Effects of global outsourcing and supplier driven innovation

Prof. Dr. habil. Holger Schiele – h.schiele@utwente.nl
Copenhagen, 29.08.2013
The University of Twente is one of the globally leading places for innovation and for purchasing research and education

Chair of Technology Management – Innovation in Purchasing, Production, Logistics

- Prof. Dr. Holger Schiele, since 2009 Chair of Technology Management at the University of Twente in Enschede, NL (h.schiele@utwente.nl)
- Before joining academia Schiele accumulated 10 years experience in industry and consulting
- Twente is one of the three technical universities in the Netherlands, with about 8000 students (2000 business and technical business)
- Bachelor and master programmes in international business administration are in English. Twente is the only Dutch university with a purchasing specialisation, new master in supply management scheduled from 2014
- In 2010 selected as one of only four “Centre of Excellence” in purchasing research and education by the IPSERA association, status renewed 2013
“Global Sourcing… You keep using these words. Do you really know what they mean?”
From the perspective of your firm, how do you expect the importance of global sourcing to develop in the next 5 years?

1. Strongly decrease in importance
2. Decrease in importance
3. Stay the same as now
4. Increase in importance
5. Strongly increase in importance

Source: Participants' vote during the 2nd Supply Chain Leaders Forum, Copenhagen, 2013, n=64
What do you think is the main motive for firms to engage in global sourcing activities?

1. Cost saving
2. Access to innovations
3. Satisfy local content
4. Preparation of market entry
5. Following a fashion

Source: Participants' vote during the 2nd Supply Chain Leaders Forum, Copenhagen, 2013, n=64
Global sourcing can be interpreted as a „stone old“ phenomenon

Ricardo-Modell

**Ricardos wine-cloth model**

- International sourcing has been documented at least since 2000 B.C.

- The disappearance of the Neanderthal has also been associated with its reluctance to trade (as opposed to contemporary homo sapiens)

- The issue is thus **how much** global sourcing and for which material

- „Global sourcing“ aims at using the entire supply market for a particular good, i.e. also the home market (Arnold, 1989)

- Global sourcing, however, is commonly understood as buying from abroad, usually from low wage countries (LWC)

Does global sourcing really save money?
Is there any likelihood for a firm for instance in the auto industry or similar to achieve their cost saving targets through China sourcing?

Relevant research question: success of China sourcing

### Manager Magazin 7/2010

**EINKAUF**


### The journalist's hypotheses

- Hypothesis 1: China sourcing saves large amounts of money

- Hypothesis 2: A low-wage country sourcing and cost cutting attitude leads to the deterioration of the preferred customer status and results in less innovations from suppliers

Source: Manager Magazin 7/2010, p. 29; journalist's statement, which may not necessarily reflect BMW's official purchasing strategy. Please note that this example is solely quoted for didactic purposes. No clues to the firm named may be derived.

* „Darling of the suppliers – that was once. Till 2012 BMW wants to save 4 bln. € in purchasing. One opts for buying in China and asks for huge discounts. The disadvantage: Some suppliers now prefer to offer innovations to competitors.” [translation HS]
To test the success of China sourcing expected savings and realised call-offs were compared in a research project relying on secondary data

Success of China sourcing projects – the case of a manufacturer

Call offs = % of goods received vs. budget
Each dot represents one project

Source: Horn / Schiele / Werner (2010)
A successful project has to exceed the „normal“ annual savings and the parts need indeed have been used

Success of China sourcing projects – the case of a manufacturer

Source: Horn / Schiele / Werner (2010)
Most China sourcing projects were failures and high savings expectation were associated with a higher probability of failure

Success of China sourcing projects – the case of a manufacturer

Source: Horn / Schiele / Werner (2010); dots represent the top 54 parts sourced from China in 2008 and 2009, totalising 80% of the purchasing volume; call-offs = % of good received vs. original contract; The correlation analysis executed supports the visual analysis unveiling a correlation coefficient of – 0.356 which is significant at 1% level (two tailed). See also Horn / Schiele / Werner (2013). Savings w/o logistic costs, thus: overestimated!
Why are firms conducting similarly unsuccessful China sourcing projects year after year, despite them failing – year after year?

Discussion
Each failed global sourcing project has its „ugly twin“: material needs to be sourced from their previous supplier at often unfavourable conditions.

Ugly twins

Source: Horn / Schiele / Werner (2013); call-offs = % of good received vs. original contract; dots represent 14 failed parts sourced from China in 2009 and their ugly twins.
Our findings challenge the assumption that many Central European technology firms in this industry would achieve substantial savings from China sourcing.

Relevant research question: success of China sourcing

The journalist’s hypotheses

- Hypothesis 1: China sourcing saves large amounts of money → Hypothesis not confirmed here

- Hypothesis 2: A low-wage country sourcing and cost cutting attitude leads to the deterioration of the preferred customer status and results in less innovations from suppliers

Source: Manager Magazin 7/2010, p. 29; journalist’s statement, which may not necessarily reflect BMW’s official purchasing strategy. Please note that this example is solely quoted for didactic purposes. No clues to the firm named may be derived.

* “Darling of the suppliers – that was once. Till 2012 BMW wants to save 4 bln. € in purchasing. One opts for buying in China and asks for huge discounts. The disadvangae: Some suppliers now prefer to offer innovations to competitors.” [translation HS]
Are there alternatives to global sourcing?
The purchasing levers serve as a check list to determine potentials in commodities

Lever analysis – details levers

Commercial leverages: Use of advantages
- Pooling with other segments
- Pooling with less suppliers
- ...

Cross-functional leverages: Obtaining of advantages
- Standardizing of material and services
- Reducing of requirements, Design to Cost
- ...

- Calculation analysis based on cost types and components
- Elimination of intermediate stages and middle-men
- Compare conditions
- ...

- Use of suppliers with cost advantages
- Building up of new suppliers with similar know-how
- ...

- Pooling of demand
- Product/Program optimisation
- Process improvement
- Supplier optimisation on site
- Simplification of interfaces of material flow
- Improvement of procurement logistics
- ...

- Strategic Sourcing
- Price evaluation

- Global Sourcing
- Optimisation of Supply Relationship
- New definition of supply scope (partnerships, cooperation)
- Integration of suppliers as development partners
- ...

- Commodity spanned leverage
- Design-to-process
- Partnering with several suppliers
- ...

Source: Schuh / Bremicker (2005), Semmler / Mahler (2007), Schiele (2007), Schumacher / Schiele / Contzen / Zachau (2008), h&z business consulting
Global sourcing appears to be one among many sourcing levers

Lever analysis

<table>
<thead>
<tr>
<th>Identification of savings potential</th>
<th>Average savings potential per lever</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pooling of demand</td>
<td>3,64%</td>
</tr>
<tr>
<td>Price evaluation</td>
<td>2,19%</td>
</tr>
<tr>
<td>Global sourcing</td>
<td>3,36%</td>
</tr>
<tr>
<td>Product optimization</td>
<td>4,10%</td>
</tr>
<tr>
<td>Process improvement</td>
<td>2,64%</td>
</tr>
<tr>
<td>Intensification of relationships</td>
<td>2,34%</td>
</tr>
<tr>
<td>Commodity-spanned lever</td>
<td>1,82%</td>
</tr>
<tr>
<td>Application of sourcing lever in 134 workshops</td>
<td>Estimated savings potential related to the entire purchasing volume in a commodity group</td>
</tr>
</tbody>
</table>

Source: Schumacher / Schiele / Contzen / Zachau (2008); Schiele / Horn / Vos (2012)
A low wage country strategy is likely to come at the expense of (savings from) innovation

Trade-offs among the sourcing levers

<table>
<thead>
<tr>
<th>Sourcing lever</th>
<th>Internationally sourced?</th>
<th>Amount of workshops</th>
<th>Mean potential savings</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Difference in potential savings</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>International sourcing</td>
<td>Y</td>
<td>61</td>
<td>3.31%</td>
<td>3.35</td>
<td>0.43</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Price evaluation</td>
<td>Y</td>
<td>47</td>
<td>2.45%</td>
<td>1.63</td>
<td>0.24</td>
<td>0.57%</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>46</td>
<td>1.88%</td>
<td>1.52</td>
<td>0.22</td>
<td>0.21%</td>
<td>0.75 (n.s.)</td>
</tr>
<tr>
<td>Pooling of demand</td>
<td>Y</td>
<td>50</td>
<td>3.80%</td>
<td>3.60</td>
<td>0.51</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>51</td>
<td>3.59%</td>
<td>3.27</td>
<td>0.46</td>
<td>0.21%</td>
<td>0.75 (n.s.)</td>
</tr>
<tr>
<td>Process optimization</td>
<td>Y</td>
<td>23</td>
<td>1.96%</td>
<td>1.98</td>
<td>0.41</td>
<td>-0.74%</td>
<td>0.29 (n.s.)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>26</td>
<td>2.70%</td>
<td>2.72</td>
<td>0.53</td>
<td>-1.41%</td>
<td>0.052</td>
</tr>
<tr>
<td>Supplier integration</td>
<td>Y</td>
<td>20</td>
<td>1.69%</td>
<td>1.40</td>
<td>0.31</td>
<td>-1.42%</td>
<td>0.42 (n.s.)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>17</td>
<td>3.10%</td>
<td>2.75</td>
<td>0.67</td>
<td>-1.41%</td>
<td>0.052</td>
</tr>
<tr>
<td>Cross-commodity levers</td>
<td>Y</td>
<td>6</td>
<td>1.50%</td>
<td>1.07</td>
<td>0.44</td>
<td>-1.42%</td>
<td>0.42 (n.s.)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>3</td>
<td>2.92%</td>
<td>3.99</td>
<td>2.30</td>
<td>-3.76%</td>
<td>0.004</td>
</tr>
<tr>
<td>Product optimization</td>
<td>Y</td>
<td>38</td>
<td>3.19%</td>
<td>3.41</td>
<td>0.55</td>
<td>-3.76%</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>48</td>
<td>6.95%</td>
<td>7.22</td>
<td>1.04</td>
<td>-3.76%</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Source: Schiele / Horn / Vos (2012)
There is a danger of a trade-off between global sourcing (and a possible deterioration of preferred customer status) and collaborative innovation

Relevant research question: success of China sourcing

Manager Magazin 7/2010

<table>
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</table>

The journalist’s hypotheses

- Hypothesis 1: China sourcing saves large amounts of money → Hypothesis not confirmed here
- Hypothesis 2: A low-wage country sourcing and cost cutting attitude leads to the deterioration of the preferred customer status and results in less innovations from suppliers → Some support for hypothesis 2

Source: Manager Magazin 7/2010, p. 29; journalist’s statement, which may not necessarily reflect BMW’s official purchasing strategy. Please note that this example is solely quoted for didactic purposes. No clues to the firm named may be derived.

* „Darling of the suppliers – that was once. Till 2012 BMW wants to save 4 bln. € in purchasing. One opts for buying in China and asks for huge discounts. The disadvantage: Some suppliers now prefer to offer innovations to competitors.” [translation HS]
Interim conclusion
What would you be doing now?
Buy something which is cheap and innovative?

Cheap innovative solution
Our research reveals that innovativeness and good prices do not exclude each other – preferred customer status is key

Testing supplier innovativeness

** p < 0,01 significance 1) $f^2$ effect size = 0,27 (medium), 2) $f^2 = 0,58$ (high), 3) $f^2 = 0,15$ (medium)

Source: Schiele et al. (2011), analysis with SmartPLS

** Research 
- Survey high-tech firms from D/A/CH 
- 219 buyer-supplier relations analysed

** Conclusion 
- Provided a firm has preferred customer status with the supplier, no fear for overcharging seems to be justified 
- We did not find any significant relationship between innovative contribution and pricing

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Supplier capability 

$H_1 +, 367** 1)$

Supplier innovativeness 

$H_4 +, 0,542** 2)$
$(R^2=0,629)$

Preferred customer 

$H_2 -, 0,103$ n.s.

Benevolent pricing Behaviour 

$H_5 +, 505** 3)$
$(R^2=0,241)$

$H_3 -, 0,043$ n.s.
From the perspective of your firm, how do you expect the importance of being attractive to your suppliers will develop in the next 5 years?

1. Strongly decrease in importance
2. Decrease in importance
3. Stay the same as now
4. Increase in importance
5. Strongly increase in importance

Source: Participants' vote during the 2nd Supply Chain Leaders Forum, Copenhagen, 2013, n=64
How do you assess the attractiveness of your firm with its suppliers?

1. Not at all
2. Gut feeling
3. Talk to suppliers
4. We sporadically assess our attractiveness
5. We regularly apply tools to assess our position with suppliers

Source: Participants' vote during the 2nd Supply Chain Leaders Forum, Copenhagen, 2013, n=64
Competitive suppliers which award the buyer with preferred customer status ("kings") are those where the application of innovation oriented levers works out

Preferred customer portfolio

<table>
<thead>
<tr>
<th>Standard customer</th>
<th>Preferred customer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quacksalver</strong></td>
<td><strong>Squire</strong></td>
</tr>
<tr>
<td>• Replacement</td>
<td>• Supplier</td>
</tr>
<tr>
<td>strategy—Seek out</td>
<td>development</td>
</tr>
<tr>
<td>new suppliers</td>
<td>strategy—Work</td>
</tr>
<tr>
<td>that offer some</td>
<td>with supplier to</td>
</tr>
<tr>
<td>advantage</td>
<td>increase its</td>
</tr>
<tr>
<td></td>
<td>competitiveness</td>
</tr>
<tr>
<td><strong>Black Knight</strong></td>
<td><strong>King</strong></td>
</tr>
<tr>
<td>• Bonding</td>
<td>• Collaboration</td>
</tr>
<tr>
<td>strategy—Pursue</td>
<td>strategy—Work</td>
</tr>
<tr>
<td>concerted</td>
<td>with supplier to</td>
</tr>
<tr>
<td>program to earn</td>
<td>achieve</td>
</tr>
<tr>
<td>preferred customer</td>
<td>competitive</td>
</tr>
<tr>
<td>status with supplier</td>
<td>advantage</td>
</tr>
</tbody>
</table>

**Competitiveness of supplier**

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Schiele (2012)

**Explanation**

- To draw a preferred customer portfolio, each supplier is rated according to its competitiveness and according to the status the buyer has with the supplier.
**In a benevolent environment it is relatively easy to draw a preferred customer portfolio**

Drawing a preferred customer portfolio – short version

<table>
<thead>
<tr>
<th>Competitive market position of the supplier (sales, growth, financial strength, global presence compared with its competitors)</th>
<th>1 = Weak □ □ □ □ □</th>
<th>5 = Top 3 in the world, unique selling points □ □ □ □</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technological competitive position of the supplier (technology, innovative strength compared with its competitors)</td>
<td>1 = Difficult relationship, subordinate treatment □ □ □ □ □</td>
<td>5 = Trusting, long cooperation at same level, are treated as their own □ □ □ □ □</td>
</tr>
<tr>
<td>Relationship with supplier</td>
<td>1 = It is difficult to influence prices □ □ □ □ □</td>
<td>5 = Considerate &amp; pricing □ □ □ □ □</td>
</tr>
<tr>
<td>Price behaviour supplier</td>
<td>1 = No suggested improvements or innovations, no, or only second-class, employees as persons giving support □ □ □ □ □</td>
<td>5 = Supplier comes with its numerous ideas, or meets requirements immediately □ □ □ □ □</td>
</tr>
<tr>
<td>Innovative behaviour supplier</td>
<td>1 = PVO in the fiscal year = mill. €, 1 = &lt;0.1 mill. € □ □ □ □ □</td>
<td>5 = &gt;5 mill. € □ □ □ □ □</td>
</tr>
<tr>
<td>Purchasing volume</td>
<td>1 = 5 = Total &gt; 10</td>
<td>5 = Total &gt; 15</td>
</tr>
<tr>
<td>Competitive supplier: Total</td>
<td>1 = Estimate your % share of the supplier’s total sales: 1 = &lt;1% □ □ □ □ □</td>
<td>5 = &gt;50% □ □ □ □ □</td>
</tr>
<tr>
<td>Supplier’s share of sales</td>
<td>1 =</td>
<td>5 =</td>
</tr>
<tr>
<td>Preferred-customer status: Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Schumacher et al. (2008)
Selected sources

**Articles**

The “ugly twins”: Failed low-wage-country sourcing projects and their expensive replacements

Philipp Horn⁎⁎, Holger Schiele⁎, Welf Werner⁎

⁎ Jacobs University Bremen School of Humanities and Social Sciences Campus Ring 1, DE-Bremen 28739, Germany
⁎⁎ University of Twente School of Management and Governance PO Box 217, NL-7500 AE Enschede, The Netherlands

**Suppliers innovativeness and supplier pricing: The role of preferred customer status**

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**Estimating cost-saving potential from international sourcing and other sourcing levers**

Relative importance and trade-offs

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Estimating cost-saving potential

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Global sourcing and innovation
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Thank you for your attention!

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