

# GROUND SERVICES BASED ON 4.0 TECHNOLOGIES FOR NEWSPACE LAUNCH SYSTEMS

Anamol MITTAL,<sup>1</sup> Norbert FRISCHAUF,<sup>1</sup> Eduard DIEZ,<sup>2</sup> Sophie MISSONNIER,<sup>3</sup> Christopher CHAFFARDON,<sup>4</sup> Olivier WEITTEN,<sup>5</sup> Circe SERRA<sup>6</sup>

<sup>1</sup>*SpaceTec Partners, Munich, Germany*

<sup>2</sup>*GTD Sistemas de Informacion SA, Barcelona, Spain*

<sup>3</sup>*CT Ingenierie, Guyancourt, France*

<sup>4</sup>*MT Aerospace, Augsburg, Germany*

<sup>5</sup>*Air Liquide Advanced Technologies, Sassenage, France*

<sup>6</sup>*EURECAT, Cerdanyola del Vallès, Spain*

[mittal@spacetec.partners](mailto:mittal@spacetec.partners), <https://sammba.eu/>

**Abstract:** Launch service providers (LSPs) in the New Space industry aim to provide responsive, flexible and affordable launch services to the next generation of satellites. Spaceport operators (SPOs) support LSPs by providing them with base services, and infrastructure for launches as well as facilitating operations. SAMMBA, "Standard and Modular Micro launcher Base services", a horizon 2020 project, aims to develop base services based on 4.0 technological building blocks to tackle problems faced by spaceports such as standardisation and scalability: enabling spaceports (SPOs) to handle multiple launchers (LSPs) and LSPs to operate from multiple SPOs. SAMMBA performs techno-economical design loops in synergy with a market survey, regulatory frameworks and customers' feedback in order to develop demonstration prototypes to showcase value-added solutions.