This paper presents the results of our PhD work recently completed at the research institute of transportation and logistics CRET-LOG, University of the Mediterranean (Aix – Marseille II, France). We apply Morgan and Hunt’s (1994) “commitment – trust theory of relationship marketing” to a new arena: vertical eco-marketing and reverse distribution channels preparing recycling activities. Our findings are relevant to both academics in relationship marketing and managers facing the coming into force of the EU WEEE directive (European directive on waste electrical and electronic equipment).

Our PhD work questions leadership foundations within a marketing channel that has been neglected by the scientific community, i.e. the reverse distribution channel. We indeed observe a contemporary dichotomy between recent literature in environmental management and more traditional contributions to distribution and marketing, especially with regard to behavioural variables.

Our research issue makes emerge two major domains:

1 http://www.supco-amiens.fr/index.asp
3 http://www.cret-log.com
4 http://sceco.univ-aix.fr
• reverse distribution channels that represent a (new) arena, but also a new managerial sub-discipline.
• the domain related to leadership foundations.

Our research objectives include:
• first, to overcome today’s dichotomy between distribution and reverse channels, by introducing behavioural variables within reverse distribution.
• second, to abandon the habitual descriptive–comprehensive character in reverse distribution: we prefer proposing and testing statistically a model to creating semantic networks or providing exclusively qualitative results.

On the methodological level, we identify the case study (Yin 1993\(^6\)) as the most adequate research strategy with regard to our research issue’s characteristics, our unit of analysis being “the leadership within a reverse channel”. The “SWICO recycling guarantee\(^7\)” has been privileged as empirical object: an innovative and pioneering recycling concept, it shows a high generalisation potential towards e.g. EU member states. We also define a sub-unit of analysis: the reseller within the “SWICO recycling guarantee” (sample of 95 individuals).

In order to be able to achieve our research objectives, we mobilize an important theoretical edifice. Indeed, our theoretical triangulation bases upon three main pillars: the stimulus – organism – reaction model (Göpfert et Wehberg 1995\(^8\)), the key mediating variables (KMV) model (Morgan and Hunt 1994) and the vertical marketing paradigm (Olbrich 1995\(^9\); Irrgang 1989\(^10\); Meffert and Kirchgeorg 1993\(^11\)). The statistical results obtained by multiple regression analysis confirm the important role of the two key variables trust and commitment, by revealing an interesting modification as compared with traditional channels represented by the original KMV model. Our findings are not limited to commerce’s internal reasoning processes, but also suggest active starting points of manufacturers’ vertical eco-marketing.

1. Our research design

Like Giroux (2003, p. 56), we represent our research design (or research architecture) as a diagram – organigram. As we see, quantitative research is preceded by qualitative research.

---

\(^7\) http://www.swico.ch/de/recycling_publikationen.asp
research issue
articulation of the vertical strategy and eco-marketing’s success

theoretical object
the leadership within a reverse channel

event
emergence of reverse channels

empirical object
the «SWICO recycling guarantee»

research question
“What vertical strategy could manufacturers make found, legitimize and maintain their leadership upon commerce within a reverse distribution channel (IT industry) ?”

conceptual frame
elaborated based upon theoretical literature

- theoretical pluralism, already suggested by the domains’ (or sub-disciplines’) pluralism to mobilize, e.g.:
  - vertical eco-marketing
  - reverse distribution channels

researcher’s position

\(\mathcal{O}\) unit of analysis = the “SWICO recycling guarantee”:

- comprehension approach (interpretativism)
- emic
- qualitative method
- exploratory logic (discovery)
- abductive reasoning logic

\(\mathcal{O}\) sub-unit of analysis (embedded unit of analysis) = the reseller within the “SWICO recycling guarantee”:

- explanation – confirmation approach (positivism)
- etic
- quantitative method
- explanatory logic
- deductive reasoning logic

methodology

a case study that..

.. embraces a quantitative survey of 95 interlocutors (commerce)

Fig.1 : our research design. Source: personal elaboration based upon Giroux (2003, p. 56).^{13}

^{12} Cf. Yin (2003, p. 91).
2. Justification of our empirical object (“Swiss Recycling Guarantee”)

Concerning the choice of our empirical object, the “Swiss Recycling Guarantee”\textsuperscript{14}, we argue with both theoretical (T) and professional (P) reasons, as shown in the table below. The elaboration of this frame enables also to contextualize the domain of reverse distribution, susceptible to orient other researchers looking for a theoretical generalization of their results.

<table>
<thead>
<tr>
<th>type of selection</th>
<th>selection criteria</th>
<th>theoretical (T) and professional (P) framework mobilized for our justification</th>
</tr>
</thead>
</table>
| the IT industry                               | • homogeneity, representative character
• ecological adequation\textsuperscript{15} | regulations (P), press (P)
matrix of ecological impacts (T); matrix of ecological pretensions (T) |
| life cycle analysis’ end-of-life phase and e-o-l products | • concerned reverse distribution phase (stage)
• ecological adequation | reverse distribution’s objects of analysis (T)
matrix of ecological impacts (T); matrix of ecological pretensions (T) |
| direct reverse distribution channel           | • cost
• ecological impacts | distribution’s economic current (T)
matrix of ecological impacts (T) |
| material recycling as valorization strategy   | • best strategies’ mix with regards to waste strategies | matrix of ecological impacts (T); eco-balance (T) |
| dominance of politico-juridical factors within reverse channel’s emergence | representative character
• intra-industry (sector)
• inter-industries (sectors) | contextual analysis of environmental management (T); regulations (P) |

Tab. 1: justification of our empirical object (“Swiss Recycling Guarantee”).

\textsuperscript{14} Swiss IT-industry recycling solution (computers, printers,...) associating almost all IT manufacturers and – importers in Switzerland. See also : www.swico.ch

\textsuperscript{15} Paulus J. (1996), Ökologie und Wettbewerbsfähigkeit in der Computerindustrie – Perspektiven für eine ökologieverträgliche Informationsgesellschaft (doctoral thesis in management), Bamberg, Difo-Druck.
3. Our theoretical model

We forged our research model by means of a theoretical triangulation (cf. Yin 1993; Patton 1987\textsuperscript{16}). The table below shows in how far the three “theoretical pillars\textsuperscript{17}” contributed to designing our variables (extract):

| contribution / variables (extract) | stimulus – organism – reaction (s-o-r) model | key mediating variables (KMV) model | vertical marketing | others:  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• stimulus ((H_{1a/b}; H_{2a/b}))</td>
<td>parallel: end user = commerce</td>
<td>synthesis of two variables (costs, benefits)</td>
<td>incentive – motivation strategy</td>
<td>non coercive power; past satisfaction (\odot) reveals eco-competence (\odot) not yet examined in reverse distribution (\odot)</td>
</tr>
<tr>
<td>• communication ((H_5))</td>
<td>cf. cognitive attitude</td>
<td>antecedent variable</td>
<td>role of communication policy</td>
<td></td>
</tr>
<tr>
<td>• opportunism ((H_6))</td>
<td>-</td>
<td>antecedent variable</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>• trust ((H_{2a/b}; H_4; H_5; H_6; H_9; H_{10}; H_{11}; H_{12}))</td>
<td>cf. affective attitude; linking to eco-competence .</td>
<td>mediating variable</td>
<td>implicit presence</td>
<td>linking to eco-competence (\odot)</td>
</tr>
<tr>
<td>• commitment ((H_{1a/b}; H_3; H_7; H_8; H_9))</td>
<td>cf. conative attitude</td>
<td>mediating variable</td>
<td>commerce = catalyst</td>
<td>long term perspective (\odot) (\odot)</td>
</tr>
<tr>
<td>• co-operation ((H_7; H_{10}))</td>
<td>parallel: co-operation = buying</td>
<td>output variable</td>
<td>individual perspective; stimulated co-operation as part of performance indicators</td>
<td>“co-operation” notion preferred to “coordination” (\odot)</td>
</tr>
</tbody>
</table>

Tab. 2: forging of our research model, resulting from a theoretical triangulation (cf. Yin 1993; Patton 1987\textsuperscript{18}). Hypotheses that we maintained are \underline{underlined and in italics} (first column).

---

\textsuperscript{16} Patton M. Q. (1987), How to use qualitative methods in evaluation, Sage, London.

\textsuperscript{17} i.e. s-o-r model; KMV model; vertical marketing.

\textsuperscript{18} Patton M. Q. (1987), How to use qualitative methods in evaluation, Sage, London.
4. Methodology of our quantitative research

Below, we sum up the methodology of our quantitative research as part of our case study:

- sub-unit of analysis: the reseller within the “SWICO recycling guarantee”.
- The survey was carried out in 2003: the questionnaire was edited in two languages (German and French).
- We aimed at a representative character with regards to Switzerland’s linguistical distribution.
- Concerning the data collection method, a questionnaire was administered by telephone and by fax; the response rate was 51%.
- The sample embraced 95 retailers of the Swiss IT industry; 25 of them had been pre-tested. This pre-test had been completed and improved by the manufacturers’ comments.
- Scales were purified by using factorial analysis (principal components analysis, SPSS software).
- Hypotheses were tested by using multiple regression analysis (SPSS software).

Tab. 3: our quantitative research’s methodology (explanatory logic preceded by an exploratory logic).
5. Results

This table presents our results after testing the research hypotheses by using multiple regression analysis (SPSS software):

<table>
<thead>
<tr>
<th>research hypothesis</th>
<th>results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: There is a positive relationship between stimulus (offered to commerce) and relationship commitment.</td>
<td>validated</td>
</tr>
<tr>
<td>H1b: There is a positive relationship between logistics stimulus (offered to commerce) and relationship commitment.</td>
<td>not significant</td>
</tr>
<tr>
<td>H2a: There is a positive relationship between stimulus and trust.</td>
<td>validated</td>
</tr>
<tr>
<td>H2b: There is a positive relationship between logistics stimulus and trust.</td>
<td>not significant</td>
</tr>
<tr>
<td>H3: There is a positive relationship between shared values and relationship commitment.</td>
<td>not tested</td>
</tr>
<tr>
<td>H4: There is a positive relationship between shared values and trust.</td>
<td>not tested</td>
</tr>
<tr>
<td>H5: There is a positive relationship between communication and trust.</td>
<td>validated</td>
</tr>
<tr>
<td>H6: There is a negative relationship between opportunistic behaviour and trust.</td>
<td>validated</td>
</tr>
<tr>
<td>H7: There is a positive relationship between relationship commitment and co-operation.</td>
<td>validated</td>
</tr>
<tr>
<td>H8: There is a negative relationship between relationship commitment and tendancy to leave.</td>
<td>validated</td>
</tr>
<tr>
<td>H9: There is a positive relationship between trust and relationship commitment.</td>
<td>validated</td>
</tr>
<tr>
<td>H10: There is a positive relationship between trust and co-operation.</td>
<td>not significant</td>
</tr>
<tr>
<td>H11: There is a positive relationship between trust and functional conflict.</td>
<td>validated</td>
</tr>
<tr>
<td>H12a: There is a negative relationship between trust and decisionuncertainty.</td>
<td>not significant; F test not significant</td>
</tr>
<tr>
<td>H12b: There is a negative relationship between trust and information uncertainty.</td>
<td>bad R² value; abandonment</td>
</tr>
</tbody>
</table>

Tab. 4: results after testing the research hypotheses.
Graphically, our research model (after testing the hypotheses) can be represented as follows:

![Research Model Diagram]

**Fig. 2: our research model after testing the hypotheses.**

### 6.1 Managerial implications

In order to ensure and maintain their leadership, manufacturers’ direct (active, immediate) vertical strategies should start from:

- the stimulus variable with the following components: recycling offer’s preferential logic, eco-marketing’s vertically integrated character, the recycling concept’s ecological superiority (extension of the buying behaviour logic [end user] towards vertical eco-marketing [commerce]).

---

19 The atypical numbering of some hypotheses in the graphical representation stems from:
- the modifications with regards to the initial KMV model (Morgan and Hunt 1994), especially concerning the co-operation variable.
- H3’s and H4’s removal, because the related “shared values” (antecedent) variable has a bad scale’s quality (Cronbach’s alpha).
• a good communication on the ecological offer that includes the information source, i.e. the manufacturers (NB: reverse channels’ regulated situation).

• absence of opportunistic behaviour (poorly contextualized concept, but introduced and modelled for the first time within environmental management).

Commerce’s acceptance of manufacturers’ leadership can be measured by the co-operation variable referring to the main primary logistical activities (Porter 1989) that are delegated to commerce (recommendation: dissociate the financial co-operation element from the others).

6.2 Theoretical implications

We have elaborated and tested a research model based upon a theoretical triangulation: it is accurate to measure the leadership within reverse channels by the co-operation variable. The buying behaviour logic (end user) can be extended towards vertical eco-marketing (commerce).

Future research works may take up our qualitative results, in terms of identification of the different leadership dimensions within a reverse channel: the scope (including shared responsibility), institutionalisation, revelation and especially the foundations. We believe that such an identification should precede any modelling and explanation effort in this matter.

Concerning our quantitative results, we found out:
- only commitment affects directly co-operation, whereas trust only acts indirectly (via commitment).
- the complementary character of the concepts power and trust is confirmed within the reverse channel (stimulus = non coercive power variable acting on trust).
- it is accurate to link (connect) trust to competence, in our case: the commerce’s trust in the manufacturers’ ecological competence.
- it was necessary to abandon the variable “logistics stimulus” in favour of one “global” stimulus variable.

6.3 General conclusion

For a reverse distribution channel, we have proposed and tested adequate vertical strategies enabling to stimulate commerce, to obtain a congruence, an alignment with regards to manufacturers’ vertical eco-marketing. We have confirmed vertical strategies’ success aiming at a balanced mix between trust and non coercive power (“stimulus”) in order to influence commerce’s behaviour in the desired way – behaviour that is visible through the output variables, especially co-operation. The research model’s statistical test took place within our empirical object, the “SWICO recycling guarantee”, a Swiss IT-industry recycling solution (computers, printers, ...). We have preferred using one single case, studied in depth, in favour of a “global” – theoretical - generalisation rather than a statistical one. We believe that the combination of both qualitative and quantitative methods allows to provide consistent results.

preferred to generalities ("banalities"). In order to ensure its external validity, our case study is extensively theory-corroborated (cf. Yin 2003, p. 34).

We are now able to offer a model “ready to use” for our specific research issue that may be adapted to similar ones within reverse distribution channels. Our analysis frame allows to contextualise other empirical objects; further case studies may initiate other in-depth research for our theoretical object, “the leadership within a reverse channel”: DSD (German green dot operator), Eco-Emballages,... Such organisms, in charge of recycling circuits’ “organisation and financing”, play a major role in our everyday life: a more critical look behind these structures, inviting citizens to sort their waste materials, reveals that we are in fact aware of a new inter-organisational co-operation and coordination arena related to a traditional discipline, i.e. distribution. We realize also that these organisms generally represent manufacturers as an institutionalized ensemble, raising questions like their (supposed) legitimacy (→ the leadership) and their interfacing with other actors, especially commerce: “vertical eco-marketing”. To sum up, our qualitative and quantitative results serve as a starting point for any researcher interested in our issue mobilizing two domains at the same time: reverse distribution channels and leadership foundations.

Our qualitative results may guide any future research on the leadership concept within a reverse channel context. We indeed paid intention to this - traditional - concept in order to overcome today’s predominant dichotomy that polarizes traditional distribution and environmental business management. Thanks to our case we discovered and identified the different leadership dimensions – a preliminary and necessary step towards any modelling effort. This qualitative work enables us to measure certain leadership dimensions and to test explanatory links.

One of the big difficulties that we had to face was to reconcile the different theoretical currents in distribution – marketing, on the one hand, and in environmental management, on the other hand. The issue’s complexity, however, made such an effort necessary in order to avoid the mentioned dichotomy. We experienced a similar difficulty concerning the “language” divergency between practitioners and researchers (in environmental management). This drifting concerns a central concept of our PhD work, i.e. leadership: practitioners prefer the notion of “responsibility” (often “manufacturers’ responsibility”); reconciliation consisted in approximating both terms - without however considering them as synonyms. Reverse distribution’s delay as compared to other management disciplines becomes already obvious by the quasi-absence of a common terminology, an unambiguous definition: reverse distribution, reverse logistics, eco-logistics; there is an enormous vagueness within recent works, on the theoretical and professional level, on the national as well as on the international level. We hope that we have contributed to alleviate this terminological problem, an essential base for any comparison of scientific works, to any – even modest - scientific progress (“add a small piece to the big puzzle”).