost high-skilled jobs in the UK’s aerospace and defense sectors.

## New Product & Technology Announcements

- **Materials:** SLA leader **Formlabs** introduced two new resins – **Color Resin V5** (a custom color material matched to any HEX/RGB code in 1 L batches) and **True Cast Resin** (a wax-filled, low-ash material for precision investment casting). Color Resin V5 enables fast production of colored prototypes or jigs at lower cost, while True Cast Resin burns out cleanly for accurate castings with minimal residue <sup>8</sup> <sup>9</sup>. Alongside these, Formlabs updated its PreForm software with features like face-specific texturing and improved support generation to streamline the SLA workflow <sup>10</sup> <sup>11</sup>. Meanwhile, filament manufacturer **3DXTECH** launched **3DXLabs**, a beta program offering power users early access to experimental high-performance filaments in exchange for feedback. This initiative is meant to “help shape the future of additive materials” by involving end-users in finalizing new engineering-grade filaments <sup>12</sup> <sup>13</sup>.
- **Software Platforms:** MakerBot’s **Thingiverse** repository rolled out a major platform update, including a new logo/UI and enhanced search capabilities (supporting filters like `-term`, exact quotes, and fuzzy search). The site now integrates with popular slicers (Cura, Orca, PrusaSlicer) for one-click slicing from model pages, and clearly labels AI-generated content to improve transparency <sup>14</sup> <sup>15</sup>. In parallel, UK-based startup **Phase3D** – known for its real-time “Fringe” print monitoring system – launched a redesigned website and online store to simplify procurement of its in-situ inspection tools. The new site provides clearer documentation, compatibility info (for systems like EOS M 290), and an e-commerce interface for quotes, aiming to “take the guesswork out” of adopting AM quality monitoring solutions <sup>16</sup> <sup>17</sup>.
- **Advanced Printing Systems:** The **Institute of Physics of Materials (IPM) at Czech Academy of Sciences** installed the country’s first multi-material ceramic 3D printer – a **Lithoz CeraFab Multi 2M30**. This high-end system will support research to embed piezoelectric sensors directly into bioceramic bone implants for real-time health monitoring <sup>18</sup>. According to Dr. Zdeněk Chlup of IPM, the multi-material capability is crucial for integrating conductive or sensing elements into ceramic matrices (with parallel efforts to add printed circuitry in aerospace-grade ceramic composites) <sup>18</sup> <sup>19</sup>. This deployment, part of the MEBioSys project, is expected to advance smart implant development and adaptive aerospace structures.

## Regulatory & Standards Developments

- **Certification Program:** (Earlier this month) ASTM International’s Additive Manufacturing Center of Excellence launched a **Manufacturer Certification** program tailored to AM. Developed with input from 25+ OEMs (including Boeing, Ford, Safran, GM, etc.), the program sets audit criteria to validate AM-specific processes, materials, and quality control that go beyond general ISO 9001/AS9100 requirements <sup>20</sup> <sup>21</sup>. By defining rigorous yet practical standards for AM production, this certification aims to reduce redundant supplier audits and help manufacturers meet industry and

regulatory demands more efficiently <sup>22</sup> <sup>23</sup> . (This initiative was announced just before the TCT 3Sixty event in early June.)

- **Aerospace AM Standards:** South Korea's **INNOSPACE** became the first in its country to achieve certification under **ISO/ASTM 52941:2020**, an international standard for quality in aerospace metal additive manufacturing <sup>3</sup> . The company's new AM division earned this credential after a successful audit of its end-to-end 3D printing operations (design, printing, post-processing, QA) for rocket engine components. Meeting ISO/ASTM 52941 signifies that INNOSPACE's processes for 3D printed flight hardware adhere to stringent aerospace requirements, positioning it well for commercial launch contracts <sup>3</sup> <sup>24</sup> . This reflects a broader trend of AM firms pursuing standardization and third-party certification to assure customers of consistency and safety in critical applications.
- **Regulatory Guidance:** No major new government regulations specific to 3D printing were issued this week. However, ongoing efforts continue in clarifying frameworks – for example, the **U.S. FDA** is expected to release detailed guidance on point-of-care 3D printing of medical devices, as hospitals and manufacturers seek clarity on quality and oversight responsibilities <sup>25</sup> . Additionally, industry groups like America Makes/ANSI published updates on AM standards “gaps” to guide future standards development (e.g. a June progress report on needed standards in design, materials, process control, etc., to support wider AM adoption) <sup>26</sup> . These initiatives highlight the emphasis on developing robust standards and clear guidance as additive manufacturing matures in regulated sectors.

## Key Academic & Research Findings



Researchers at Stanford University developed a new algorithm to automatically generate intricate vascular networks for bioprinting organs. Published in *Science* on June 12, the algorithm designs blood vessel trees 200× faster than previous methods and outputs them as 3D-printable models <sup>27</sup> <sup>28</sup> . By incorporating fluid dynamics simulation, it avoids vessel collisions and ensures every cell in a printed tissue would be within ~100–150  $\mu\text{m}$  of a vessel (critical for cell survival) <sup>29</sup> <sup>30</sup> . The team publicly released the tool via the open-source SimVascular

project. As a proof of concept, they bioprinted a simplified network with 500 branches and showed that human kidney cells embedded near the channels remained alive when perfused with nutrients <sup>31</sup> <sup>32</sup>. While the printed channels are not yet fully functional blood vessels, this work is a major step toward 3D printing transplantable organs with patient-specific vasculature.

- **Workplace Safety in AM:** A Finnish research initiative (TTL and University of Eastern Finland) investigated nanoparticle emissions in metal additive manufacturing. They found that **post-processing** tasks like grinding and sanding 3D printed metal parts produce the highest particle concentrations – exceeding 5.6 million particles per cm<sup>3</sup> – far more than the levels during the printing process itself <sup>33</sup> <sup>34</sup>. Despite these extreme airborne counts, biomonitoring of workers showed minimal uptake of metal nanoparticles internally. The team developed a control framework recommending targeted use of respirators, local exhaust ventilation, and strict hygiene practices to mitigate exposure during powder handling and post-print finishing <sup>35</sup>. These findings underscore that powder bed fusion printers can be operated with low particle release, but downstream finishing steps need robust safety measures.
- **Materials & Process Research:** Other notable papers this week include work on *recycling and novel materials*. For instance, researchers at Oak Ridge National Lab reported progress in **recycling carbon fiber** for use in AM composites, potentially lowering material costs and waste <sup>36</sup> <sup>37</sup>. In Europe, a team developed a prototype **cryogenic hydrogen tank** via large-format 3D printing (thermoplastic liner with carbon fiber overwrap) to enable lighter fuel storage for future hydrogen aircraft <sup>38</sup> <sup>39</sup>. These R&D efforts highlight how academia and industry are tackling the materials challenges of additive manufacturing – from sustainable feedstocks to performance-critical applications.

## Notable Applications Across Sectors

- **Aerospace:** Pratt & Whitney successfully test-fired a **3D-printed turbojet turbine wheel** – one of the first rotating engine parts made by AM. The trials on the TJ150 engine's additively manufactured turbine wheel showed it met full operational speeds, temperatures, and expected lifespan <sup>40</sup> <sup>41</sup>. This milestone demonstrates that AM can produce high-stress rotating components for jet engines, paving the way for lighter, simplified designs (P&W reduced the TJ150 core from 50+ parts to just a handful via AM “unitization”) and faster development cycles <sup>42</sup> <sup>43</sup>. The success with the TJ150's rotating hardware is seen as a breakthrough toward deploying 3D-printed engine parts in production aerospace systems.
- **Medical (Orthopedic):** Surgeons at Vietnam's *Vinmec Healthcare System* performed the world's **first total femur replacement** using a patient-specific 3D-printed implant. The case involved a young osteosarcoma patient (the world's youngest on record) who received a custom artificial femur that was designed and manufactured entirely in Vietnam <sup>44</sup> <sup>45</sup>. The 3D printed metal implant replaced the patient's entire thigh bone after tumor resection. Vinmec doctors noted that no off-the-shelf design was suitable, so they developed the implant in-house – a milestone for Vietnam's medical manufacturing capabilities <sup>46</sup>. This bespoke solution allowed the child, who had wondered if he'd ever walk again, to have a chance at restored mobility. It also demonstrates how AM is enabling limb-sparing surgeries with perfectly fitted implants in pediatric oncology.

- **Medical (Reconstructive):** A new 3D printing facility at North Bristol NHS Trust (UK) helped **restore a 75-year-old cyclist's face** after a devastating injury. The patient lost his left eye and suffered severe facial damage when hit by a drunk driver. At the Bristol 3D Medical Centre, specialists used 3D scanning to create a digital model of his face and then 3D printed a custom prosthetic to replace the missing eye area <sup>47</sup> <sup>48</sup>. The silicone facial prosthesis was colored to match his skin, eye, and even hair, dramatically improving the patient's appearance and confidence (he says he now feels "more comfortable" seeing himself in the mirror) <sup>49</sup>. The center also 3D printed a neck scar splint for him, and is equipped with high-grade polymer printers (including PEEK materials) to produce surgical models and patient-specific implants on site <sup>50</sup> <sup>51</sup>. This case exemplifies how in-hospital 3D printing hubs can deliver life-changing personalized prosthetics and devices in days instead of weeks.
- **Dental:** Boston Micro Fabrication (BMF) showcased **UltraThineer** – an ultra-thin 3D printed **zirconia dental veneer** – in a recent clinical case addressing severe tooth discoloration. A California dentist used the 0.1 mm-thick UltraThineer veneers to treat a patient with deep tetracycline staining, without any drilling or removal of healthy tooth structure <sup>52</sup>. The 3D printed veneers were fabricated to precisely fit the patient's teeth and simply bonded on, instantly covering the brown-gray staining that had persisted since childhood. This successful outcome demonstrates how high-resolution 3D printing (in ceramic zirconia) is enabling *no-prep veneers* – a potential game-changer for cosmetic dentistry, offering a conservative and customizable solution for difficult cases of enamel discoloration <sup>52</sup>.
- **Construction:** In the Netherlands, transit company *Qbuzz* and sustainable builder *Silva.builders* unveiled the **world's first fully recyclable 3D-printed bus driver rest house**. The small breakroom pavilion, installed in Friesland province, was fabricated from a **CO<sub>2</sub>-neutral biocomposite** derived from local waste streams <sup>53</sup>. The design meets strict Natura 2000 environmental regulations, proving that 3D printed architecture can be both eco-friendly and functional. The printed structure provides a comfortable, insulated space for bus drivers to take breaks, and was produced as a single unit to minimize material waste. Qbuzz officials say this demonstrates how circular, digital fabrication can improve employee well-being while aligning with regional sustainability goals <sup>54</sup>. The success of the project opens the door for more 3D-printed, **zero-waste buildings** in public infrastructure.
- **Consumer Goods & Culture:** A creative **Minecraft** fan built a real-life, working version of the game's **compass** using a 3D printer. The Reddit user "*Intelligent-Cause751*" 3D printed the compass to mimic the in-game item, and remarkably, the device's red needle actually rotates and points north just like a real compass <sup>55</sup> <sup>56</sup>. A video of the functional 3D printed compass went viral among the Minecraft community, though the maker kept the mechanism a secret (prompting others to hunt for the design files or reverse-engineer how it works) <sup>57</sup> <sup>58</sup>. This novelty project is one of many fan-made creations bringing video game props to life via desktop 3D printing – a trend that has seen everything from **creeper** figurines to **life-size swords** reproduced by enthusiasts <sup>59</sup>. It highlights the growing accessibility of additive manufacturing for hobbyists and the crossover between digital and physical creativity in the consumer realm.

**Sources:** The news and developments above are drawn from the past week's press releases, industry news sites, and research publications. Key sources include *3DPrint.com* news briefs <sup>5</sup> <sup>47</sup>, *3D Printing Industry* reports <sup>1</sup> <sup>27</sup>, *TCT Magazine* and *Metal AM* coverage <sup>7</sup> <sup>40</sup>, among others, as cited throughout. This roundup covers major announcements from June 15–22, 2025 – spanning business moves, product

launches, standards progress, research breakthroughs, and real-world applications across aerospace, medical, dental, construction, and consumer sectors in additive manufacturing.

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<https://www.metal-am.com/pratt-whitney-tests-rotating-am-turbine-parts-for-its-tj150-engine/>

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