

# COE CST Tenth Annual Technical Meeting

## Small Launch/Satellite Constellation Industry Dynamics (395/402 FIT)

**Andy Aldrin Ph.D.**  
**Cory Sanicky**  
**Matt Austin**  
**Stephen Sullivan**  
**Victor Bautista**



Center of Excellence for  
Commercial Space Transportation



# Team Members

- PI: Andy Aldrin
- Students: Cory Sanicky  
Matt Austin  
Stephen Sullivan  
Victor Bautista



## • Organizations



# Task Description

- **Develop event databases comparable and consistent with relevant process research in other industries**
- **Convene methodological and market specific workshops to refine methodology and develop hypotheses/assumptions**
- **Develop economic/business analyses to support hypothesis/assumption development**
- **Develop analyses regarding critical assumptions**
- **Author and submit manuscripts for journal publication**

# Schedule Milestones

- April 2019: (Prewrite) Small Launch Vehicle Industry Dynamics Workshop
- August 2019-February 2020: Prewrite by PI and Students
- February 2020: Notification of award
- July 2020 Completion of SLV market analysis
- September 2020 combination of Small Launch Vehicle and Satellite Constellation studies
- December 2020: Process workshop 1 (Virtual)
- February 2021: Industry Workshop 1 (Launch)
- March 2021: Industry workshop 2 (Satellite)
- April 2021: Industry workshop 3 (Combined)
- June 2021: Process workshop 2
- September 2021: Combined workshop
- December 2021: Manuscript submittals

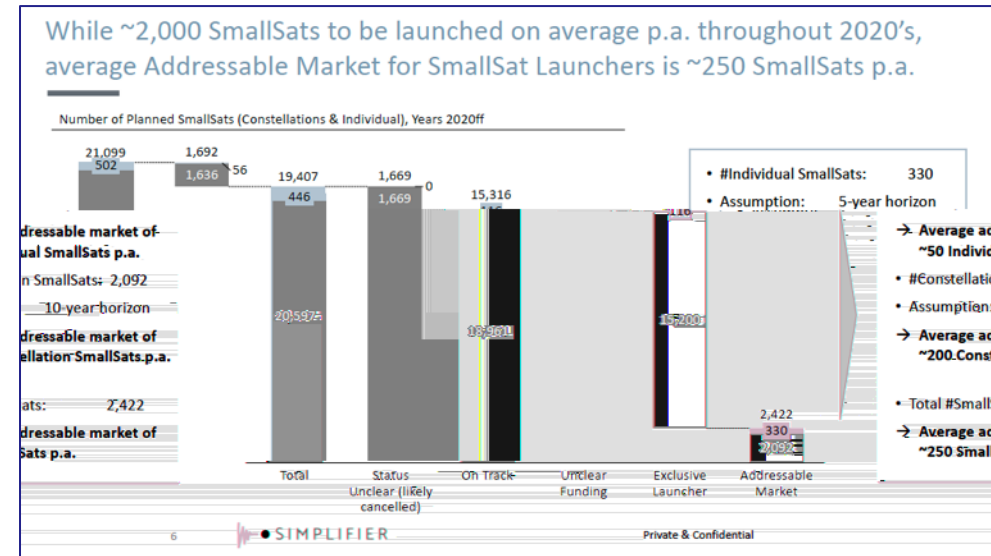
# Goals

- **Develop early indicators regarding the future shape and viability of the largest and most volatile sectors of the space industry**
- **The database developed through the course of this project will provide valuable source of future industry research**

# Results

- Launch systems analyzed (Austin, Sullivan, Bautista)
- ~700 Event records catalogued (Sanicky)
- Small launch market analysis
  - Produced with Simplifier (Peter Eckart, Andy Aldrin)
  - Indicates with nominal assumptions, serviceable market will support 3 providers

Headline	Company Name	Date of Publication	Author
PLD Space Closes €7 Million Investment in Tie-up with Arcano Partners	PLD Space	9/15/2020	Doug Messier
1st_Order	Launch_Vehicle	Date_of_Event	Article_Link
Resource Endowments	Miura 5	9/15/2020	<a href="http://www.parabolicarc.com/2020/09/15/pld-space-closes-e7-million-investment-in-tie-up-with-arcano-partners">http://www.parabolicarc.com/2020/09/15/pld-space-closes-e7-million-investment-in-tie-up-with-arcano-partners</a>
Category	Country	Outcomes	Event/Incident
Launch	Spain	Funding Received	Event
IA_2nd_Order	RE_2nd_Order	PF_2nd_Order	Event Description
	2.2.Financial Arrangements		PLD Space today announced alternative asset management group Arcano Partners. The €7 million [\$8.3 million]
IA_3rd_Order	RE_3rd_Order	PF_3rd_Order	
	2.2.4.Equity Investment		
Article Text	Article_Citation		
Spain's PLD Space, Miura 5 microlauncher (formerly Arion 2) aims to provide dedicated launches for an emerging small satellites market in 2021. (Credit: PLD Space) Venture part of tech firm's Series B investment round for space vehicle development PLD Space already attracted over €18 million (\$21.3 million) in private investment and institutional support in addition to new deal involving Arcano Partners a leading financial advisor in Iberian market. ELCHE, Spain, 15 September 2020 (PLD Space) — Spanish reusable launch vehicle developer PLD Space today announced the closure of further financing through a tie-up with independent financial advisory and alternative asset management group Arcano Partners. The €7 million [\$8.3 million] venture will fund the build out of the PLD Space aerospace project in a deal forming part of its Series B investment round.	Messier, Doug. PLD Space Closes €7 Million Investment in Tie-up with Arcano Partners - Parabolic Arc. 15 Sept. 2020. <a href="http://www.parabolicarc.com/2020/09/15/pld-space-closes-e7-million-investment-in-tie-up-with-arcano-partners">http://www.parabolicarc.com/2020/09/15/pld-space-closes-e7-million-investment-in-tie-up-with-arcano-partners</a>		
PLD Space, based out of Elche (Spain) and founded in 2011, is currently developing the MIURA 5			



# Publications, Presentations, Awards, & Recognitions

## PUBLICATIONS

## PRESENTATIONS

Preliminary Small Launch Vehicle Market Assessment (Eckart, Aldrin)

## AWARDS

## RECOGNITIONS

Please include publications, presentations, awards, and recognitions you have received for the past year. This information is critical for the annual report. Also, please copy the original files to [fredbowen@orionat.com](mailto:fredbowen@orionat.com). For questions contact Fred Bowen at 614-267-9787.



# Conclusions and Future Work

- Integration of two studies will yield more actionable conclusions
- Get started with workshops in earnest.