A Hybrid Framework for Modelling and Simulation for Deshopping Behaviour and How Companies Respond

SHAWKAT SALIM RAHMAN [1], SHULIANG LI [1,2]
[1] Westminster Business School, University of Westminster,
35 Marylebone Road, London NW1 5LS,
UNITED KINGDOM
shawkat.rahman@my.westminster.ac.uk; lish@westminster.ac.uk
[2] School of Economics & Management, Southwest Jiaotong University,
Chengdu, Sichuan 610031, CHINA

Abstract: - Deshopping is rapidly turning into a modern day scourge for the retailers due to its prevalence and regularity. The presence of flexible return policies have made retail return management a real challenging issue for both the present and the future. In this paper, we propose a hybrid framework for modelling, simulating and analysing deshopper behavior, company reaction policies, and strategic initiatives for reduce exposure and protect ethical consumer returns. The strengths of the analytic hierarchy process, simulation with animation techniques, expert system approach, intelligent software agent method, and complex adaptive system theory are utilised and combined to deal with the deshopping problem as it occurs in fashion retailers with both online and offline presences. Relevant concepts, theoretical rationale and paradigm are presented and discussed in the paper.

Key-Words: - deshopping; hybrid intelligent model; simulation; decision support system; logistics; retail marketing; intelligent software agent; expert system

1 Introduction

Today's retail business environment requires companies to provide liberal return policies to compete. Marketing literature suggested a link between liberal return policies and long term competitive and financial benefits [25]. Certain intersections of customers are thriving in such an environment of liberal return policies. These customers are delaying the actual purchase decision until after having experienced or used the product. Returning the products allows them to reverse the purchase decision [12]. Schmidt et al. [30] labelled deshopping as the "deliberate and arguably inappropriate return of goods for reasons other than actual faults in the product". This unethical behaviour is forcing retailers with illicit product returns, unwanted inventories in both forward/reverse supply chains [35], [27], [31], [34]. Retailers consider fraudulent returns to erase 10%-20% from profit margin [11].

2 Literature Review

The focus of this research is to propose/develop a framework that combines the analytic hierarchy process (AHP), simulation techniques, expert system approach, intelligent software agent method, and complex adaptive system (CAS) theory to model and analyse deshopping as it occurs in fashion retailers with both online and offline presences. It will also include elements of the retail environments such as deshoppers, companies, competitors, etc. To develop this framework, relevant models and frameworks for evaluating deshopping behavioural intentions will be used. The Model will allow company responses to deshopping to be simulated over time. The retailer 'Montgomery Ward' first instituted liberal return policies in their chain stores in 1880. These policies were put in place to provide retailers with an opportunity to cultivate long term competitive advantage [25]. The advent of product return brought with it (dis)ingenuous attempts to return products that were fully functional even in those early days. Such has been the degree of exploitation by customers that retailers have reacted by scaling back the scope of returns. Research indicates about 20% returns in retail landscape are deshopped products [25]. Hence, deshopping has recently re-emerged as a critical management area in retail marketing and supply chain management as its effects are growing across retail channels [12].

Deshopping is considered in retail marketing literature to be abuse of return policy. It has also been introduced under a broad umbrella of terms such as retail borrowing [32], Jay customers [23], Fraudulent borrowing [7], unethical retail disposition [25], wardrobing, free customer rentals,

fraudulent return, and boomerang shopping among others in retail marketing literature [28].

Deshopping and all its umbrella terms have turned from a mild irritant into a marketplace scourge in recent times. Retailers and researchers posit that the total value of retail shrinkage in 2003 was 27,258 million pounds [13]. This includes a sizeable amount of deshopped merchandise. Ironically, despite its quasi criminal nature, deshopping is only considered 4th (out of 15) worst ethically questionable consumer behaviour by consumers [7]. Ironically, deshopping is considered less intrusive and destructive than other forms of unethical shopping norms. However, it can create huge pressure on both the retail environment and reverse logistics structure of firms with products returns [27].

Deshopping remains under researched in retail marketing, strategy and simulation and modelling based research/analysis. The current deshopping based research is based on a number of theories in multi-disciplinary perspectives such as marketing [25], retail marketing management [12, 13, 14, 32, 27], behaviour and intention theories [1, 2, 4] and ethics [26].

The term deshopping was first used in retail marketing literature in Schmidt et al. [30].
Schmidt et al. [30] considered the financial and risk reduction aspects that triggered deshopping and proposed a framework which combines the demographic characteristics and psychographic factors of deshoppers. It also illustrates the relationships and associations between the factors. Strutton et al. [32] discussed various guilt neutralization methods that were used in retail settings that could be applied to deshoppers. Rosenbaum and Kuntz [26] further researched guilt neutralization techniques for deshopping cases and proposed a number of associations between intention and neutralization methods. Research by Pirion and Young [28] uncovered 27 emotions that are associated with deshopping activities by consumers.

According to Rosenbaum, Kuntze and Woodridge [26], deshopping shows the following characteristics:

1. The product must be purchased and subsequently returned at a later date for a full refund.
2. The purchaser must have received some value from the product prior to return and refund.
3. The product does not possess any actual defects
4. The purchaser must decide on the return before, during or after purchase
5. The purchaser must be aware that he/she is taking advantage of the retailers return policy.

Consumer research has been centred on the consumer's acquisition and consumption stages and not much at all on the disposition stage. Most of the disposition research has covered the sunnier side of disposition options such as gift giving, recycling, garage sales and online and offline auctions. All these options fail to consider the darker side of consumer disposition [26] which is essentially deshopping. Marketing literature has provided considerable attention to consumer decision making models in both research and practice. The 5 stage consumer decision making process model forwarded by [3] provided the ideal background for consumer behaviour. This process model illustrates that all consumer behaviours are planned behaviours; they are reasoned actions [36]. This line of research follows smoothly into planned behaviour which is the driving force behind consumer decision process.

Theory of planned behaviour [1] was based on the seminal research on theory of reasoned action. The behavioural intention theory used to analyse deshopping behaviour of consumers was refined by King, Dennis and Wright, [12]. Theory of planned behaviour [1, 4] has formed part of the new research direction for deshopping research. Theory of planned behaviour [2] was used to explain deshopper behaviour/ intentions by King, Dennis and Wright [12) and Skipa [32]. Attitude to behaviour, Subjective norms and perceived behavioural controls were used to explain deshoppers' actions. Mitchell et al. [21] measured unethical consumer behaviour across four countries using index of unethical consumer behaviour tailored for deshopping activities. Since then Muncy and Vittel [22] index of unethical consumer behaviour scale has since been updated to reflect newer retailing scenarios.

Motivation behind a decision is also a controlling factor in a purchase decision [36]. So, it can be logically inferred that motivation directly influences a deshopping decision as well since it starts off as a purchase decision. Deshopping is a consumer purchase decision with return intention, so it is possible to use both the consumer decision making process and theory of planned behaviour to define it.

The retail marketing environment can be viewed as a complex adaptive system with its network of interacting agents such as the regulations, competing firms, shoppers, etc. [8]. The deshopping

ISBN: 978-960-474-375-9

environment can be built as a complex adaptive system populated by the deshoppers, firms, competition, regulations etc. These agents can be adaptive and attempt to maximize its assigned value over time. These models also provide a large degree of control [9, 36].

The existing literature that covers the central areas of this research area provides inadequate coverage to the use of intelligent software agents-based modelling and simulation techniques for analyzing potential firm responses to deshopping.

Simulation-based analysis can be a very useful tool for deshopping analysis. Simulation with "what-if" analysis and dynamic graphical displays can provide an enriched experience. Simulation with graphical animation has the advantages of being able to provide system behaviour depiction, information communication, visual interaction, simulation realism and decision support [17]. Simulation based analysis can also depict deshopping scenarios for debate and analysis.

In agent based modelling an architecture that combines an agent's architecture and a human cognitive process will be very useful in representing the cognitive functions. Relevant models are available [24]. This would enable deshoppers behaviour to be modelled across a system with other agents and environments.

3 The Hybrid Framework

According to Jabreen, [10] a theoretical framework is network of interlinked concepts that joined together provide a comprehensive understanding of the phenomenon or phenomena.

As listed in Table 1, we propose a general framework that combines the powers of diverse methods, techniques and technologies to cope with the deshopping problem.

The elements shown in the Table collectively forms the hybrid framework for deshopping research represents the foundation for modelling, simulation and analysis.

Table 1. A paradigm for deshopping modelling & simulation

The concepts and theories	Selected Sources / references
Deshopping	Rosenbaum and Kuntz [26], King, Dennis and Wright [12], Piron and Young [23], Harris and Reynolds [7], Reynolds and Harris [24], Harris [8], Skapa [31], King, Dennis and Mchendry [18], King and Dennis [14, 15].
Consumer Decision making process	Zhang and Zhang [35], Roozmand et al. [25], Engel, Blackwell and Miniard [3]
Software agent based modelling and simulation; decision support; and hybrid decision support method	Zhang and Zhang [35], Holland and Miller [8], Holland [9], Roozmand et al. [25], Li and Li [18], Li and Li [19], Li and Li [20], Saaty [29], Li [17]
Theory of planned behaviour/ Reasoned action approach	Ajzen [1], Ajzen [2] , Fishbein and Ajzen [4, 5]
Motivation	Strutton et al. [32], Engel, Blackwell, and Miniard [3], Zhang and Zhang [35], Muncy and Vittel [22]
Ethics	Rosenbaum, Kuntze and Woodridge [27], Wachter et al. [33]
Logistics/Returns	Rogers and Tibben-Lembke [28], Rosenbaum and Kuntz [26]
Retail Marketing	King and Dennis [14, 15], King, Dennis and Wright [12], Piron and Young [23], Schmidt et al. [30]

ISBN: 978-960-474-375-9

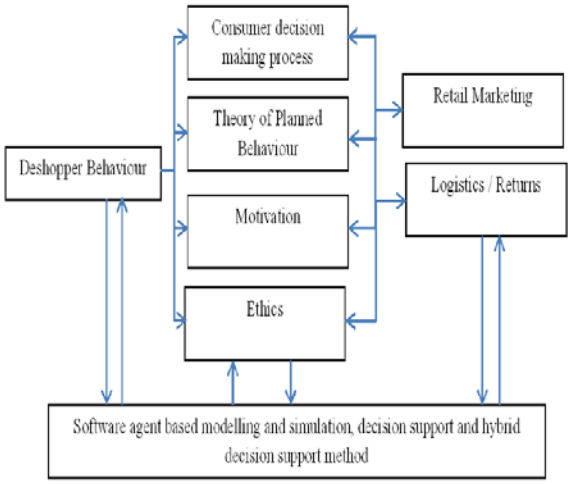

Figure 1: A framework for deshopping modelling

The central focus of this model is to represent and analyse the interactions amongst deshoppers, the company, competitors, laws/regulations, and others.

A hybrid method [17, 20] is used to link and integrate the advantages of diverse modelling, simulation and decision support techniques and technologies. CAS theory and algorithms [8,9] are applied to: model and analyse the micro level of interactions of deshoppers, the company and competitors; and to estimate and analyse macro level of customer loyalty, competition emergence or occurrences. An expert system element can be developed to capture deshopping behaviour knowledge and advise how to react. AHP [19] is applied to determine the relative importance of relevant criteria affecting company policies and strategies dealing with unethical returns. It can also be used to evaluate the priorities for the alternatives for company reactions. The salient features of computer simulation with dynamic animation and graphical portrayal is utilised to represent, depict and perform "what-if" analysis for deshopping behaviour, company policies, and competitor maneuver.

CAS theory, and Web & social media dynamics modelling method, are employed to analyse the scope and consequences of deshoppers' spreading practices via social media and how other consumers adopt such practices.

The above-mentioned interacting elements or components can be coordinated and implemented using intelligent agents-based hybrid mechanisms [17].

4 Conclusion

The hybrid framework proposed in the paper will be of interest to both practitioner and theorists of deshopping, retail crime, marketing, supply chain and strategic management. Our framework integrates the benefits of various methods, techniques and technologies for representing, simulating and analysing deshopper behaviour. It also provides the paradigm for modelling and advising how companies react and respond to unethical returns effectively. Such a framework will help managers understand deshoppers and consumers through models, processes and tools and will be of great operational and strategic importance to companies for scenario based analysis. In addition, the framework draws attention to the general state of deshopping in retail marketing arena, and provides a solid foundation for further research and development.

Acknowledgements

The research work and the publication of this paper are financially supported by the University of Westminster (UK) staff research allowances and Sichuan 100-Talent Scheme research grant (Grant holder: Shuliang Li) that is hosted by Southwest Jiaotong University, China.

References:

[1] Ajzen, I. , (1985). From Intention to action: a theory of planned behaviour, in Kuhl J and Beckman J (eds.), *Action Control: From Cognitions to Behaviours*, New York, Springer.

[2] Ajzen, I., (1991). The Theory of Planned Behaviour, *Organisational Behaviours and Human Decision Processes*, 50:179-211

[3] Engel, J. F., Blackwell, R. D. and Miniard, P. W., (1995). *Consumer Behaviour*, 8th ed. Philadelphia: The Dryden Press.

[4] Fishbein, M., & Ajzen, I. , (1975). Belief, attitude, intention, and behaviour, *An introduction to theory and research*. Reading, MA: Addison-Wesley.

[5] Fishbein, M., & Ajzen, I. , (2010). Predicting and changing behaviour, *The Reasoned Action Approach.* New York: Taylor & Francis.

[6] Harris, L. C. and Kate L. R., (2004). Jaycustomer Behavior: An Exploration of Types and Motives in the Hospitality Industry, *Journal of Services Marketing*. 18 (5). 339-357.

[7] Harris, L. C. , (2008). Fraudulent Return Proclivity: An Empirical Analysis, *Journal of Retailing*, 84(4), 461–476.

[8] Holland, J. H. and Miller, J. H., (1991). Adaptive agents in economic theory, *The American economic review*, 81(2), 365-370.

[9] Holland, J. H., (2006). Studying complex adaptive systems, *Jrl Syst Sci & Complexity*, 19, 1-8.

[10] Jabreen, Y., (2009). Building a Conceptual Framework: Philosophy, Definitions, and procedure, *International journal of qualitative methods (IJQM)*, 8(4).

[11] King, T. , (2004). An Analysis of the Phenomenon of Deshopping of Garments in Women's Wear Retailing, Unpublished PhD. Thesis, Brunel: Brunel University.

[12] King, T., Dennis, C. and Wright, L. T., (2008). Myopia, customer returns and the theory of planned behaviour, *Journal of Marketing Management*, 24 (1-2), 185-203.

[13] King, T., Dennis, C. and Mchendry, J., (2007). The management of deshopping and its effects on service: a mass market case study, *International Journal of Retail and Distribution Management*, 35 (9), 720-733.

[14] King, T. and Dennis, C., (2003). Interviews of Deshopping Behaviour: an Analysis of Theory of Planned Behaviour, *International Journal of Retail and Distribution Management*, 31(3), 153-163

[15] King, T. and Dennis, C., (2006). Unethical consumers: deshopping behaviour using the qualitative analysis of theory of planned behaviour and accompanied (de)shopping, *Qualitative Market Research*, 9 (3), 282-296.

[16] King, T., Dennis, C. and Mchendry, J., (2007). Myopia, customer returns and the theory of planned behaviour, *Journal of Marketing Management*, 24 (1), 185.

[17] Li, S. , (2000). The development of a hybrid intelligent system for developing marketing strategy, *Decision Support Systems*, Vol.27 No. 4, pp. 395-409.

[18] Li, S., and Li, J. Z., (2009). A multi-agent-based hybrid framework for international marketing planning under uncertainty, Intelligent systems in accounting, finance and management , *Intell. Sys. Acc. Fin. Mgmt*. 16, 231–254

[19] Li, S. and Li, J. Z. , (2010). AgentsInternational: integration of multiple agents, simulation, knowledge bases and fuzzy logic for international marketing decision making, *Expert Systems with Applications*, Vol.37 ,No.3, pp. 2580-2587, 2010.

[20] Li, S. and Li, J. Z. , (2014). Web & social media dynamics, and evolutionary and adaptive branding: theories and a hybrid intelligent model, In: *Proceedings of the 13th international conference on artificial intelligence, knowledge engineering and data bases*, 15-17th May 2014, Gdansk, Poland.

[21] Mitchell, V. W., Balabanis, G., and Schlegelmilch, B. B., Cornwell, T. B., (2009). Measuring Unethical Consumer Behavior across Four Countries, *Journal of Business Ethics*, (88), 395–412.

[22] Muncy, S.J. and Vittell, J., (2005). The Muncy–Vitell Consumer Ethics Scale: A Modification and Application, *Journal of Business Ethics*, , 62, 267–275

[23] Piron, F. and Young, M., (2000). Retail borrowing: insights and implications on returning used merchandise, *International Journal of Retail & Distribution Management*, 28 (1), 27-36.

[24] Reynolds, K. L. and Harris, L. C., (2005). An Exploration of the Types and Motives of 'Illegitimate' Customer Complaining, *Journal of Services Marketing*, 19 (5), 321–335.

[25] Roozmand, O., Nasser, G., Hofstede, G. J., and Nematbakhsh, M.A. , Baraani, A., and

Verwaart, T., (2011). Agent-based modeling of consumer decision making process based on power distance and personality, *Knowledge-Based Systems*, 24, 1075–1095.

[26] Rosenbaum, M. and Kuntz, R., (2003). The relationship between anomie and unethical retail disposition, *Psychology & Marketing*, 20(12), 1067–1093.

[27] Rosenbaum, M. S., Kuntze, R., and Woodridge, B. R., (2011). Understanding unethical retail disposition practice and restraint from the consumer perspective, *Psychology & Marketing*, 28(1), 29–52.

[28] Rogers, D. S. and Tibben-Lembke, R. S. , (1998). *Going Backwards: Reverse Logistics Trends and Practices,* Reverse Logistics Executive Council.

[29] Saaty, T. L. (2008). Decision making with the analytic hierarchy process, *Int. J. Services Sciences,* Vol.1 No.1, pp.83-98.

[30] Schmidt, R.A. , Sturrock, F., Ward, P., and Lea-Greenwood, G., (1999) . Deshopping: The Art of illicit consumption, *International Journal of Retail & Distribution Management*, **27(8)**, 290-301, MCB University Press.

[31] Skapa, R., (2012). Application of the theory of planned behaviour to fraudulent returning, *Acta univ. Agric. Et silvic. Mendel*. Brun., lx, no. **7**, 379–386.

[32] Strutton, D., Pelton, L. E., and Ferrell, O. C., (1997). Ethical behavior in retail settings: is there a generation gap?, *Journal of Business Ethics*, **16**, 87–105.

[33] Wachter, K., Vitell, S., Shelton, R. K. and Park, K., (2012). Exploring consumer orientation toward returns: unethical dimensions, *Business Ethics: A European Review*, 21(1), 115-128.

[34] Yu, C. and Wang, C. , (2008). A hybrid mining approach for optimizing returns policies in E-retailing. *Expert Systems with Applications*, 35(4), 1575–1582.

[35] Zhang, T. and Zhang, D., (2007). Agent-based simulation of consumer purchase decision-making and the decoy effect, *Journal of Business Research*, 60, 912–922.