

## A Salesforce Control Theory Analysis of Enterprise Microblog Posts

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### Abstract

Social computing and enterprise 2.0 trends are reshaping business. Selling is no different. In this work, we examine the theory of behavior-based and outcome-based salesforce control put forth several decades ago in the context of social business. We collect enterprise microblog posts of salespeople and conduct a preliminary empirical study. Our preliminary results indicate that microblog posts written by sellers not on commission are greater in number and more cooperative on average, confirming the propositions of salesforce control theory. However, a different view of the empirical results indicates that there may not be a difference between commission and noncommission sellers in the content of their posts, warranting further study.

Jack Welch, the erstwhile chief executive of the General Electric Company, once said, “To quote a friend of mine, Chuck Ames, the former chairman and CEO of Reliance Electric, ‘Show me a company’s various compensation plans, and I’ll show you how its people behave.’”

### Salesforce Management

It is critical for a business to well-manage its salespeople because of the large direct influence on both the top line revenue and bottom line profit. It was estimated in 2006 that \$800 billion dollars is spent per year on salesforces in the United States, approximately three times as much as on advertising (Mantrala et al. 2010). There are many decisions that go into running a salesforce, especially for large enterprises with diverse product and service portfolios. In line with selling objectives such as growing revenue, selling more to existing clients, and increasing sales productivity, there are several avenues for improving salesforce planning, including sales territory design improvement, sales team optimization, talent planning, and compensation plan improvement (Baier et al. 2012).

A complementary approach to improving salesforce planning is developing and providing better and more informative tools for individual sellers to use in their daily activities. Examples include tools that estimate the revenue potential of clients, recommender systems that suggest products and

services to cross-sell and up-sell, market and social media analytics feeds, and tools that enable salespeople to locate appropriate marketing collateral and experts within the company to bring to client meetings (Varshney and Mojsilović 2011). Many of these tools involve a social networking component; in fact, data captured through their use can even be exploited for improved salesforce planning.

There are two diametrically opposed approaches in the theory of managing salespeople: behavior-based control and outcome-based control (Anderson and Oliver 1987; Cravens et al. 1993; Baldauf, Cravens, and Piercy 2005). The hallmarks of behavior-based control are high levels of management direction and monitoring of selling activities, and subjective and complicated metrics for evaluation and compensation based on things like product knowledge, number of calls made, and selling strategies. The hallmarks of outcome-based control are the opposite: little direction and monitoring of activities, and compensation driven wholly by selling outcomes, i.e. revenue achievement. Salespeople under pure outcome-based control are completely reliant on commission, whereas those under pure behavior-based control have fixed salaries without bonuses. Most real-world salesforce management strategies fall somewhere on the spectrum between these two extremes.

The theory postulates that the two control strategies lead to different seller behaviors. Under behavior-based control, salespeople are more committed to the organization and cooperate more. They have higher levels of intrinsic motivation, motivation by peer recognition, and motivation to serve the organization. Furthermore, their sales techniques are more open and customer-oriented using product knowledge and expertise. However, outcome-based sellers have better achievement on traditional individual metrics like revenue attainment. Different market atmospheres call for different salesforce control strategies (Anderson and Oliver 1987).

Interviews of executives reported by Pink (2009) indicate anecdotal evidence of the ease of implementing behavior-based control despite the almost gospel nature of outcome-based control. Neil Davidson of Red Gate Software said, “The salespeople thought the move [to scrap sales commissions] was, generally, a good one, but that other salespeople wouldn’t.” Thus the change was actually welcomed by sellers. The interviews also indicate the benefits of moving away from outcome-based salesforce control. Benefits of remov-

ing commission-based compensation plans reported by Red Gate as well as System Source included increased revenue, low voluntary attrition, improved collaboration and commitment, and stronger customer relationships. These findings are in agreement with the theory of salesforce control systems (Anderson and Oliver 1987).

Empirical studies that have attempted to confirm Anderson and Oliver's theories have been fairly successful (Cravens et al. 1993; Anderson and Oliver 1994). However, the studies have been based on high-level data elicited through surveys, which are less reliable than direct observational studies. Also, it has now been twenty years since those studies were conducted. Nowadays, the use of social networking technologies in business is growing and becoming ingrained. When sellers use such technologies, including online communities, microblogs, wikis, and so on, their activities are captured digitally, permitting observational studies of things like level of cooperation. Therefore, the time is ripe to investigate salesforce control system theories by examining such activity.

The increased use of social networking and social media is wind in the sail of another enterprise 2.0 trend: co-creation of products and services between businesses and their customers (Prahalad and Ramaswamy 2004; McAfee 2006). Such co-creation is enabled most by salespeople because they are the most customer-facing employees. Such a trend plays directly into the theorized advantages of behavior-based salesforce control, such as quality of presentation, engagement, enthusiasm, loyalty, and going the extra mile in service of the organization.

A real desire these days within large enterprises is stability and sustainability within the salesforce. Evaluations and descriptive analytics around sellers are turning to varied indices composed of several factors including client experience, culture, resource allocation, expertise, and so on. For example, a strength of salesforce index described by Varshney et al. (2012) is composed of four factors: performance rating history (itself an amalgam of several objective and subjective inputs), skill level, quota attainment history, and time spent in the current job. Moreover, organizations are having their salespeople 'stand and deliver,' i.e. demonstrating their presentation and product knowledge skills in front of actual customers while being observed by their managers.

All of these enterprise 2.0 trends and desiderata suggest, according to the theory of behavior-based and outcome-based salesforce control, that compensation plans for sellers should become less commission-based (Misra, Coughlan, and Narasimhan 2005). However, even in businesses in which other enterprise 2.0 practices are being adopted, there has not yet been wholesale movement towards a predominantly noncommission salesforce.

In the remainder of this paper, we examine the microblog posts of two contrasting populations of sellers that we collected from within IBM, a global corporation transforming itself into a social workforce with enterprise 2.0 ideals. The two contrasting populations are those on commission-based compensation plans and those not on commission-based compensation plans. We examine the quantity and content of posts as they relate to the propositions of salesforce con-

trol. First, however, we discuss enterprise microblog posts in some more detail.

## Enterprise Microblog Posts

There has been some published research on microblogging at work based on content analysis. Zhang et al. (2010) describe a case study of the microblogging application Yammer in a corporation based on manually coding 300 microblog posts. Their research covers a wide range of issues including the value of microblogging and impediments to adoption within an enterprise. Ehrlich and Shami (2010) analyze 5387 manually coded microblog posts from 34 users from an internal microblogging application and Twitter. They show how microblogging internally allows employees to ask questions and solicit help, and enable mobile workers (e.g. sellers) to feel connected to the company.

Zhao and Rosson (2009) report results from an interview study with 11 participants about Twitter use by corporate employees. Their study sheds light on how microblogging benefits informal communication in the workplace. Zhao et al. (2011) demonstrate the value that microblogging brings to sharing awareness of project status amongst team members. To the best of our knowledge, there has been little work investigating the content and nature of sellers' microblogging posts. Our research aims to shed light on differing usage of microblogging by two different populations of sellers.

## Data Analysis and Discussion

To conduct a preliminary observational empirical study of behavior-based and outcome-based salesforce control theory in a salesforce beginning to use social computing, we collected the microblog posts of a subset of salespeople within the IBM Corporation over an approximately two week period in the spring of 2012. In particular, these were enterprise microblog posts made on the IBM Connections social software application running on IBM's intranet. During this period, 1689 posts were collected. These posts were authored by 431 unique salespeople. We joined the microblog snippets with additional information about the salespeople maintained in human resources (HR) data warehouses.

To examine salesforce control systems, a key field from the HR data was whether the seller was on a commission-based compensation plan or not. Sellers on commission-based compensation plans are under greater outcome-based control and sellers not on commission-based plans are under greater behavior-based control. Of the 1689 posts, 1527 were authored by sellers on commission-based plans and 162 were authored by sellers not on commission-based plans. Of the 431 sellers, 402 were on commission-based plans and 29 were not on commission-based plans.

We had a single annotator manually label the microblog snippets into two categories: self-oriented and cooperative. Examples of self-oriented posts include:

- Meeting with Kaiser today out in the bay area.
- Off to Tufts Health Plan in the morning to drop off the RFP package and then off to meeting with Massport!
- On the tail end of a flu bug I hope...

	Noncommission	Commission	Total
Self-Oriented	69	719	788
Cooperative	93	808	901
Total	162	1527	1689

Table 1: Contingency table of microblog post content type by compensation plan type of the author.

	Noncommission	Commission	Total
Self-Oriented	15	200	215
Cooperative	14	202	216
Total	29	402	431

Table 2: Contingency table of maximum microblog post content type for the author by compensation plan type of the author.

- calls, meetings, and paperwork. . .
- I never knew archiving was a religious experience.

Examples of cooperative posts include:

- Hi Lou, thank you sooh much for spending a week here in the Philippines! We have learned so much from you and we're definitely seeing great things to happen here- SSS, BP Community & more! Maraming Salamat!
- Thanks, good luck!
- Thanks Bill, I appreciate you comments!
- IBM announce it will replace its Oracle/Siebel CRM with SugarCRM - <http://on.wsj.com/JKyexm>
- Good comment Mike - we take Kim's great work for granted - we're used to how high Kims sets the bar :-)

The self-oriented posts are indicative of behavior theorized under outcome-based control and the cooperative posts are indicative of behavior theorized under behavior-based control.

The number of posts of each category by commission and noncommission sellers are given in Table 1. We also looked at which type of post an author wrote more: self-oriented or cooperative. The resulting numbers are presented in Table 2. For the purposes of this analysis, if a seller had an equal number of self-oriented and cooperative posts, we counted the seller as more cooperative. In this data, the first thing to note is that the average number of entries per seller is 3.799 for commission and 5.586 for noncommission. That noncommission sellers are spending more time on non-selling activities is one of the predictions of salesforce control theory. If we further look at the average number of posts by category for the two types of sellers, we see values of 2.010 cooperative posts per commission seller and 3.207 cooperative posts per noncommission seller. Thus noncommission sellers are posting more cooperative snippets than commission sellers. The numbers are much closer on self-oriented posts: 1.789 to 2.379.

Next we compare the percentage of cooperative posts by noncommission sellers to the percentage of cooperative posts by commission sellers. Of microblog entries written by

commission sellers, 52.9% are cooperative, whereas 57.4% are cooperative among noncommission sellers. Noncommission posts being more cooperative on average is again consistent with the theory of salesforce control because one of the propositions states that "the more a control system is behavior-based rather than outcome-based, the more a salesperson identifies with and feels committed to the sales organization, is willing to accept direction and cooperate as part of a sales team."

However, taking the individual author view, there is no difference between commission and noncommission sellers; it is almost a perfect fifty-fifty split among those who write more cooperative posts and those who write more self-oriented posts in each group of sellers. Thus, although noncommission sellers write more cooperative posts on average, it is not more than commission sellers when looking at an individual seller basis. This effect is related to the so-called ecological inference fallacy. Also, the  $p$ -value of a  $\chi^2$  test on Table 1 is greater than 0.05. These findings suggest that a more comprehensive study be performed to clarify how cooperative or self-oriented the different types of sellers are.

In particular, there are several directions of improvement that we note here. First, we should consider microblog posts from a longer duration and a greater number of sellers, especially noncommission sellers. Second, we should incorporate sellers who do not make any posts at all into the statistics. Third, we should employ several annotators and make use of inter-annotator agreement measures (Fleiss 1971).

Relatedly, in this study, the annotator was instructed to label all snippets into one of the two categories and was not allowed the option to leave some snippets unlabeled when a true label was questionable. In future work, we would allow annotators this option. In fact, during the process of labeling the set of microblog posts presented here, the annotator did follow a process of labeling the easiest ones first and was seeing very significant differences in post type fractions between commission and noncommission sellers. Unfortunately, the annotation process did not include a record of which posts were easiest to label.

Finally, in setting up the study design or doing the analysis, we should take care to deal with potential confounding variables related to why a seller is commission or noncommission. Some potential confounders are given in Table 3. We see that managers are more likely to be noncommission than non-managers. Also, sellers from North America are more likely to be noncommission than sellers from growth markets. Similarly, there are differences in the salary range or job level of commission and noncommission sellers, the performance ratings, and the business unit to which they belong. All of these and other similar factors should be ruled out, corrected for, or not be allowed to appear in the study.

Overall, this empirical study has been a first step towards understanding social computing behavior in relation to salesforce control systems. The study has not been conclusive of whether or not the behavior predicted by the theory manifests itself in enterprise microblog posts, but has provided some hints that it may be true. It has been most enlightening on how to improve the study design in order to make more meaningful inferences in the future.

	Noncommission	Commission
Non-manager	21	344
Manager	8	58
Growth Markets	6	127
North America	23	275
Salary Band 6	2	11
Salary Band 7	1	11
Salary Band 8	1	67
Salary Band 9	10	102
Salary Band 10	5	59
Salary Band Unk	10	152
Low Perform	0	11
Med Perform	9	87
Med-High Perform	11	119
High Perform	3	38
Unk Perform	6	147
Sales & Distribution	20	331
Software Group	5	48
Other or Unk	1	23

Table 3: Potential confounding variables.

## Conclusion

In this work, we have reconsidered behavior-based and outcome-based salesforce control theory in the emerging context of social computing for workforce 2.0. The focus has been on seller activities that are encouraged and desired in the social business context, which turn out to be more along the lines of behavior-based control, and how they may be manifested in social data, especially microblog posts. Both cooperative and self-oriented content appears in posts. Our preliminary empirical study has provided mixed results, with some evidence to confirm the expected behaviors of salesforce control, but has been particularly useful as a guide for future study design.

In future work, the development of machine learning algorithms that use linguistic cues as features to label post content can help expand the scale of analysis and may be enlightening in its own right. It will also be interesting to conduct semi-structured interviews of salespeople to better understand the role that microblogging plays in their job functions. We may also investigate many different other characteristics of sellers captured in enterprise HR and social data as they relate to behavior-based and outcome-based control. Additionally, expanding the investigation to other workforces besides salespeople is of interest (Keating 2012).

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