Corporate Entrepreneurship Bringing Sustainable Value Innovation to Agribusiness: The case of Farmstar.

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BIOGRAPHY

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INTRODUCTION

"Man must rise above the Earth – to the top of the atmosphere and beyond – for only thus will he fully understand the world in which he lives.”

Socrates, 500 B.C.

Case Summary

In 2006, Infoterra France was created as a subsidiary of European aerospace group EADS-Astrium, to develop and commercialise Earth observation satellite technologies in partnership with Arvalis. Among these was a precision agriculture technology – Farmstar – which provided farmers with recommendations throughout the growing season, and enabled subscribers to manage their crops with unprecedented precision. Research began in 1996 and by 2009 30 agricultural cooperatives in France representing almost 9,000 farmers and some 400,000 hectares of land had adopted the service. By 2008, Infoterra-Arvalis had a near monopoly on the rapidly growing market in France. This joint-venture had succeeded where many other companies had failed. The technology’s potential was enormous but could they now protect their leading position in the French market and successfully transfer the knowledge to develop new markets abroad?

Case Objectives

The complete case study tells the story of successful corporate entrepreneurship bringing sustainable value innovation to agribusiness. It recounts the history of EADS-Astrium, a subsidiary of Infoterra, and the development of a new product-service called Farmstar to help farmers reduce costs and increase yields. The case describes the creation of uncontested market space through the successful development of an innovative product that increases private benefits (profits) on adoption. Farmstar also generates public benefits (lowers pollution) by reducing the negative externalities of intensive agriculture. We call the process of simultaneously increasing public and private benefits through productivity increase and cost reduction ‘Sustainable Value Innovation’ (SVI). Describing the quest to achieve SVI, the case reveals the importance of:

- identifying and assessing reliable trends across geographies and traditional industrial sectors when defining long-term strategic objectives
- nurturing effective operational partnerships that span the technology life cycle of research, development, demonstration and commercialisation.

Case Structure

The case describes the following topics:

- **Topic 1**: The characteristics of Sustainable Value Innovation – simultaneously increasing public and private benefits through value innovation.
- **Topic 2**: The context against which the strategic decision to invest in precision agriculture technologies was made – pressure on land resources and spiralling costs.
- **Topic 3**: A difficult history of commercialising space technologies – navigating public-private partnerships, avoiding operational risks.
- **Topic 4**: Farmstar from R&D to commercialisation – highlighting the role of collaboration beyond core competencies and describing the essential role of extended networks in reducing costs and overcoming slow adoption.

Each one of these phases in the development of Farmstar can become the central topic of class discussion and assignments by referring students to the suggested readings, or by requiring them to work on class assignments to be presented and defended in class. However, the case is also intended to provide the
essential information to enable students to address two specific questions:

- How to grow and protect the French market?
- How to enter new markets in other parts of the world?

**Topic 1. The Characteristics of Sustainable Value Innovation (SVI)**

This case describes a process of sustainable value innovation (SVI). Sustainable value innovation represents an extension of the logic of Blue Ocean Strategy (BOS) to encompass the environmental and social components of the value proposition. SVI entails embedding the value proposition of the company and consumer (both private benefits) into the broader environmental and societal context (public benefits).

Farmstar does this by enabling farmers to raise the productivity of their operations, to generate profits that exceed the additional cost of the subscription (private benefits), whilst reducing the environmental footprint of their operations (reduced labour costs, fertiliser application, tractor use and associated CO₂ emissions). It is important to note that Infoterra-Arvalis does not use the ‘green’ credentials of their service as a marketing tool to farmers; they focus on highlighting the productivity improvements that Farmstar brings.

**Topic 2. Defining Strategic Investments in Light of Long-Term Environmental Trends**

This first topic requires students to consider the strategic decision to provide RD&D funding for what was to become Farmstar. Students should be asked to examine the pressures driving long-term trends among land resources (soil and water) and food producers; also to consider the multi-functional nature of land and the relative potential for intensification vs. extension of farming systems when good-quality land resources are scarce. In light of these considerations they may be asked to perform a demand-side analysis and assess EADS-Astrium’s long-term-strategy to invest in Infoterra and the Farmstar product-service.

The corporate decision to invest in the research and development of Farmstar was made with the knowledge that it would take time to develop and bring to market. But EADS-Astrium’s experience told them that the underlying regional and global trends shaping agribusiness - namely increased demand for food and multiple pressures on food producers and land resources – favoured such a long-term business strategy. They were also aware that they had a unique comparative and competitive advantage by virtue of their size and technological expertise. To summarise, the journey looked long but the destination was appealing.

**Topic 3. Technology RD&D: A Risky Public-Private Affair?**

In this section students are required to reflect on the strategic importance of research and development (R&D) technology investment decisions. Students should develop an understanding of the risks involved in large-scale technology investments, specifically those that involve negotiation of both international and public-private collaborations. Class assignments may be used as a basis to discuss (alternative) assessments of the positive and negative implications of changing public policy and regulatory frameworks on the feasibility of R&D and technology investments. As an example, students may be asked to form three groups (public representatives, the domestic and foreign corporations) to discuss the issue from each perspective. We stress the importance to this exercise of prior reading of additional material by students.

It is not surprising that remote sensing technologies were first developed by the state and used for military purposes. But this historical context has meant the ability to successfully negotiate (international) public-private partnerships has proved difficult and slowed the commercialisation of remote sensing technologies and product delivery in the civil domain.

The development and subsequent commercialisation of (environmental) technologies takes time and often requires incentivisation (such as government funding) to overcome initial barriers to development and subsequently adoption. There is a clear role for government when public benefits are involved. But companies have been justifiably wary of government involvement. The eight years between the 1984 Land Remote Sensing Commercialisation Act (PL 98-365) and the 1992 Land Remote Sensing Policy Act that repealed it were “rife with funding uncertainties, contract negotiations, and a lack of coherent government policy” (Johnston, Cordes 2003). To make effective investment decisions, companies require a consistent and reliable long-term public policy framework (Foxon, Pearson 2007). Alternatively, they can try to limit the necessity for government involvement. This was the second and successful strategy that EADS-Astrium finally adopted, and, as it turned out, a strategy that had additional benefits.

It was the received idea throughout the 90s that the winner of the race to corner the Earth observation market would be the company that managed to build and operate its own commercial constellation of satellites. However, the build-launch-operate model was premature for the following reasons:

- huge up-front research and capital expenditure costs
- risk of satellite launch failure
- long lead times to commercialisation and pay-back periods before profitability
Toulouse Space Show’10

As Exhibit 7 in the case shows, there have been significant discrepancies between planned and actual launch dates. Launch failure has been common. Under such circumstances, sharing risk and the cost with government made excellent sense and appeared essential at the time.

Clearly the 1984-1992 regulatory frameworks did not prove effective in supporting the development of the competitive market required for commercialisation. US government policy led to the monopoly status of EOSAT that allowed prices to increase as the service deteriorated. Failure to successfully negotiate with government led to the demise of Resource21. This situation had a significant impact on EADS-Astrium’s strategy and specifically the decision to quit the US and refocus activities in Europe.

The case shows the sensitive nature of R&D relationships between government, publicly-funded institutions and privately-funded companies. Repeated failures of joint ventures in the US taught EADS-Astrium that partnerships there involved an additional layer of complication surrounding national security and intellectual property rights (IPR) that proved insurmountable. Both issues soured and stifled collaborations between US and foreign companies. Since the initial failures, policy makers have been challenged to formulate “an effective remote sensing policy that brings together the diverse elements (civil, military and commercial) that are typically dealt with in isolation with detrimental effects.” (Williamson, Baker 2004). More recently, the legitimacy of commercially owned high-resolution remote sensing technologies has been influenced by the global trend toward transparency. However, not surprisingly, issues surrounding military-monitoring-surveillance technologies IPR and commercialisation remain sensitive.

The case describes how, following the failure of the US-Franco joint venture, EADS-Astrium refocused its activities in France. Aspirations to develop a constellation of satellites were shelved as it became evident through collaborative research with partners – French agronomists Arvalis and Cetiom-ITB – that the existing European satellite system SPOT was capable of providing data ‘fit for purpose’. Moreover, EADS-Astrium enjoyed close relationships with the SPOT team. As both were European companies, issues of national security were no longer a block to the development of trust and the product-service.

For EADS-Astrium, these considerations, combined with the failure to find the right partner in the US and the existence of strong domestic relations with existing European satellite image providers, caused them to think again. In particular, they shelved immediate plans to build their own sensor and began to reconsider France as a better place to continue development of the product-service.

**Topic 4. Collaborate to Get the Product-Service Right**

Why are partners so important even when you are a giant? Any response must evoke the importance of collaboration in (a) research and development that extends beyond the core competence of the firm, (b) product-service design for current non-clients, and (c) developing effective marketing and distribution systems leveraging informal networks among customers to overcome diffuse buyer problems.

“The giant centralised firm is changing into an agile and resilient network of participants”

The R&D process can take time and often involves multiple partners. While having partners is critical, this case reveals the importance of selecting and nurturing the right operational partnerships that span the technology life cycle of research, development and demonstration to maturity and commercialisation. While EADS-Astrium was able to weather several failed ‘joint’ ventures by virtue of its size and liquidity, learning important lessons along the way, other smaller companies were not.

**Summary**

Despite the commonly used life cycle analogy, the RD&D process is rarely linear, often exhibits hysteresis and can take unexpected trajectories. EADS-Astrium’s initial strategy involved developing a constellation of satellites, but was finally revealed as not necessary. What proved far more important than a private infrastructure was the need to focus on the software and product-service system – and in this effort partnerships proved vital.

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**REFERENCES**


