VU VRIJE UNIVERSITEIT AMSTERDAM | School of Business and Economics

Applied Quantitative Methods to Analyse Business Data

Logistic Regression (Software Tutorial)

Service Technicians as a “Second” Salesforce

A. Introduction

Frontline employees—the sales force or service force—represent the core interface with the customer for most business-to-business (B2B) firms. Traditionally, firms have assigned distinct tasks to their frontline employees, with salespeople responsible for selling and service people responsible for service. However, to exploit the full revenue-generating potential of the frontline, firms have begun to include active selling as part of field service employees’ responsibilities—making them a “second” sales force alongside the existing (“first”) sales force.

Potentially, this expansion of responsibilities gives rise to unique sales opportunities, as service employees’ customer knowledge allows them to assess current needs and make tailored offers. However, industry evidence of selling success is mixed. While a study by McKinsey & Co. indicates that firms can increase revenues up to 10% by leveraging their service force for up- and cross-selling (Eichfeld, Morse, and Scott 2006), other sources show that many firms fail to reap these benefits (Finkel 2015; Murcott 2007). Thus, it is of utmost importance that managers understand how they can use their service employees effectively as a “second” sales force.

Service Technicians as a “Second” Salesforce

A. Introduction

A key determinant of service employees’ selling effectiveness is the underlying service situation in which these employees—service technicians in our industrial-machinery context—interact with customers. A service situation requires a technician to visit the customer’s site for maintenance or repair tasks. Selling in these situations differs from traditional sales situations in that the service task is the primary reason for interaction. Any selling activity is secondary and occurs in the setting of that service situation, which makes selling by field service technicians highly contextual (De Ruyter, Patterson, and Yu 2014). For example, technicians might be more inclined to make a sales offer after successfully completing their primary service job in the hope of boosting chances for a successful sale. Hence, the question arises as to when (i.e., in which service situation) service technicians feel that they should make a sales offer. In a second step, it is crucial to know whether service situations differ in their prospects for a selling success and, if so, whether service employees can distinguish “good” from “bad” situations to increase success.

Field service technicians

Many firms employ a broad range of boundary spanners, each with different roles and responsibilities (e.g., salespeople, call-center agents). We focus on service technicians, who are an important part of customer management, especially in industrial B2B after-sales services (Ulaga and Reinartz 2011). Service technicians’ main tasks include the installation of equipment, routine maintenance, emergency repair, and parts supply (Wilson, Boström, and Lundin 1999). These tasks require a technical background (e.g., electronics, mechanics) and are usually performed at the customer site during operation of the equipment. Besides their regular tasks, technicians serve as the supplier’s face to the customer, act as problem solvers, collect valuable customer information, and often identify promising sales opportunities (Rapp et al. 2015; Ulaga and Reinartz 2011). Because of their technical skills and direct insights into customers’ processes, they are ideally suited for cross-selling equipment and services (e.g., spare parts, training courses) during on-site visits (Tuli, Kohli, and Bharadwaj 2007; Worm et al. 2017).

Service Situations

(1) Out-of-warranty service failure: The field service technician does not manage to complete the primary job successfully. As a result, the machine is not functional after termination of the service job. This failure leads to (further) downtime and, most likely, to (additional) income losses for the customer. Furthermore, as no warranty exists, the customer must be prepared to be charged for the service job.

(2) Out-of-warranty service success: The service technician successfully completes the job and the machine is functional. However, the customer has to pay for the visit as the service is no longer covered by a warranty.

(3) Within-warranty service failure: The technician does not finish the job successfully. Although the customer does not incur any costs for the work, she does have to expect downtime costs because the machine remains inoperable.

(4) Within-warranty service success: The technician finishes the service job successfully, resulting in no further downtime for the customer. Likewise, the customer does not incur any service costs due to the warranty.

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C. Theory: When do we expect technicians to engage in selling activity?

Failing at their primary service task has several negative consequences for technicians. Service technicians note that they are “dissatisfied with themselves”, that they feel they “didn’t do their job”, and that customers may have “a lack of trust in their technical capabilities.”

In addition, since the service job falls within the warranty period, the responsibility for any problems and for providing quick solutions lies with the supplier. In this situation, customers are more likely to blame the supplier for machine downtimes (Dixon, Spiro, and Forbes 2003; Kashyap 2001) and expect the technician to take care of the problem, making an unsuccessful service visit even more unpleasant for the technician. Given these negative situational cues, service technicians likely expect less success in secondary selling tasks (Gist and Mitchell 1992). Technicians highlight that a service situation bears particular pressure if the machine is still under warranty.“ We can thus infer that technicians are less motivated to make an offer in this situation.

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C. Theory: When do we expect technicians to engage in selling activity?

By contrast, a service technician’s motivation to engage in selling is highest in the “out-of-warranty service success” situation, which is the exact opposite of the previous situation in terms of the two key characteristics. In this situation, the main task of the service visit is successfully completed, which contributes to a situation described as being more “pleasant” and “satisfying”. Likewise, technicians assume that they enjoy greater credibility and customers have more trust in their technical skills. Additionally, as this is an out-of-warranty service call, the customer is less likely to blame the supplier for machine problems. Thus, technicians should expect more success in secondary selling tasks. For technicians, the best moment is when they have successfully solved an issue that they had to solve.” Field service technicians should be more motivated to make a sales offer in these situations.

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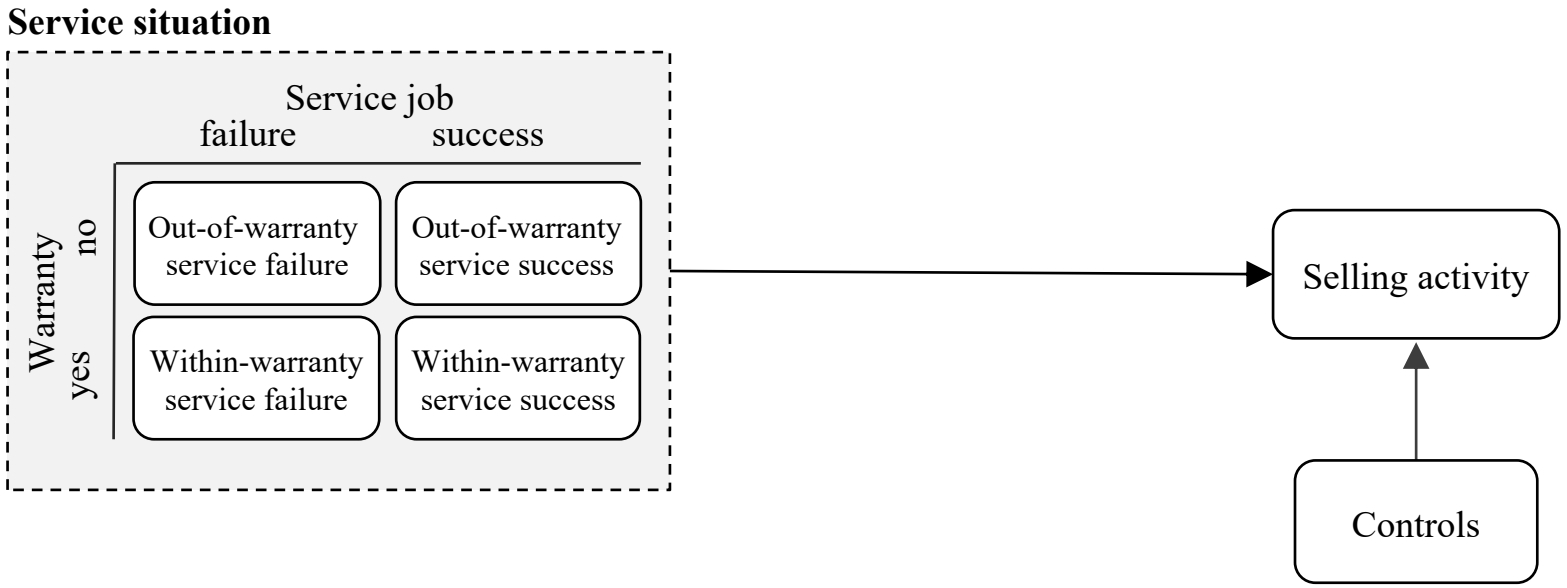
C. Theory: Proposed effects (visualization of conceptual framework)



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C. Data

You have obtained a dataset with observations of selling activities by a number of service technicians of a large international b2B company that sells heavy-duty machinery (milling machines, lasers, lathes). The company‘s technicians visit customers on site for maintenance, repair, or overhaul services. During those visits, they often notice additional issues unrelated to the reason for their service call (e.g., new parts are available) either with respect to the serviced machine or to other machines in the customer’s machine park. Technicians are encouraged to point out such issues to the customer and offer a solution, thus engaging in selling activity. Proposed solutions range from providing simple spare parts to more complex components that are critical for the operability of the equipment, to machine upgrades as well as value-added services.

As an incentive, service technicians receive a 2% commission for every successful sale combined with a floor and a cap of €10 and €200, respectively. Commissions do not apply to sales necessary to fulfill the original service task but only to cross- and up-selling. Furthermore, service technicians are not eligible to offer entire machines (which remains a core task of designated salespeople) but only ancillary equipment. The company uses an IT-based tool to facilitate selling by technicians. As part of the regular service report, they can enter the proposed solution into a database. Each entry triggers a process in the back office that generates a quote that is sent to the customer.

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C. Data

Variable	Name	Definition	Operationalization
Dependent variables			
Selling activity	ACT	Indicator whether a service technician engaged in selling activity during a respective service visit	0 = no selling activity; 1 = selling activity
Selling success	SUC	Indicator whether a selling activity was successful (i.e. resulted in a sale)	0 = no selling success; 1 = selling success
Service situations			
“Out-of-warranty service failure”	OWSF	Situation characterized by unsuccessful service job and non-existence of warranty	1 if service job = unsuccessful AND warranty = non-existing; 0 otherwise
“Out-of-warranty service success”	OWSS	Situation characterized by successful service job and non-existence of warranty	1 if service job = successful AND warranty = non-existing; 0 otherwise
“Within-warranty service failure”	WWSF	Situation characterized by unsuccessful service job and existence of warranty	1 if service job = unsuccessful AND warranty = existing; 0 otherwise
“Within-warranty service success”	WWSS	Situation characterized by successful service job and existence of warranty	1 if service job = successful AND warranty = existing; 0 otherwise

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Covariates

Technical specialization	SPEC	Indicator for degree of specialization of the service technician (vs. generalist)	Herfindahl concentration index based on distribution of the service technician’s internal skill certificates for a subset of 27 product lines offered by the company; range from 0 = generalist to 1 = specialist
Sales education	TRAIN	Indicator whether the service technician participated in specific sales training prior to the respective service visit	0 = no training; 1 = training
Sales expertise	LEAD	Indicator for overall sales activity of service technician prior to respective service visit	# of sales leads of the service technician in the quarter prior to current service visit
Technician’s service experience	TEXP	A technician’s recorded service experience across all customers	# of service visits (at any customer) made prior to the focal visit
Technician’s prior service success	TSERV	A technician’s track record of successful service visits (i.e., machine operational upon departure)	# of successful service visits (at any customer) made prior to the focal visit
Joiner	JOIN	Indicator whether a field service employee joined the job during the observation period	0 = other; 1 = joiner
Leaver	LEAV	Indicator whether a field service employee left the job during the observation period	0 = other; 1 = leaver
Customer size	SIZE	Indicator for size of customer	0 = smaller customers (C, D),

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Customer openness to selling activities	OPEN	Indicator for customer’s responsiveness to service technicians’s selling activities	# of total successful selling activities by all technicians for the respective customer prior to the focal service visit
Customer’s service experience	CEXP	Indicator for the customer’s experience with the seller’s products and services	Duration of the business relationship between the customer and the cooperating company in months
Customer’s prior service success	CSERV	A customer’s record of successful service visits (i.e., machine operational upon departure) by any technician	# of successful service visits (by any technician) at the customer prior to the focal visit
Familiarity with the customer	FAM	Indicator for the specific knowledge the service technician has acquired about the customer	# of hours that the technician spent with the customer in the past 360 days prior to the focal visit
Machine status at arrival	ASTAT	Indicator whether the machine was operational or not operational at the beginning of the service visit	0 = not operational; 1 = operational
Visit duration	DUR	Indicator for the length of the respective service visit	# of hours that the technician spent at the customer’s site during the focal service visit
Number of proposed items	ITEMS	Indicator for the number of products/services that the service technician recommended	# of technical equipment pieces offered by the service technician during the focal visit
Average lead time	LTIME	Indicator for the length of the decision process for the quote	# avg. number of days elapsed from date of the service visit to sales date by the specific service technician
Recent payout	PAY	Indicator for whether the technician recently (past 30 days) closed a sales lead and earned commission	0 = no recent payout; 1 = recent payout

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