

Summer 6-19-2015

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## Recommended Citation

Jiang, Shimiao; Cai, Shuqin; Qin, Zhiyong; Cui, Xiaolan; and Luo, Siyu, "Value Co-creation based Service Recovery for Online Complaint: Model Design and Simulation Analysis" (2015). *WHICEB 2015 Proceedings*. 72.

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# Value Co-creation based Service Recovery for Online Complaint: Model Design and Simulation Analysis

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**Abstract:** The social media platform convenience users' anywhere, anytime publishing and disseminating online complaints. Enterprises undergo huge losses due to the lack of suitable management mechanism for effectively dealing with online complaints. The knowledgeable users in social media platform is a vital resource that enterprises could take advantage of, however the question persists how to stimulate, use and management them. Based on Value Co-Creation theory, the work investigates customer complaint, individual knowledge sharing, and enterprises service recovery motivations, designs the value co-creation based online complaint handling model, and analyzes its goals and constraints. Simulation models are constructed to explore the model efficiency and strategy that maximums the efficiency. Literature review results show that information/knowledge, emotional, social capital are main factors affecting mechanism efficiency; Simulation results show that the proposed model significantly outperforms the traditional service personnel based model, and best strategy could be determined according to the predefined model goal.

**Keywords:** Online complaint, Service recovery, Value co-creation, Expert recommendation

## 1. INTRODUCTION

Complaint handling is an important competitive advantage of enterprises <sup>[1]</sup>. Compared to market share, unit costs and other factors, customer retention engenders stronger influence on competitive advantage. A good service recovery can turn angry, frustrated customers into loyal ones, and can also create more goodwill than if things had gone smoothly in the first place <sup>[2]</sup>. Therefore, marketing researchers believe that complaints were not troubles, but opportunities for problems solving, product/service improving and development of high-value business-customer relationships <sup>[3]</sup>, only if the complaints can be timely, properly handled. The simple question of timely and properly handling of customer complaints has becomes, in the social media era, a huge challenge.

Social media platforms become nowadays an important platform for customers complaining. Anytime, anywhere, just "@ Enterprise" or "# Complaint topic" will be able to express your many dissatisfactions with the product/service, and let the whole world hear your voice through the "neighborhood news", "buddy message", "similar topics" and similar other ways. The significant advantages of social media platform in time, space and communication efficiency make online complaints difficult for companies to deal with relying on their own service personal. How to effectively deal with online complaints in social media platforms has become an urgent problem for customer relationship management and information resource management.

Social media platform contains rich expert resources of great commercial value. Enterprises can take advantage of those expert resources to provide personalized complaint handling service for large-scale online complainants, but an effective management mechanism to achieve this goal is lacked. Social Exchange theory proposes that people are willing to pay their resources in rich for the resources in need <sup>[4]</sup>. Value Co-Creation theory proposes that boundaries of economic entity, including corporate and individual, are blurred. They realize their own value through resources configuration and service providing <sup>[5]</sup>. By meeting the needs of the experts, enterprises inspire experts to contribute solutions to fulfilling the needs of the complainants, therefore improve customer loyalty, finally stimulate positive word of mouth and increase product sales. Value Co-creation can

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effectively integrate the expert resources in social media into the traditional service recovery processes, which provides support for the online complaint service recovery model design.

In this study, based on the basic idea of utilizing social media platform expert resource to solve online complaints, the research design a value co-creation based service recovery model for online complaint. Based on Value Co-Creation theory, the work investigates customer complaint, user knowledge sharing, enterprises service recovery motivations, designs the value co-creation based online complaint handling mechanism, and analyzes its goals and constraints. Simulation models are constructed to explore the mechanism efficiency and strategies that maximums the efficiency.

The paper is organized as follows. In section 2, the paper reviews related researches. In section 3, the Co-create model is proposed. In section 4, the research constructs simulation models, executes experiments, and analysis the results. Section 5 concludes the paper.

## **2. LITERATURE REVIEW**

Word of mouth impacts product sales through user social network. Impact of negative word-of-mouth outweighs the positive ones <sup>[6]</sup>. When complaint occurs, satisfaction of service recovery will affect customers repurchase intention and word of mouth behavior. Individual knowledge sharing willingness is affected by the complaint itself, and users' internal, external motivations. Profit is basic aspiration that drives enterprises to implement service recovery. Maintaining high complainant satisfaction favors enterprise profits, as high helper satisfaction helps maintaining the external expert resources. Word of mouth diffusion, service recovery satisfaction, helper satisfaction, enterprise profit are important parts of Co-create Model.

### **2.1 Word of mouth diffusion**

Service recovery affect word of mouth, then affect enterprise profits. Bass Diffusion model is widely used in diffusion research field, and is a good representation of the actual product sales curve <sup>[7]</sup>. The Bass Diffusion model uses market potential (potential users), innovation coefficient (advertising effect) and imitation coefficient (positive word of mouth) to predict product sales. Follow-up research <sup>[8]</sup> adds the impact of negative word of mouth to increase the predict efficiency of the model.

### **2.2 Service recovery satisfaction**

From cognitive antecedents to satisfaction, then to behavioral intention consequences, the chain structure is the classical model of complainant service recovery satisfaction. Orsingher et al. <sup>[9]</sup>, through a meta-analysis of existing research, point out that complainant satisfaction is affected most by distributive justice, then by interactional justice, and weakly by procedural justice. Smith et al. <sup>[10]</sup> executes an empirical research and point out that responds speed, compensation, apology, initiation indirectly affect complainant satisfaction through justice, and justice and disconfirmation both directly affect service recovery satisfaction. Wirtz and Mattila <sup>[11]</sup> reports that service recovery satisfaction acted as a full mediator between service recovery attributes, including compensation, recovery speed and apology, and behavioral intentions, including repurchase intent and negative WOM. Smith and Bolton <sup>[12]</sup> suggests that customers' emotional responses to service failures will influence their recovery effort evaluations and satisfaction judgments. Dewitt et al. <sup>[13]</sup> suggests that emotions and trust have important mediating roles during the service recovery process. It can be concluded that response speed, attitude, compensation are main factors of service recovery satisfaction. However, as the main indicator of distributive justice, above research did not consider the affect of complaint solution. Liao <sup>[14]</sup>, by field study and laboratory study, demonstrated that the dimensions of service recovery performance including apology making, problem solving, courteous, and prompt handling, positively influenced customer service recovery satisfaction and then customer repurchase intent through the mediation of customer-perceived justice. The work received wide recognition.

### 2.3 Helper satisfaction

Problem solving oriented helper satisfaction researches mainly exist in the online community knowledge sharing research field. Wang and Noe<sup>[15]</sup> execute a meta-analysis and point out that motivational factors, including knowledge ownership, perceived benefits, perceived costs, justice, and trust, and individual characters, including experience, self-efficacy, personality are main factors affecting user online community knowledge sharing behavior. Through an empirical study, Kankanhalli et al.<sup>[16]</sup> suggest that knowledge self-efficacy and enjoyment in helping others significantly motivate knowledge contributors, and the codification effort is the main cost considered. Sharing decision is made through balancing the costs, internal and external benefits. Through archival, survey and content analysis data, Wasko and Faraj<sup>[17]</sup> found that people contribute knowledge when they perceive that it enhances their professional reputations, when they have the experience to share, and when they are structurally embedded in the network. Bock et al.<sup>[18]</sup> found that anticipated reciprocal relationships, sense of self-worth and organizational climate directly or indirectly affect individuals' knowledge-sharing attitudes. Recently, Tsai and Bagozzi<sup>[19]</sup> show that identity, attitudes and anticipated emotions influence we-intentions and further knowledge contribution behaviors. Besides, members' experience levels positively moderate the relationship between we-intentions and contribution behaviors. Nambisan and Baron<sup>[20]</sup> prove a value co-creation explanation for individual's value creation behavior in online communities. From above research the work can conclude that individual's motivation in knowledge sharing are social capital factors including identity, social network centrality, and reputation, emotion factors including interest and enjoyment of sharing, and knowledge factors including self-efficacy and self-worth.

For codification effort, a revisit of the concept<sup>[21]</sup> points out that inter-subjectivity and completeness are two fundamental characteristics of codification effort. Intersubjective means how the meaning of the terms can be understood and used by other subjects. Completeness means the totality of actions aimed at attaining a practical purpose that codification can translate from tacit knowledge. Therefore, the bigger the gap of knowledge level between term and the receiver, the sloppier the sharer's description habit, the larger the codification effort. For user identity, Meyer et al.<sup>[22]</sup> point out that the brand identity concept is close but not identical to the commitment concept, identity is antecedent to commitment. Product identity concrete when individual make self-definition via the product<sup>[23]</sup>. In an empirical research of virtual community participation behavior, Dholakia et al.<sup>[24]</sup> found that identity is directly or indirectly affected by purposive value, self-discovery and entertainment value. Brand identity, services experience and reputation are not identical, but highly correlated.

### 2.4 Prospect theory

According to Prospect theory, individual makes decisions by referring to relative measure rather than absolute measure<sup>[25]</sup>. Those decision process obeys the "reference dependence" rule, that is, people tend to judge the pros and cons of the decision according to the reference point. Perceived higher benefits than the reference point means income, in contrast, perceived lower benefits below the reference point means loss. In practice, the service recovery satisfaction and helper satisfaction rely on past experience. Service recovery experience, complaint handling experience affect the setting of service recovery satisfaction reference point and complaint handling satisfaction reference point, further affect the subsequent perceived satisfaction over Service recovery and complaint handling correspondingly.

### 2.5 Enterprise profits

From the enterprise point of view, the purpose of service recovery is customer retention. Enterprises are profits suitors and treat profit as an important indicator. Berger and Nasr<sup>[26]</sup> proposed customer lifetime value model, in consideration of customer retention rate, the formula calculate the profits created by one specific customer discounting them into the base period earnings.

### 3. MODEL AND CONCEPTS

#### 3.1 Co-create model

The **Value Co-creation based Service Recovery Model for Online Complaint** (Co-create Model) is defined as follows,

*Enterprise treat users in social media platform as expert resource, by utilization of expert recommendation as the management tool, configures the enterprise, complaint and expert tripartite capabilities to their needs, stimulate expert in social media platform to solve complaints, realizing the online complaint handling purpose.*

Co-create model framework is shown in Figure 1. Three entities including enterprise (E), the complainant (C), helper (H), and two activities including service recovery and value co-creation are involved in the model. Divided by line 1, E and H as a whole execute service recovery process for C. When E and H collaborate, H can be regarded as E's employees who use their own knowledge to handle complaints for C. Divided by line 2, business processes involving C and H provide opportunities for H. When C and E collaborate, C can be regarded as E's business process goals makers and supervisors.

Co-create Model realize by configuring the enterprise, complaint and expert tripartite capabilities to their needs. In the Co-create Model, complaint handled is the basic needs of the complainants, and spread word of mouth when satisfactory, repurchase and stay loyal are their capacities; Helpers' perception of self-efficacy, enjoyment in helping, reputation seeking and experience growth are their basic needs, at the same time complaint handing is their ability that providable; Enterprise pursue profit, as while it can recommend suitable expert to handle complaints that they favor. When tripartite capacities properly configured to tripartite needs, a value co-creation ecosystems form.

#### 3.2 Factor dimensions

Participants' of jointing in Co-create model is affected by a variety of factors. Specifically, factors affect complainant and helper can be crusted into information/knowledge, emotional and social capital three dimensions. According to the literature review, complainants' satisfaction is affected by the problem solving, explanation factor of information/knowledge dimension, attitude factor of emotional dimension, and response speed factor of the environment; helper satisfaction mainly affected by codification effort factor, self-efficacy factor of information/knowledge dimension, enjoyment factor of emotional dimension, identity factor of social capital dimension; Enterprise profit is affected by complainants' service recovery satisfaction, therefore indirectly affected by factors of information/knowledge, emotional, social capital dimensions. Therefore, the work conclude that information/knowledge, emotional, social capital are factor dimensions of the Co-create Model.

#### 3.3 Management tools

Expert recommendation is the management tool of the Co-create Model. Co-create model is reflected by service recovery satisfaction, helper satisfaction and corporate profit three indicators, and further, information/knowledge, emotional, social capital three factor dimensions. Ignition of any party will result in a failure. The overall objective, which is a function of the three indicators, is determined by model setter. Different strategies with different emphasis on the factor dimensions will affect the efficiency of the Co-create Model.

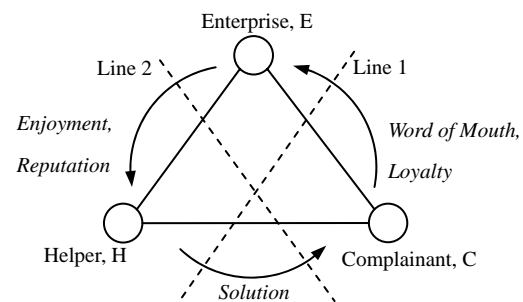


Figure 1. Co-create model framework

#### 4. SIMULATION MODELING

The work use simulation experiments to test the efficiency of the propose Co-create Model. To ensure the consistency and validity of the model, the work use the Bass Diffusion model<sup>[7]</sup> with negative word of mouth, the service recovery satisfaction model<sup>[14]</sup>, helper satisfaction model<sup>[16]</sup> and improved customer lifetime value model<sup>[26]</sup> to construct the simulation model.

To simulate the user interaction, the paper use Agent-based simulation modeling method. Define, in the social media platform there exist  $N$  users, denoted by  $U = \{u_i \mid 1 \leq i \leq N\}$ ; each user has product related knowledge level, denoted as  $K$ ,  $0 \leq K \leq 1$ ; each handling complaint requires a certain level of knowledge, denoted as  $C$ ,  $0 \leq C \leq 1$ . Define user's product attitude  $ATT$  ( $0 \leq ATT \leq 1$ ), by which user decide whether or not to buy the product; the overall service recovery satisfaction, the reference point for complainant, as  $OSS$  ( $0 \leq OSS \leq 1$ ); and similarly, the overall helper satisfaction, the reference point for helper, as  $HSS$  ( $0 \leq HSS \leq 1$ ). By default, the model uses subscript  $i$  to represent helper, use  $j$  to represent complainant, use  $k$  to represent any unspecialized user, use  $t$  represent the time period. Therefore, the helper knowledge level is denoted  $K_i$ , the complaint required knowledge level is denoted  $C_j$ , and the complainant knowledge level is denoted  $K_j$ .

Model calibration is used in simulation research to make the experiment more realistic. By referring to Schwarz and Ernst<sup>[27]</sup> and other related works in simulation research field, the work sets the model parameters either by existing empirical research results (preferred), or by the expert experience.

##### 4.1 Diffusion model

User's  $ATT$  is affected by a fixed advertising effect ( $ad$ ) in each time period, as shown in formula (1).

$$ATT(t) = ATT(t-1) + ad \quad (1)$$

User's  $ATT$  is affected by positive/negative word of mouth effect ( $wom/nwom$ ) from its social network neighbors, as shown in formula (2) and (3).

$$ATT' = ATT \times (1 + wom) \quad (2)$$

$$ATT' = ATT \times (1 - nwom) \quad (3)$$

According to Bass model,  $ad$ ,  $wom$  are set to 0.1, 0.35;  $nwom$  is set to an experience value 0.6. When each time period start, if  $ATT_k^{(t)} \geq 0.6$ , the user  $k$  buys the product; Or otherwise. When user purchase a product, she/he has a probability of 0.8 to be satisfied with the product, and generate positive word of mouth, or a probability of 0.2 to be dissatisfaction, and publish complaint and regally generate negative word of mouth until the complaint is handled.

##### 4.2 Service Recovery Model

According to Liao<sup>[14]</sup>, the paper constructed the following Service Recovery Satisfaction ( $CSat$ ) formula, as shown in formula (4).

$$CSat = 0.89 \times (0.35 \times PS + 0.11 \times BC + 0.35 \times PH) \quad (4)$$

For  $PS$  (Problem Solving), the paper set that when  $K_i$  is higher than  $C_j$ , the helper is qualified for recommendation. The higher the  $K_i$ , the better the problem handled.  $PS$  is defined as shown in formula (5).

$$PS = (K_i - C_j) / (1 - C_j) \quad (5)$$

$BC$  (Being Courteous) is helper courteous when handling complaint.  $BC$  is function of user's current emotion. Define helper Emotion  $EM \sim N(0.5, 0.16)$ ,  $BC$  is defined as shown in formula (6).

$$BC = 1 / (1 + \exp(-12 \times EM + 6)); \quad (6)$$

$PH$  (Prompt Handling) is the complaint responds speed;  $PH$  is function of complaint state time ( $sTime$ ) and ended time ( $eTime$ ), and  $BC$  is defined as shown in formula (7).

$$PH = \begin{cases} 0, & \text{if } (sTime - eTime) > 3 \\ 1 - (sTime - eTime) / 3, & \text{else} \end{cases} \quad (7)$$

The overall service recovery satisfaction is the accumulation of many single ones. Single service recovery

satisfaction contributes a minor adjustment to OSS. The work define the OSS update formula as shown in (8).

$$OSS' = OSS \times 0.9 + CSat \times 0.1 \quad (8)$$

### 4.3 Helper Model

According to Kankanhalli et al. [16], the paper constructed the following Helper Satisfaction (HSat) formula, as shown in formula (9).

$$HSat = -0.48 \times CE + 0.43 \times EJ + 0.25 \times KSE + 0.23 \times ID \quad (9)$$

For CE (Codification Effort), the study mainly consider the impact of Inter-subjectivity. Set Inter-subjectivity is related to the difference between  $K_j$  and  $C_j$ , the larger the difference, the more Effort the handling of the complaint needed. CE is defined as shown in formula (10).

$$CE = (C_j - K_j) / C_j \quad (10)$$

EJ represents the enjoyment helper perceived in complaint handling. Similar to BC in service recovery satisfaction, EJ also is a function of user's current emotion EM. To simplify the model, the work assign a same definition to EJ as BC, as shown in formula (11).

$$EJ = 1 / (1 + \exp(-12 \times EM + 6)); \quad (11)$$

KSE (Knowledge Self-Efficacy) is established by performance accomplishments, vicarious experience, verbal persuasion, and physiological states [28]. For experience is also a kind of knowledge [21], the work define, for a specific complaint, the higher the  $K_i$  compared with  $C_j$ , the higher the helper's self-efficacy. KSE is defined as shown in formula (12).

$$KSE = K_i - C_j \quad (12)$$

ID (Identity) is the helper's identity. Giving or receiving information themselves are related with identity [24]. Set ID is affected by helper's helping experience EX. The work defines KSE as shown in formula (13).

$$ID = 1 / (1 + \exp(6 - EX)) \quad (13)$$

Similar to OSS, the work define the HSS update formula as shown in (14).

$$HSS' = HSS \times 0.9 + HSat \times 0.1 \quad (14)$$

### 4.4 Enterprise Model

(Berger and Nasr, 1998) propose the customer lifetime value calculation, the work improves the single-customer model by summing up all the customer population, as shown in formula (15) and (16).

$$EProfit = \sum_{k=1}^N \sum_{t=0}^Y [\pi B_k' / (1+d)^t] \quad (15)$$

$$\pi = UP - M \quad (16)$$

Among them, PI is the unit profit of the product, which is difference between the unit price UP and marketing cost M;  $B_{kt}$  is actual product consumption of user k in time t; d is the annual discount rate, with a recommended value of 0.2; Y is the number of years considered, with a recommended value of 4. To simplify the model, the work set the GC=1 and M=0.

### 4.5 Objective Function

Ignore any party would break the Co-create Model ecosystem. The work define the service recovery satisfaction, helper satisfaction and enterprise profit share an equal importance, and use a multiplicative model as the objective function, as shown in formula (17).

$$\text{opt. CHE} = CSat \times HSat \times EProfit \quad (17)$$

### 4.6 Enterprise Strategies

Assigning different weight to Information/Knowledge, Emotion, Social Capital factor dimensions represent different emphasis. The work set INF、EMO、SC and CMB four strategies to explore and contrast factor dimension's affect over the Co-create Model. The strategy settings are shown in Table 1.

Table 1. Information system levels

Strategy	Information/Knowledge	Emotion	Social Capital	Weights
T	-	-	-	-
INF	1	0	0	$w_i=1$
EMO	0	1	0	$w_e=1$
SC	0	0	1	$w_s=1$
CMB	$w_i$	$w_e$	$w_s$	$w_i + w_e + w_s = 1$

## 5. EXPERIMENT RESULTS

Unless further statements, all related results are tested using statistical T-test with a 0.01 default significance level. To simplify the experiments while keeping the validity, the logic time length is set to 180 days. Each set of experiments is executed 10 times and averaged to weaken system randomness affect.

### 5.1 Parameter Experiment Result

The parameter experiments explores the best weight profile that maximums the CHE index. The experiments generate 66 weight profiles from (0.0, 0.0, 1.0) to (1.0, 0.0, 0.0) adjusted by a 0.1 weight interval, and all weights sum up to 1. Experiments are executed with each weight profile. The result is shown in Figure 2.

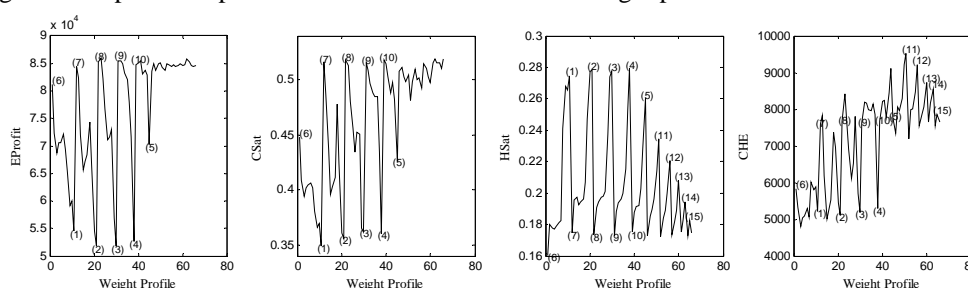


Figure 2. Parameter experiment results

As shown in Figure 2, EProfit, HSat, CSat, CHE changes with a significant periodicity. When information/knowledge dimension weight is fixed, change of emotional (social capital) weight corresponds to each sub-cycle. An interesting phenomenon is that, the lower points (1)-(5) and higher points (6)-(10) of EProfit corresponds to the lower and higher points in CSat, but opposite those in HSat. Due to the relatively consistent fluctuation cycle, the performance of CHE rely on the amplitude of the three.

For EProfit and CSat, when  $w_i < 0.5$  (points before (10)), with the decrease of  $w_e$  (the increase of  $w_s$ ), values drop sharply follows a Z-volatility, indicating both EMO and SC have positive impact on the index, and EMO's influence outweighs SC; when  $w_i \geq 0.5$  (points after (10)), both EMO and SC influence are weakened, information becomes a major factor and produce positive effects, remaining EProfit and CSat index high values.

HSat fluctuate inversely with CSat. EMO affect differently on CSat and HSat. For CSat, the larger the  $w_e$ , the more courteous the complainant perceived, leading to a positive correlation between helper emotion and CSat; in the contrary, the larger the  $w_e$ , the more randomness the recommend is, the more dissatisfied recommendation executed, resulting in low HSat. SC show low affect to CSat, but positively contributes to HSat. As the increase of  $w_i$ , the affect of EMO and SC on CSat and HSat drop at different rates, forming different amplitudes in EProfit, CSat and HSat, further affect the result of CHE.

As analyzed above, under the definition of CHE in this specific research, a comparison of influence on CHE of different factor dimensions should be  $INF > EMO > SC$ . The best weight profile is (0.5, 0.0, 0.5). It is conclude that when  $w_i \geq 0.5$ , SC outweighs EMO; when  $w_i < 0.5$ , otherwise.

### 5.2 Model Comparison Experiment Results

Model comparison experiments compares the efficiency of traditional service personnel based model and Co-create Model on Unsolved Complaint per period, CSat, EProfit, Satisfied/Unsatisfied Complaints per period indicators. For traditional model, the work set a service personnel of one worker each 50 user in target market



(T1/50), each 100 (T1/100), each 200 (T1/200), each 300 (T1/300). The work further define that each work can handle 5 complaints per day. For Co-create Model, the work use a combination strategy (CMB) under the best weight profile (0.5,0.0,0.5). The result is shown in Figure 3.

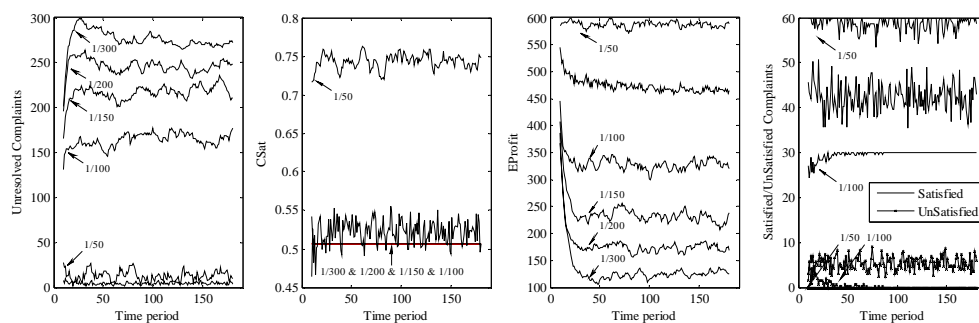


Figure 3. Model Comparison Experiment Results

From the result it can be easily conclude that, in the T1/50 setting the enterprise has enough service personal to handle the complaints, which nearly never happens in business practice. Unsolved complaint indicator represents handling speed of different models. According to the results, CMB (avg=4.6121) has a significantly lower unsolved complaints quantity compared with any T models, showing an absolute advantage of Co-create model over Traditional model. For CSat, the CMB (avg=0.5217) model significantly outperforms T models (avg=0.5070) except T1/50 (avg=0.7433). It is the same situation about EProfit, in which, the profits of CMB (avg=473.73) shows a 143.57 increase compared with T1/100 (avg=330.16).

Through performances well in the Unsolved Complaint, CSat and EProfit indicators, the Co-create Value has an average 12.68% dissatisfaction ratio, which further indicate that a service personal population is still necessary to handle thorny complaints. However, the model comparison by the Satisfied/Unsatisfied Complaints indicator should be treated carefully. When the complainant patience constraint is added, the dissatisfied situations would experience a substantial increase without timely treatment.

To conclude, the Co-create Model shows a significant advantage over the service personal based traditional model, and great value in commercial application.

### 5.3 Strategy Contrast Results

The strategy contrast experiments compare uni-factor strategies including INF, EMO and SC, and the combination strategy CMB under the best weight profile in CHE, EProfit, CSat, HSat indicators. Experimental results are shown in Figure 4.

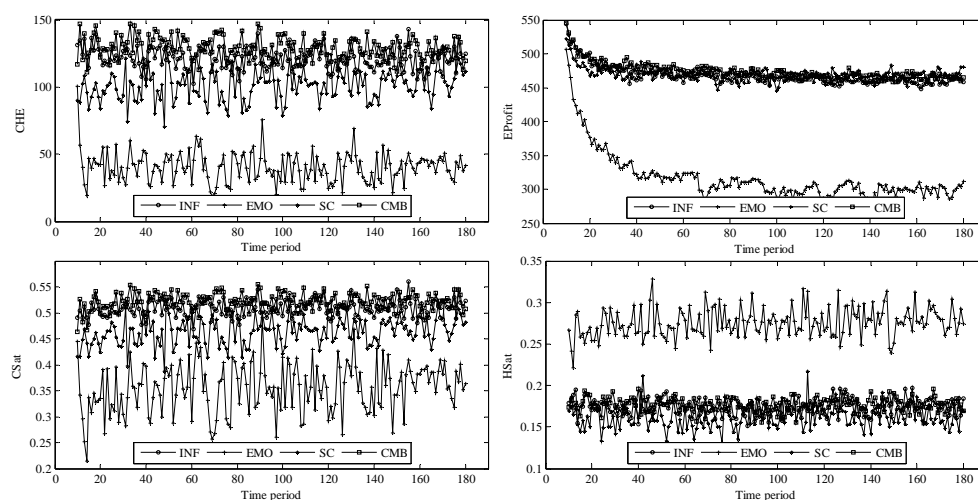


Figure 4. Strategy Contrast Results

Figure 4 shows that, for CHE and CSat indicators, performance of the four strategies show obvious hierarchy with an order of CMB> INF> SC> EMO. For EProfit indicators, CMB Strategy (avg = 473.72) is significantly higher than other strategies, SC (avg = 469.80) is higher than INF (avg = 468.05) at the 0.05 significance level, showing an order of CMB>SC>INF>EM; for HSat indicators, CMB strategy (avg = 0.1768) is higher than INF (avg = 0.1744) at the 0.05 significance level, both are significantly higher than SC (avg = 0.1623), exhibit an order of EMO> CMB> INF> SC. The results show that a combination of three factors strategies can improve the efficiency of Co-create Model.

## 6. Conclusion and Future Work

The social media platform convenience users' publishing and disseminating online complaints. Enterprises undergo huge losses due to the lack of suitable management mechanism for effectively dealing with online complaints. This research, based on Value Co-Creation theory, investigates customer complaint, individual knowledge sharing, enterprises service recovery motivations, designs the value co-creation based online complaint handling mechanism, and analyzes its goals and constraints. Through the literature review, the paper conclude that, information/knowledge, emotional and social capital are three main factor dimensions. Besides, expert recommendation is the management tool of the Co-create model. Simulation models are constructed to explore the mechanism efficiency and strategies that maximums the efficiency. Results show that the proposed mechanism significantly outperforms the traditional service personnel based mechanism. Emphasis differences over the three dimensions, would lead to changes in efficiency. However, the best strategy is not fixed, but rather rely on the accordingly predefined objective function.

Many limitations exist. First, the model directly uses the existing empirical research model parameters without a re-test, which may affect the validity of the model to some extent; secondly, social capital factors, the work uses identity as the only indicator of user's social capital, however, the inclusion of other factors, especially factors of social network structure, would bring a great improvement to the model efficiency. These above limitations would be explored in future studies.

## ACKNOWLEDGEMENT

This research was supported by the National Natural Science Foundation of China under Grant 71371081, Research Fund for the Doctoral Program of Higher Education of China under Grant 20130142110044, and Technology Innovation Foundation of Innovation Institute of Huazhong University of Science and Technology under Grant CXY13Q033.

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