Fuzzy Adaptive Agent for Supply Chain Management

by

Lou Sio Fan, Ada
(M-A3-6588-9)

Master of Science in E-Commerce Technology

2009



Faculty of Science and Technology
University of Macau

Table of Contents

LIST OF FIGURES ..... **II**

LIST OF TABLES ..... **III**

1. INTRODUCTION **1**

1.1 Background 1

1.2 Motivation 6

1.3 Contribution 7

2. GAME OVERVIEW **9**

3. LITERATURE REVIEW **16**

3.1 Component acquisition 16

3.2 Inventory management 18

3.3 Bidding for customer orders 20

3.4 Agents with fuzzy logic reasoning 22

4. HEURISTIC-BASED AGENT **24**

4.1 Component acquisition 24

4.2 Bidding for customer order 28

4.3 Assembling PCs 31

5. FUZZY-BASED AGENT **32**

5.1 Component acquisition 34

5.2 Bidding for customers orders 40

5.3 Assembling PCs 47

5.4 Agent for final round 47

6. IMPLEMENTATION **50**

6.1 Heuristic-based Agent 50

6.2 Fuzzy Logic-based Agent 54

7. PERFORMANCE COMPARISON **61**

7.1 Heuristic-based agent Vs fuzzy-based agent 61

7.2 Comparison with top three agents 64

7.3 Overall performance 67

8. SUMMARY **69**

9. ASSOCIATED PUBLICATION **72**

10. REFERENCES **73**