



Background and Report

by

Ademir Vrolijk & Michael Bergmann



Contents

- Part I – Background
 - ISU, BSTI, and the Go SSP Project
 - The Team
 - Challenges
 - Work Flow
- Part II – The Guidebook
 - Contents
 - Layout
 - Case Study
 - Future



Part I

Background





ISU, BSTI, and Go SSP

- International Space University (ISU) and the Space Studies Program 2011 at TU Graz, Austria
- The Guidebook on Small Satellite Programs (Go SSP) was developed under the ISU team project framework
- Go SSP was conducted in cooperation with UN OOSA under the Basic Space Technology Initiative of the UN Programme on Space Applications
- The guidebook:
 - Provides principal considerations necessary for such a program
 - Is written as a primer for decision-makers

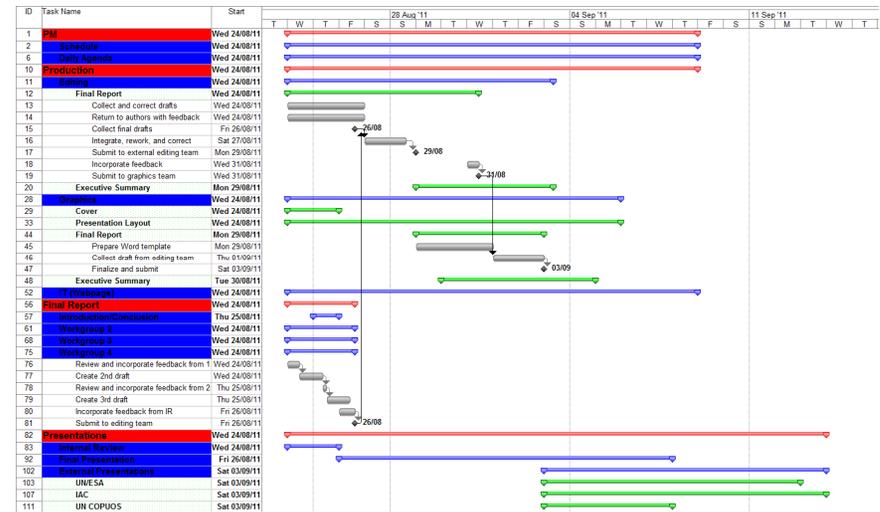
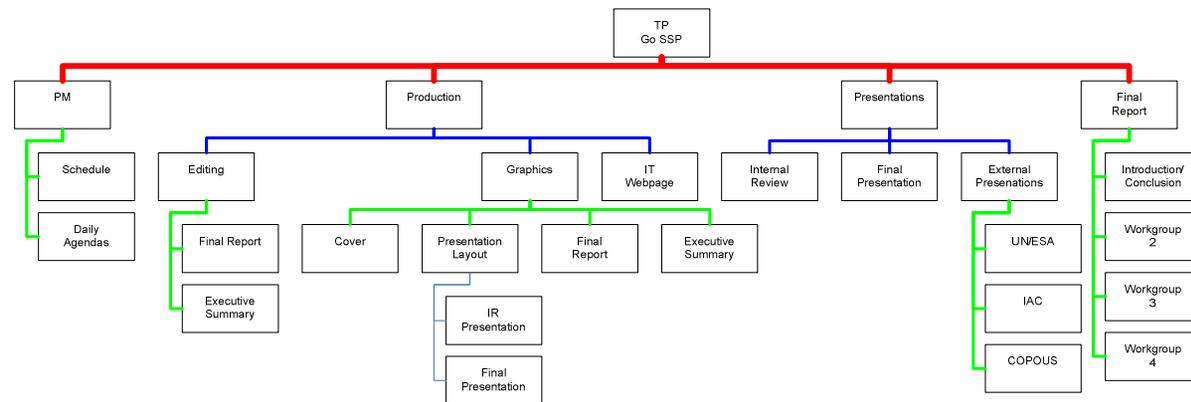
The Team

- 39 participants, 24 countries
- Majority were non-native English speakers
- Diverse professional backgrounds
- Many participants were experienced with small satellites



Challenges

- Main challenges faced:
 - Organizational structure
 - Final product
 - Keeping team on track
- Main lessons learned:
 - Overcome language barriers early
 - Maximize off-hours
 - Parallel vs. serial tasks



Work Flow

Listen to experts...



Brainstorm and develop ideas...



Work Flow

Present ideas and receive feedback...



Work Flow

Rework ideas and develop into concrete solutions...



Work Flow

Compile solutions into the final products...



Work Flow

Finally...





Part II

The Guidebook on Small Satellite Programs



The Guidebook

To create a guidebook aimed at decision-makers in academia, government, and industry interested in developing space capabilities using small satellite programs.





Go SSP Contents

- Provides a broad overview of initial considerations
- Demonstrates to the reader the usefulness of small satellites:
 - Fulfills similar role as larger counterparts in areas such as remote sensing, disaster monitoring, vessel tracking
 - Innovative and cost-effective space based capabilities
- Includes recommendations, best practices, lessons learned
- Four small satellite missions analyzed throughout the report
- Impresses upon the reader that a significant commitment is required, but the payoff is similarly significant



Go SSP Layout

- Why small satellites?
- What can be accomplished?
- Who is involved?
- What legal and regulatory issues exist?
- How is the program concept envisioned?
- How is the mission concept implemented?



e.g. BRITE Austria Case Study

- Rationales: education and national prestige purposes
- Application: space science (star observations)
- Partners: numerous national and international partners are detailed
- Legal: Austria has created a national legal framework to support its satellite activities
- Implementation details: ground/user segment, launch, and orbital parameters detailed



Go SSP Future

- Go SSP website: gossip.isunet.edu
- Additional information on the BSTI website: <http://www.unoosa.org/oosa/en/SAP/bsti/isu-ssp2011.html>
- Go SSP follow up:
 - A revision of the report is being planned
 - Other projects being explored
- Subsequent Go SSP activities might take on a different form than the ISU framework



Closing Remarks

- Despite challenges, the Go SSP experience enriched the team
- The Guidebook is starting point for developing an improved and more detailed document
- Team members are still interested in carrying the work forward

Thank You





Project Members

TP Co-Chair Werner Balogh
United Nations Office for Outer Space Affairs
 TP Co-Chair Wiley Larson
Stevens Institute of Technology
 TP Teaching Associate Joshua Nelson
University of North Dakota

Alonsoperez, Maria Victoria URUGUAY			Arslantas, Yunus Emre TURKEY	Matveenko, Vera RUSSIAN FEDERATION			Morris, Trevor CANADA
Bai, Guangzhou CHINA			Ballenahalli Krishnamurthy, Niveditha INDIA	Pandya, Jigar INDIA			Qedar, Ran ISRAEL
Bergmann, Michael AUSTRIA			de Crombrughe, Gueric BELGIUM	Reid, Tyler CANADA			Ressler, Gerhard AUSTRIA
D'Souza, Brian CANADA & UNITED KINGDOM			Ghadaki, Farnaz CANADA & IRAN	Rocha, Mauricio Teixeira BRAZIL			Romano, Patrick ITALY
Hasanbegovic, Amir NORWAY			Haylock, Thomas CANADA	Saether, Erik SOUTH AFRICA			Soares Henriques, Rui Filipe PORTUGAL
Jurado Gallardo, Maria de los Angeles SPAIN			Koide, Takahiro JAPAN	Su, Jinxin CHINA			Sundlisæter, Tale NORWAY
Kumar, Nelanuthala Sudheer INDIA			La Torre, Simone ITALY	Terakado, Daiki JAPAN			Timofeev, Evgenii RUSSIAN FEDERATION
Labzovsky, Ilia ISRAEL			Li, Dong CHINA	Tsoukala, Sotiria GREECE			Unterberger, Manuela AUSTRIA
López Telgíe, Alejandro Ignacio CHILE			Luft, Michael ISRAEL	Urbanowicz, Maciej POLAND			Vihmand, Mart ESTONIA
				Vrolijk, Ademir CANADA & NETHERLANDS			Wolf, Nadja GERMANY
				Zhai, Zhengan CHINA			



Experts

Fernando Aguado-Agelet
University of Vigo

Philomena Bonis
International Space University

Andy Bradford
Surrey Satellite Technology Ltd.

Angie Bukley
International Space University

Carol Carnett
International Space University

Pascale Ehrenfreund
Space Policy Institute

Rick Fleeter
Brown University

Joel Herrmann
International Space University

Rei Kawashima
University Space Engineering Consortium

Carol Larson
International Space University

William Marshall
National Aeronautics and Space Administration

Milind Pimprikar
CANEUS

Jordi Puig-Suari
California Polytechnic State University

Klaus Schilling
University of Würzburg

Tom Segert
Raumfahrtinitiative Berlin-Brandenburg

Fabian Steinmetz
University of Stuttgart

Kirk Woellert
Space Policy Institute

Eddie van Breukelen
Innovative Solutions in Space

Oliver Zeile
University of Stuttgart