Eitan Muller

_Growth of Hi-Tech Markets_

_A Guided Tour through the Product Life Cycle_

NYU - winter 2006

Technological markets, high-technology innovations, and durable products of hi-tech nature are all characterized by growth patterns that are not only different from one market to the next but also contain a high degree of uncertainty. Such chaotic phenomena are difficult to investigate and present a challenge for forecasting market potentials and market shares.

In this course we will examine the structure and growth patterns of such markets. We will witness the unbearable slowness of new product growth, understand why main market consumers aren't impressed with early market technophiles, breathlessly watch the bandwagon wheezing by, and wistfully remember products such as WordPerfect, Lotus 123 and Atari.

The course requirements are the following:

One assignment – the PBX case – 20%
One case – the Iridium case – 20%
A closed book final examination – 60%

The instructor can be reached at emuller@stern.nyu.edu, or at the office: 998 0516.

More information about the course material can be found in www.hitechproducts.net

For more information about the instructor, please visit www.hitechmarkets.net/cv.html

The course consists of the following four parts:

a) Diffusion and adoption of new products
b) The Chasm and Saddle phenomena
c) Bandwagon effects and network externalities
d) Technological substitution and growth
a) Diffusion and adoption of new products

The unbearable slowness of new product growth

We will construct the mechanism that describes and predicts the growth and diffusion of new hi-tech and consumer electronic products. In particular we will discuss the power of imitation and word-of-mouth in the diffusion of innovative products. We will look at examples of such growth patterns in the US, Europe and Israel, understand why the process is inherently slow and discuss the possibilities facing the executive who wishes to accelerate sales of these products.

b) The Chasm and Saddle phenomena

Main market consumers aren't impressed with early market technophiles

We will discuss the phenomenon of a temporary but deep decline in sales during the growth stage of the product-life-cycle, and look at examples in the US consumer electronic market such as VCR’s, Cordless Phones, CB Radios, and DBS systems. We will understand why this sales pattern is a direct result of the dual market phenomenon that treats the early market adopters and main market adopters as sufficiently different to warrant differential treatment as two separate markets for marketing purposes. Methods of dealing with this growth pattern will also be discussed.

c) Bandwagon effects and network externalities

If you see the bandwagon - it's too late

Network goods are products that generate network externalities, or bandwagon effects, by causing the utility of the product to a consumer to increase as more consumers adopt the new product. We will see that contrary to common wisdom, bandwagon effects do not cause the acceleration of the growth process, but rather constitute a major factor holding it back. Fax Machines, DVD Players, CD Players and CB Radios will serve as examples to the pattern of growth of network goods. We will also discuss the tools executives could use to reduce this delay and why advertising in particular is a powerful tool in such cases.

d) Technological substitution and growth

Remember WordPerfect, Lotus 123, and Atari?

Old products don’t die. They are just replaced by a new generation of the technology that satisfies the same consumer needs more efficiently. We will highlight the difference between diffusion of the base technology and substitution of different generations of that technology. This will lead us to the discussion of the accelerated speed of technological change. We will demonstrate these principles on four generations of IBM mainframes in the US. The failure of the Iridium satellites system as an upgrade to the terrestrial cellular system will also be discussed.