

# The Trend of Global Space Technology Development: Taiwan's Opportunities and Challenges

由全球太空科技發展趨勢看台灣的機會與挑戰

陳嘉瑞 博士

**Chia-Ray Chen, Ph. D.**

福衛八號計畫主持人

國家實驗研究院 國家太空中心

## Abstract

Sputnik 1 was the first artificial Earth satellite and launched by the Soviet Union (USSR) in 1957. The launch was the beginning of a new era of the Space Race between United States and USSR. Since then, the developed countries have been devoted into the space technology and science. Before 1970s, most of the space missions were initiated by the national-level space agencies because of the huge scale, the intensive time consuming, and incredibly expensive on building satellites. In the late 1970s, an innovative small satellite manufacturer, Surrey Satellite Technology Ltd (SSTL) from Britain, was established to boost the international market of microsat. The cost of satellite is reduced, the space technology is improving and promoting accordingly.

In 1999, the regulation of cubesat was initiated by the California Polytechnic State University and Stanford University. Because of lower cost for cubesat development and launch service, cubesat technology has been growing popularity on campus and in the general public.

In the past years, the number of new space companies is growing up exponentially and globally. Taiwan has very good capabilities in the fields of semiconductor, information-communication technology, photovoltaic industry, precision machinery and manufactory. It's an opportunity and challenge to Taiwan by taking our advantages to join the new space era.

## 摘 要

全球第一枚人造衛星 **Sputnik 1** 於 1957 年由前蘇聯成功發射進入太空後，揭開了美、蘇兩國之間的太空競賽。隨時間演進，越來越多先進國家參與太空科技研發。1970 年代以前衛星體積龐大，研發費用昂貴且耗時，主要為國家級太空任務之發展。1970 年代以後英國 SSTL 公司的創立，帶動微衛星(**microsat**)市場蓬勃發展，衛星成本大幅降低，太空科技已不再是高不可攀的尖端領域。

1999 年由 **California Polytechnic State University** 與 **Stanford University** 所發起的立方衛星 (**Cubesat**) 規範，隨著商用發射載具的技術發展與成本降低，帶動近年來立方衛星發展熱潮，使得衛星發展走入校園與民間。

近年來全球太空科技與新創公司呈現爆炸性成長，台灣以科技立國，具有半導體、資通訊、光電、精密機械與製造等先進技術與完整產業供應鏈，如何掌握 60 年來最強大的太空科技浪潮值得深思。