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Trading and revealing information

Professor Eric von Hippel

MIT Sloan School of Management

Agenda

1. Why people freely reveal their innovations to manufacturers – and other users

2. Informal information *trading*

Know-How Trading Patterns Among Steel Minimills

For more information on this study and its results, see:

von Hippel, Eric. *Cooperation Between Rivals: Informal Know-How Trading*. *Research Policy* 16, 1987, pp. 291-302.

Steel minimills are far from mini in size and effect!

For more information, see:

Christensen, Clayton. *The Innovator's Dilemma*. HaperBusiness, 2000.

Firms can increase the amount of information they possess by trading:

	Situation Pre-Trade	Situation Post-Trade
Firm A	Unit A	Unit B + Unit A
Firm B	Unit B	Unit A + Unit B

Information trading can pay under SOME conditions

Consider the Total Profit (also sometimes called "rent") that a proprietary "unit" of know-how yields to a firm exclusively possessing it as made up of two parts:

Total Profit = Profit + Δ Profit

Profit = the portion of Total **Profit** which a firm expects after trading the unit of knowhow to another firm. (Both firms then possess the traded knowhow.)

Δ **Profit** is the extra **Profit** which a firm expects if it possesses the knowhow unit exclusively.

Example: ASSUME TWO FIRMS START WITH KNOW-HOW UNITS OF DIFFERENT CONTENT BUT EQUAL VALUE:

Before trade each firm has: **Total Profit = Profit + Δ Profit**

After trade each firm has: **Total Profit = 2 (Profit)**

Therefore trading pays only when **Profit > Δ Profit**

KNOW-HOW TRADING AS A "PRISONER'S DILEMMA"

Assume as before that two firms have one unit of unique proprietary know-how each. Assume also that each firm's unit, although different, has an identical **Profit** and ∆ **Profit** associated with it.

Then, pre trade, each firm has: Total Profit = **Profit + ∆ Profit**.
After a cooperative trade, **R**, each firm has: **R = 2 Profit**

All four possible outcomes of a single play of this game are:

T = 2 Profit + ∆ Profit **R = 2 Profit**
P = Profit + ∆ Profit **S = Profit**.

A Prisoner's Dilemma exists if **T > R > P > S and 2R > T+S** (A strategy of continuing cooperation has been shown empirically to pay best over many plays of a Prisoner's Dilemma game.)

Therefore, know-how trading pays
(conditions for a Prisoner's Dilemma are met)
if ***Profit >*** ∆ ***Profit*** *but not if* ***Profit <*** ∆ ***Profit***

FIRMS THAT DO TRADE HAVE AN ADVANTAGE OVER NON-TRADERS

Assume firms A and B trade $ research results with low competitive value but that Firm C does not trade

	Situation Pre-Trade	Situation Post-Trade
Firm A	low unit + high unit	low + low + high
Firm B	low unit + high unit	low + low + high
Firm C (non-trader)	low unit + high unit	low + high

Information trading examples

(1) Oil Geologists trade easily reproducible know-how;

Profit > Δ Profit

Unless it involves an upcoming oil leasing competition;

Profit < Δ Profit

(2) Aerospace engineers trade easily reproducible know-how;

Profit > Δ Profit

Unless it bears on a competition for an important contract;

Profit < Δ Profit

How Frequent is Know-how Trading?

Minimill Personnel Sample:

The results of this study can be found in:

Schrader, Stephan. *Informal technology transfer between firms: Cooperation through information trading*. *Research Policy* 20, 1991, pp. 153-170.

Oil Scouts Trade "Black Box" Information Only

Firm A	Type of Information	Firm B
Geologist	**Data Analysis Know-how**	**Geologist**
Scout	**Oil Well Logs** **Oil Well Cores** **Seismic Data**	**Scout**

When Scouts can be used, Oil Companies tend to force their use. Hypothesized advantages:

- Specialists have better networks, are better traders;
- Collects IOU's in one place, minimizing # outstanding, and time they are outstanding.

Some Rules of Oil Scout Behavior

(As per Scouting Association codes of ethics)

- **"A scout must represent only one company...".**

- **"The information a scout obtains should be invariably first transmitted to the employer."**

- **"A member may not dispose of information without the consent of the employer."**

- **"Scouts should never knowingly dispense information of an untrue or doubtful character".**

Source: 1988 Houston Oil Scouts Association Code of Ethics