Transaction Cost Leveling to Reduce Incumbent’s Difficulty in Innovation: A Heuristic Approach through Critical Review

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The Idea in Brief

• Incumbent’s difficulty – Extant frameworks attempt to identify disruptive, architectural or discontinuous innovation – the problem is one of will and resource allocation rather than competence (Christensen, et al. 1996, 1997, 2003; Henderson & Clark, 1990)

• We propose an alternative approach, based on TCE, to reduce incumbent's difficulty (in creating the will)

• We define transaction cost levelling (TCL) as the process of minimising the difference in transaction costs between different innovation-options available to a firm

• Depressed transaction cost reference --> Differential TC

• Five postulates
Motivation

• The central theme of disruptive innovation is Innovator's dilemma

• Williamson (1981): Power theories have overshadowed efficiency theories

• Teece 2010: Argues for complementing power and efficiency theories

• Gap in research literature
Importance

• Better understanding of the phenomenon
• Creating innovative capability in firms
• Fostering intrapreneurship
• Public policy to stimulate innovation
Structure of the paper

• Ongoing research, gap and alternative approach
• The phenomenon of Incumbent's difficulty
• Transaction Cost Economics (TCE)
• TCE applied to innovation - five postulates
• Discussions, Scope for further research, Conclusion
• References
The phenomenon - Incumbent's difficulty

- Abernathy and Utterback (1978) - incremental Vs radical
- Foster (1986) - attacker's adv; need to cannibalize
- Tushman and Anderson (1986) - competence-enhancing / competence-destroying, locus of innovation
- Henderson and Clark (1990) - architectural innovation
- Bower & Christensen (1995) - disruption, perf. trajectory
- Low-end, new market, high-end disruptions
Incumbent's difficulty is the common thread connecting low-market / new-market / high-market disruptive, architectural, competence-destroying, or radical innovations
Transaction Cost Economics

- Commons – Coase – Hayek – Williamson – North

- Critical dimensions - frequency, uncertainty, asset specificity (Williamson, 1979, 1981) - we consider mainly uncertainty and asset specificity - repetitive transactions

- Asset specificity --> ex-post dependency, holdup, opportunistic behaviour (North, 1996)

- Asset specificity - site, physical, temporal, human assets

- Contractual hazards through weak property rights, undisclosed quality issues, information asymmetries etc.
Transaction Cost Economics (contd.)

• Williamson's behavioural assumptions: human beings are subject to
  o Bounded rationality
  o Opportunism

• Langlois (1992): dynamic nature of transaction costs
  o TC arises from technological or organizational changes
  o TC reduces with time and stability
TCE dimensions of Incumbent's difficulty

- Filtering out of information related to the emerging tech (Henderson & Clark, 1990), increasing uncertainties
- Opportunist behavior by customers layer by layer (Bower & Christensen, 1995)
- Bounded rationality of the managers of the established company who were intendedly rational when they listened to their customers (Christensen & Bower, 1996), but bounded by their channels, filters and strategies (Henderson & Clark, 1990) in processing information and taking decisions
- Uncertainties related to the new technology and the appropriability of benefits (Teece, 1986)
- New asset specificities, unclear property rights, information asymmetries (Teece, 1986)
Five Postulates

Postulate 1: Transaction cost attributes associated with the building blocks of innovation create transaction cost differentials between the incumbent’s innovation options.

Postulate 2: Incumbent’s preference to sustaining innovation leaves disruptive innovation an attractive option to new entrants indifferent to transaction costs.

Postulate 3: Incumbent pursuing low transaction cost avoids investing in the pre-paradigmatic phase of a disruptive innovation and finds it hard to own a dominant design.
Five Postulates (contd.)

Postulate 4: Declining transaction costs confer subsequent advantage to the new entrant

Postulate 5: Mainstream markets switch to disruptive innovation when their transaction costs related to such innovation fall to levels comparable to that of existing art
Postulate 1: Transaction cost attributes associated with the building blocks of innovation create transaction cost differentials between the incumbent’s innovation options.

• Teece, 1986: Building blocks of innovation
  o Appropriability regime
  o Dominant design paradigm
  o Complementary assets

• Over time, TC gets depressed, creating a TC reference level and hence a TC differential between options
Transaction cost of new (disruptive) innovation

Transaction cost differential between the innovation options. TC associated with disruptive innovation is higher than the reference level by this TC differential.

Transaction cost of sustaining innovation falls with time, as firm gets entrenched/established. This depressed transaction cost sets the firm’s reference level while evaluating further innovation options.

Time or entrenchment

Fig 1. Firm’s reference level for transaction cost reduces over time creating a transaction cost differential between innovation options.
**Postulate 2:** Incumbent’s preference to sustaining innovation leaves disruptive innovation an attractive option to new entrants indifferent to transaction costs

<table>
<thead>
<tr>
<th>Known markets, new technology options</th>
<th>Known technology, new market options</th>
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<tbody>
<tr>
<td><strong>Incumbent</strong></td>
<td></td>
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<tr>
<td>Low transaction cost</td>
<td>High transaction cost</td>
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<tr>
<td>Firm has the will to pursue</td>
<td>Firm has very little will to pursue</td>
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<tr>
<td><strong>New Entrant</strong></td>
<td></td>
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<tr>
<td>High transaction cost, but firm indifferent.</td>
<td>High transaction cost, but firm indifferent.</td>
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<td>High competition from established players.</td>
<td>Low competition from established players.</td>
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<tr>
<td>Firm may not pursue</td>
<td>Firm may want to pursue</td>
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Fig 2. Incumbent pursues low transaction cost options leaving high transaction cost options to new entrants.
Postulate 3: Incumbent pursuing low transaction cost avoids investing in the pre-paradigmatic phase of a disruptive innovation and finds it hard to own a dominant design

- Dominant Design Paradigm (DDP) has two phases - pre-paradigmatic and paradigmatic (Teece, 1986)
- High transaction costs are associated with the first - hence incumbent responds with sustaining innovation (Christensen, et al. 1996), shying away from investing in the first phase
- Dominant design evolves as pre-paradigmatic phase ends
- Incumbent fails to own a dominant design --> followership
- Followership is inferior to leadership in disruptive innovation (Christensen, 1997) for gaining market share
Postulate 4: Declining transaction costs confer subsequent advantage to the new entrant

• New entrants enter with a transaction cost disadvantage and hence build competitive advantage in other areas - operations, features, flexibility, customer intimacy etc.

• As transaction costs decline, the above advantage creates superiority for the entrant over the incumbent

• E.g.: Southwest Airlines carried their advantage from Texas to California and other routes, driving out competition
Postulate 5: Mainstream markets switch to disruptive innovation when their transaction costs related to such innovation fall to levels comparable to that of the existing art

- An incumbent's need to take customers along with it as it moves to a new paradigm, restricts its ability to switch.

- But this is less so for customers: they will be able to switch when the TC of the new relationship becomes comparable to that of the existing one.

- Christensen, et al. (2002): Successive layers of customer groups switch as a disruptive technology meets, progressively, the dimensions of functionality, reliability, speed, flexibility, and customization.
Discussions, scope for further research

The challenge: Can the incumbent make this transition? Else the next cycle will belong to a new entrant.

**Fig 3. Transaction costs related to innovation cycles**
Challenges - opportunities for research

• Effecting the transition
  o Keep differential low - Internal and external actions
  o Account for the differential

• Two TC regimes concurrently for a certain period
  o Standalone external organization
  o Acquisitions (Avoid post-acquisition integration)
Achieving Transaction Cost Leveling

Raise the reference level (TC-Sustaining) and simultaneously lower TC-Disruptive, so that differential is reduced.

A low TC-sustaining is like a cohesive force, preventing reconfiguration, while a low TC-disruptive is like an adhesive force enabling reconfiguration.

Former favours integration, and the latter disintegration.

For ease of reconfiguration (innovation), firms must stay close to the integration - disintegration equilibrium, i.e. they should avoid too much of integration and disintegration - appropriate level of outsourcing, agile networks, diversity in customer base.
Achieving Transaction Cost Leveling

• Pro-active exploration (tiger teams of Electronic Arts) to take an early dip in future technology options

• Ambidexterity as a dynamic capability - O'Reilly & Tushman, 2008

• Institutional arrangements, public policy, industry initiatives

• Incubators, science and technology parks
Conclusion

• This paper has introduced the concept of transaction cost levelling (TCL) as an alternative or complementary approach to reduce the incumbent’s difficulty in innovation and has proposed several postulates.

• It has provided useful insights for business units, industry, institutions and government to understand why incumbents face certain difficulties in achieving innovations of a breakthrough nature.

• Scope exists for further research on how to realise transaction cost levelling and to seek empirical evidence.
Thank you!
Partial Bibliography