Teece (1986) Profiting from technological innovation

A first-to-market advantage is translated into a sustained competitive advantage which either creates a new earnings stream or enhances an existing one. This is not always the case. Fact is that competitors/imitators have profited more from the innovation than the firm first to commercialize it! Since it is often held that being first to market is a source of strategic advantage,

Article’s aim is to explain why a fast second or even a slow third might outperform the innovator.

Often seen: Innovator are initially successful, lose market leadership & share after and is dropped out of the market in the end. If there are innovators who lose there must be followers/imitators who win.

To profit from innovation three fundamental building blocks must first be in place:

1. Regimes of appropriability: Environmental factors that govern an innovator's ability to capture the profits generated by an innovation. Key dimensions are: Legal instruments (Patents, Copyrights, Trade secrets) and Nature of technology (Product, Process, Tacit, Codified)

Tight appropriability regimes= good protection of innovation either through legal, or/and through nature of technology. This leads to a good chance for the innovator of translating its innovation into market value for some period of time.

Weak appropriability regimes= innovators must turn to business strategy if they are to keep imitators/followers at bay.

2. Dominant design paradigm: two stages in the evolutionary development of a product: preparadigmatic stage (no single generally accepted conceptual treatment of the phenomenon), and the paradigmatic stage (agreed upon “standards”, referred as “normal”). When imitation is possible and occurs coupled with design modification before the emergence of a dominant design, followers have a good chance of having their modified product annointed as the industry standard, often to the great disadvantage of the innovator. Once a dominant design emerges, competition shifts to price and away from design.

Preparadigmatic phase: The innovator must be careful to let the basic design "float" until evidence has accumulated that a design has been delivered which is likely to become the industry standard. Threats from imitators with improved design will be dependent on the relative cost of prototyping, and the more tightly coupled the firm is to the market.

Paradigmatic phase: as the leading design or designs begin to be revealed by the market, volumes increase and opportunities for economies of scale will induce firms to begin gearing up for mass production by acquiring specialized tooling and equipment, access to complementary assets becomes absolutely critical since the core technology is easy to imitate

3. Complementary assets: Services such as marketing, competitive manufacturing, and after-sales support needed for successful commercialisation.

Channel strategy issues:

Complementary assets are critical if the innovator is to avoid handling over the lion's share of the profits to imitators, and/or to the owners of the complementary assets that are specialized or cospecialized to the innovation. Three models emerge from this:

1. Contractual model (innovator signs a contract with suppliers, manufacturers or distributors):
   • Good with tight appropriability regime & complementary assets are available in competitive supply
   • Contractual relationships can bring added credibility to the innovator, especially if the innovator is relatively unknown when the contractual partner is established and viable.
   • Exposed to certain hazards, particularly for the innovator (1. difficult to induce suppliers to make costly irreversible commitments, 2. the risk that the partner won't perform according to the innovator's perception of what the contract requires, 3. partner may imitate the innovator's technology and attempt to compete with the innovator.)
II. Integration model (innovator owns the complementary assets needed to commercialize):

- Capture spillover benefits stemming from increased demand for the complementary assets caused by the innovation.
- If the innovation is not tightly protected and once "out" is easy to imitate, then securing control of complementary capacities is likely to be the key success factor.
- Hard to build/acquire complementary assets needed
- Timing is critical

III. Mixed Model (Partly licence/outsource, partly integrate)

- Critical assets can be kept within the company
- Take advantage from specialists internally and externally
- Possibility of coordination problems

**Implications for strategy:**

- strategies which the firm must follow to maximize its share of industry profits relative to imitators and other competitors.
- R&D investment decision cannot be divorced from the strategic analysis of markets and industries, and the firm's position within them.
- Large firms are more likely to possess the relevant specialized and cospecialized assets within their boundaries at the time of new product introduction.
- If legal protection of the innovator's profits is secure, innovating firms can select their boundaries based identifying user needs and respond to those through research and development.
- Trend in international business towards "dynamic networks" - characterized by vertical disintegration and contracting
- By making the correct strategic decision, innovating firms can move to protect the interests of stockholders.

**Conclusion:**

Innovation must focus not only on R&D, but also on complementary assets, as well as the underlying infrastructure.