

Reclaiming the contingent nature of the determinants of salesperson performance: An extended meta-analysis

ABSTRACT

Professional selling has been transformed over the last decade and is in constant flux. Fundamental changes have occurred in how best to achieve salesperson performance and how to measure it. In this article, we present a meta-analysis of the determinants of salesperson performance using 150 studies, 936 raw effects, and ten moderating variables captured from 2009 to 2020. Our findings enable us to identify 19 key determinants of performance and to classify these within a sales determinant continuum, ranging from universal, to context-specific to necessary but insufficient predictors of performance. Our results show the significant influence the operationalization of salesperson performance has on the relationship between sales determinants and performance outcomes. Our study offers more nuanced guidelines for sales management practice than previous studies and suggests a greater alignment between research sampling and performance measurement methods to further our understanding of sales performance going forward.

Keywords: sales performance, salespeople, meta-analysis, performance measurement

Given the substantial scale of salesforce investments, such as in the US where companies spend \$900 billion annually on sales personnel, achieving high salesperson performance is imperative in sales organizations (Cespedes and Wallace, 2017). In addition to the financial cost, there are risks associated with inadequately measuring performance and in investing in programmes that do not result in significant performance enhancements because their underlying drivers are poorly understood. The salesforce in many firms remains the lynchpin to organizational success and the strongest connection to the firm's markets and customer base (Kumar, Sunder, and Leone, 2014). Undesirable effects, such as the unsuccessful launch of new products (Fu *et al.*, 2010), reduced customer loyalty and satisfaction (Román and Juan Martín, 2014), increased staffing turnover (Cooper, 2012), and suboptimal financial performance (Wihler *et al.*, 2017; Dugan *et al.*, 2019) are often associated with an emphasis on sales competencies that do not underpin crucial performance drivers.

Academics have responded to these challenges by undertaking numerous studies to identify the critical predictors of salesperson performance over the past century, such as salesperson traits and behavioral orientations (Vinchur *et al.*, 1998; Goad and Jaramillo, 2014). In addition, two meta-analytic studies have taken a broader perspective, assessing a range of salesperson performance drivers through the synthesis of 384 studies from 1918 to 2008 (see Churchill Jr. *et al.*, 1985; Verbeke, Dietz, and Verwaal, 2011). However, after more than a decade since the publication of Verbeke *et al.*'s (2011) seminal work, there is a need for an updated meta-analysis of professional selling for several reasons.

First, we argue that, over the last decade, the degree of transformation of sales roles has been significant, requiring an updated synthesis of the determinants of their performance. Several trends serve as examples of this transformation. First, in reviewing articles from 1982 to

2008, Verbeke, Dietz, and Verwaal (2011, 425) note the proliferation of data and the critical role salespeople play in brokering information across buyer-seller ecosystems. They suggest that in “a knowledge-intensive and science-based economy, salespeople will function more as knowledge brokers who transfer knowledge to customers.” Since their study, advancements in big data, social media, and the ongoing digitization of marketing content have substantially increased the amount of sales-related information directly available to buyers in B2C and B2B markets (Hochstein *et al.*, 2019; Paschen, Kietzmann and Kietzmann, 2019; Ahearne *et al.*, 2022). This information proliferation has begun to change selling practices, forcing sales organizations to identify talent with competencies associated with information processing, such as analytical skills not highlighted a decade earlier (Peesker *et al.*, 2022). Second, how salespeople interact and whom they interact with in their role as boundary spanners continue to evolve. More complex solution-based selling drives salespeople to navigate new solution ecosystems to create value (Rustholikarhu, Hautamaki and Aarikka-Stenroos, 2020). Third, across organizations, CRM, social media, and other sales enablement technologies have begun to blur the lines between sales and marketing roles and responsibilities (Rodriguez, Peterson, and Krishnan, 2012; Dugan, 2014). Fourth, buyer-seller exchanges have changed from face-to-face to virtual platforms in the last decade (Böhm *et al.*, 2020; Ahearne *et al.*, 2022), further catalyzed by the Covid-19 pandemic. Salespeople must identify new ways to establish rapport and build trust in a virtual world (Chakrabarty, Widing and Brown, 2014; Jokiniemi *et al.*, 2023). Together, these factors have resulted in new supplier-customer engagement models requiring different skills and competencies and where salesperson interactions have evolved from one-to-one interpersonal approaches to inter-organizational, many-to-many networks (Bolander *et al.*, 2015; Claro & Ramos, 2018; Steward *et al.*, 2010).

A second reason for conducting an updated meta-analysis is the fact meta-analysis, as a secondary data-based methodology, is limited by the scope of studies available for inclusion at the time of data collection. When there are few or no primary studies on a particular determinant of sales performance within the observation period of a meta-analysis, the precision and predictive power of specific determinants of sales performance is reduced. Thus, a low number of study effects ultimately influence meta-analytic conclusions. Given the above mentioned sales transformations, we compared studies published from 2009 to 2020 to those previously collected by Verbeke et al. (2011) and Churchill Jr. *et al.* (1985) using the latter's original topology of sales performance determinants for comparison. We found significant differences in the types of determinants investigated and the relative number of raw effects available for analysis for each determinant across the three research periods (see table 1).

<Insert table 1 about here>

Lastly, an updated meta-analysis is needed to address the evolving approaches to sales performance measurement in the field. Traditional conceptualizations of performance, often solely based on financial results, are giving way to a more diverse measurement schema that more adequately reflects the breadth of the performance phenomenon. For example, in a recent study, 85% of sales leaders indicated using a broader spectrum of measures, over and above financial results, when evaluating salesperson performance (Kerr and Marcos-Cuevas, 2022).

Collectively, these trends affect both the independent and dependent variables available for meta-analytic inquiry and, therefore, the potential conclusions that may be derived. Against this backdrop, our study addresses the research question, *what are the determinants of individual salesperson performance in the current sales environment?* We conduct an updated meta-analysis of individual salesperson performance, synthesizing drivers of salesperson performance

found in studies published from 2009 to 2020. In so doing, we contribute to completing a 100-year research journey into the key determinants of salesperson performance. Through bivariate analysis and meta-regression, we integrate the findings of 150 studies while considering four different conceptualization and measurement combinations of salesperson performance (i.e., measurement type, dimensionality, rater source, control orientation), three different study contexts (publication date, publication quality, sample design), and three selling environment contexts (market segment, product type, sales approach).

We make three contributions in this study. First, we extend our current understanding of the determinants of salesperson performance by leveraging and extending the sales determinant typology proposed by Chawla *et al.* (2020) to identify the relative strength of a set of 19 sales determinants. Second, we position our results within a sales determinant continuum of universal, context-specific, and necessary but insufficient predictors of salesperson performance. In so doing, we provide a new perspective on the increasing specialization of the selling function in organizations and the re-prioritization of salesperson recruitment, onboarding, training, and development necessary to address it. Our third contribution is an evidence-informed justification for using holistic frameworks to measure salesperson performance. We address recent calls for a higher level of forethought into measurement design and measure selection in sales research, particularly an increased alignment between research samples and the operationalization of salesperson performance (Hall and Lee, 2019; Kerr and Marcos-Cuevas, 2022). We demonstrate that using a single measurement type (i.e., objective, or subjective) for evaluating salesperson performance limits the strength and validity of sales research, suggesting an approach for future research.

The remainder of our paper is organized as follows. First, we present the study's conceptual framework by reviewing our rationale and use of the typology put forward by Chawla *et al.* (2020) rather than the classification framework developed by Churchill Jr. *et al.* (1985) and expanded by Verbeke, Dietz and Verwaal (2011). Second, we present our methods for searching, selecting, and coding studies for our meta-analysis. Third, we present our study findings. Because meta-analytic results are a function of the underlying studies available within the observation period chosen, we place our study in context by comparing it to one undertaken a decade earlier (Verbeke, Dietz and Verwaal, 2011). Finally, we discuss the relative position of the sales determinants under investigation on a continuum ranging from universal, to context-specific to necessary but insufficient predictors of performance, offering implications for sales management.

Determinants of salesperson performance: a conceptual framework

Similar to previous meta-analyses, our study's dataset included a large collection of potential variables as sales performance determinants, 360 in total. Many of these variables were based on only one underlying study. We addressed this issue by consolidating individual variables into a relevant topology for analyses, consistent with previous work. We first considered using the 6-category, 18-sub-category topology developed Verbeke *et al.* (2011) based on the earlier work of Churchill Jr. *et al.* (1985). However, since Verbeke *et al.* there has been considerable research into areas not contemplated by that topology. For example, we found that the sub-categories within the main *skills* category did not allow us to categorize the wide range of selling skills investigated over the last decade, such as technology skills (Dugan, 2014), or inter-organizational skills (Gonzalez, Claro and Palmatier, 2014). This is important as skills research has received more attention in the recent decade and now represents 20.4% of total study effects.

Similarly, previous topologies did not allow for the categorization of selling behaviors, such as customer orientation, which has been the focus of considerable research. Furthermore, the *motivation* and *aptitude* categories within the previous typology did not offer sufficient sub-category nuance to properly categorize job satisfaction or differentiate general and task-specific self efficacy, none of which were considered by Churchill Jr. *et al.* (1985) or Verbeke, Dietz and Verwaal (2011).

To address these gaps, we chose to adopt the more recent 9-category, 20-sub-category topology proposed by Chawla *et al.* (2020), based on their systematic review of the literature which covered much of the same time period as our study. While the newer typology contained sufficient categorical nuances for all of our underlying predictor variables to be coded, we chose to make one enhancement within the *skills* category which we discuss below. We now review each of the main categories within this updated topology.

Aptitude. Unlike skills that can be developed, the *aptitude* category comprises sales determinants considered native abilities or enduring personality traits relevant to job performance and, as such, are stable over time (Walker *et al.*, 1977). Three sub-category determinants are included with the category, including *dispositional traits*, *personal concerns* and *cognitive aptitude*. *Dispositional traits* and *personal concerns* are differentiated based on their level of contextualization, where the former represents decontextualized dimensions of personality, such as extraversion, and the latter is contextualized based on time, place or role (Chawla *et al.*, 2020). The third sub-category, *cognitive aptitude*, represents “measures of a general factor of mental ability, verbal ability and quantitative ability” (Vinchur *et al.*, 1998, p. 589). The overall aptitude category represents 14.2% of study effects.

Motivation. This category encapsulates the underlying drivers associated with the amount of individual effort salespeople choose to expend on job-related tasks (Walker, Churchill Jr. and Ford, 1977). It is comprised of four distinct sub-categories, including *cognitive choice*, responsible for the processes in decision making, *self-regulation meta-cognition*, which captures the “executive processes related to self-systems,” *goal orientation*, which includes the underlying goals pursued by salespeople, and *work engagement*, defined as a “persistent positive affective-cognitive motivational state of fulfilment” (Chawla *et al.*, 2020, p. 1365). The category accounts for 14.0% of all study effects.

Job-related psycho-social factors. This category includes three sub-categories, *psychological demands*, *job-control*, and *work-related social support*. *Psychological demands* are predominantly negative salesperson perceptions regarding role-specific demands and expectations from others such as role conflict and role ambiguity (Walker, Churchill Jr. and Ford, 1977). *Job-control* considers the extent to which a salesperson has the authority to make decisions and leverage job-specific competencies, while *work-related social support* includes those factors which represent informal support from a salesperson’s supervisor or co-workers (Chawla *et al.*, 2020). This category represents 6.7% of all study effects.

Skills. Johnston & Marshall (2016, p. 197) define skills as “learned proficiency at performing necessary [job] tasks.” Aside from biographical factors, this category represents the largest number of study effects in our meta-analysis (20.4%). The *skills* category developed by Chawla *et al.* (2020) is far more nuanced than the one previously used by Verbeke, Dietz and Verwaal, (2011), capturing four sub-categories, including *salesmanship*, *technology skills*, *selling-related knowledge*, and *interpersonal skills*. *Salesmanship* represents factors needed in moving deals through the selling funnel to deal closure, including presentation skills, qualification skills and

adaptiveness. *Technology skills* includes those skills necessary to leverage sales-related technology tools, such as social media or CRM applications. *Selling-related knowledge* includes both the knowledge of products, competitors, customers and the selling strategies required for ones role, as well as the different ways “this knowledge is processed for decision-making” (Chawla *et al.*, 2020, p. 1365). *Interpersonal skills* are defined by Chawla *et al.* (2020) as those competencies necessary for coping with and resolving conflicts, such as effective listening and rapport building. Traditionally these skills have focused on the ability to successfully manage one-on-one relationships. However, in the past decade there has been substantial research into a salesperson’s competencies associated with managing one-to-many relationships across the sales ecosystem. Example variables include political savviness (Bolander *et al.*, 2015), the strength and number of network connections established by a salesperson (Claro and Ramos, 2018) or the quality of the information coming out of the network established by a salesperson (Che *et al.*, 2018). We see these as fundamentally different skills, and thus have extended the Chawla *et al.* (2020) topology by introducing inter-organizational skills as a separate but related skills sub-category.

Strategic activities. This category is defined as the set of activities and behaviors that are used to implement sales strategy, new ideas and initiatives, or synthesize strategic information (Floyd and Wooldridge, 2000). Examples of factors in this category include customer-oriented selling behavior, and sales strategy implementation. The category represents 6.1% of study effects.

Non-Strategic activities. In contrast to the strategic activities category, this category represents those traditional, role-related activities and behaviors performed by salespeople that do not have a specific strategic intent. (Chawla *et al.*, 2020). Examples of factors in this category include

time management, ethical behavior, cross-selling, and use of financial incentives. The category represents 3.7% of all study effects.

Internal Environment. The internal environment category captures organizational factors which influence salesperson performance, not already covered within other categories (e.g., work-related social support). The category represents 10.9% of all study effects and includes three sub-categories, *culture & identity*, *managerial factors*, and *technological factors*. Culture and identity represent a “broad range of organizational characteristics” while managerial factors represent the set of management interventions surrounding planning, staffing, training, directing and evaluating activities (Chawla *et al.*, 2020, p. 1363). *Technological factors* includes any technology-related organizational resources and capabilities that are not conceptualized as individual salesperson skills.

External Environment. This category represents all macro-economic and external operating environment factors impacting salesperson performance (Chawla *et al.*, 2020). While the category is broadly defined to account for any externalities, within the timeframe of our study’s data collection and inclusion criteria, the category is heavily weighted by customer-related factors, such as customer relationship quality, customer helpfulness, and customer citizenship. At 2.2%, the *external environment* category represents the smallest number of study effects.

Personal factors. This category captures the personal-biographical factors associated with an individual salesperson, such as age, experience, gender, and family status. Early sales research was particularly interested in whether these variables explained performance variances. However, within the timeframe of our meta-analysis, these factors are predominantly used as control variables in sales performance research. As a result, the category represents the largest portion of all study effects at 21.7%.

Table 2 summarizes the 9-category and 21-sub-categories used for our analysis along with a complete list of the underlying variables within each sub-category.

<Insert table 2 about here>

The impact of study context, selling context and performance measurement context on our study

Given the boundary-spanning and increasingly multifaceted role played by salespeople (Onyemah, Rouziès and Panagopoulos, 2010), research has shown that salesperson performance is a situational and contingent construct (Weitz, 1981; Porter, Wiener, and Frankwick, 2003). However, as a meta-analytic study, our choice of contingent (moderating) variables was limited to those variables consistently present across selected studies. The moderating variables we captured fall within the following three broad categories, 1) study context, 2) selling context, and 3) performance measurement context. We now discuss each.

Study context. To ground our findings, we first considered moderating variables linked to study-level situational variables, including each study's publication date, sampling method employed within the study (case versus cross-firm), and the quality of the journal the article was published in as measured by the Australian Business Dean's Council (ABDC), as of March 2023.

Selling context. To address those selling environment contingencies that may influence sales determinant predictive strength, we have captured three selling environment moderators, 1) product type (i.e., product versus service), 2) market segment (i.e., B2C versus B2B), and 3) sales approach (i.e., retail sales versus non-retail). In line with Verbeke *et al.* (2011), we argue that, unlike products, the intangible nature of services forces sellers to create the customer's service experience jointly with the customer (Frei, 2008). Thus, we expect there may be a

difference in the selling competencies required for success in services versus those needed in product sales.

Compared to B2C sales, B2B selling is a longer, more formal, and more complex process (Menguc and Barker, 2003). First, B2B salespeople must sell to a firm's buying center, typically made up of multiple members, with different opinions and priorities regarding the buyer-seller relationship and exchange. Second, B2B sales often require a more formalized process with buying center members who are professional purchasers focused on making rational buying decisions. Third, unlike B2C selling, B2B markets are characterized by customized solutions, requiring salespeople to develop internal and external networks and effectively use their political savviness to advocate on behalf of their customer's and acquire firm resources in which to develop customer solutions (Panagopoulos, Rapp and Ogilvie, 2017; Kimura, Bande, and Fernández-Ferrín, 2019). Given the complexities described above, the drivers of B2B salesperson performance are likely to be significantly influenced by organizational, customer, and other confounding variables, reducing the relationship strength between the individual determinants and salesperson performance. Similarly, we would expect those selling through non-retail channels to experience similar confounding effects as B2B sales, compared to salespeople operating in retail environments.

Performance measurement context. The measurement frameworks used to evaluate salesperson performance in scholarly studies and sales management practice continue to broaden, driven by the need to adequately represent an ever-expanding set of sales responsibilities and a growing set of data sources (Bolander *et al.*, 2021). In addition, the range of objective and subjective measures used to operationalize salesperson performance tap into different dimensions of performance (Rich *et al.*, 1999). For example, objective measures are often used to represent

salesperson outcomes, such as the percent achievement of revenue quotas or the frequency and completeness of measurable input activities, such as the number of leads nurtured in a given period. Conversely, subjective measures are used to evaluate behavior-based competencies and outcomes unavailable within the firm's financial or CRM systems, such as a salesperson's customer orientation, product knowledge, or customer satisfaction levels (Kerr and Marcos-Cuevas, 2022). As a result, we assess the moderating impact of performance measurement decisions using four moderating variables, including 1) measurement type (i.e., objective versus subjective measurement, 2) subjective rater source (i.e., self versus management), 3) measure dimensionality (i.e., single versus multi-dimensional), and 4) control orientation (i.e., outcome versus behavior-based versus mixed).

Figure 1 summarizes the direct and contingent variable interaction effects being tested in our study.

< Insert figure 1 about here >

Methods

To ensure the comparability of our findings with previous sales performance meta-analyses (Churchill Jr. *et al.*, 1985; Verbeke *et al.*, 2011), we adopted similar data collection and coding approaches which we present now.

Sample and data collection

A keyword search was devised to identify all published scholarly articles and doctoral dissertations, investigating the relationship between specific variables and individual salesperson performance. Verbeke *et al.* (2011) captured research conducted between 1982 and 2008; therefore, we focused our searches on studies from 2009 through 2020 inclusive. Our keyword

search included terms such as “sales,” “selling,” “performance,” and “effectiveness” and their synonyms. We ran searches in ABI/Inform Global, Business Source Premier, PsychInfo, Science Direct, Web of Knowledge, and Google Scholar. We also conducted manual searches of prominent marketing journals (Journal of the Academy of Marketing Science, Journal of Marketing, Journal of Marketing Research, Journal of Personal Selling and Sales Management, Industrial Marketing Management, Journal of Business Research, Journal of Applied Psychology, Marketing Science and Academy of Management Journal) as well as dissertation databases in North America (NDLDT), UK (eTHOs) and Europe (DART). Our initial queries identified 273 studies. Many studies within the literature focus on performance at the overall sales team level rather than at the individual level. In this regard we eliminated 55 studies that used the sales team or overall company as their level of analysis rather than the performance of an individual salesperson. We also eliminated nine studies for using the same set of sample participants to measure the same determinant as a study previously selected for inclusion. Finally, we removed 15 conceptual and qualitative studies, leaving 194 papers for potential inclusion.

We chose to use the correlation coefficient as the effect-size metric in our analysis (Borenstein *et al.*, 2009 p.41), given that it is regularly reported in quantitative studies and frequently used as an effect-size in marketing and sales meta-analyses (Rich *et al.*, 1999; Jaramillo *et al.*, 2007). Of the remaining 194 papers from our initial search, 142 contained correlation matrices. We emailed the corresponding authors of each of the papers missing correlational data requesting access to their study’s correlational matrix. This request resulted in 8 studies being added back to our dataset. Because 12 of our selected studies utilized multiple

samples, our final study sample consisted of 150 underlying studies, representing 165 samples and 977 raw correlation effects.

Coding

Meta-analysis studies attempting to synthesize a single phenomenon, such as a drug's efficacy will often utilize the study effect (i.e., the drug's treatment effect) as the level of analysis, with each effect represented as a single independent observation in a dataset (Borenstein *et al.*, 2009, p.226). However, this approach is problematic when used in sales performance research as sales scholars must contend with studies reporting multiple outcomes that occur due to the presence of multiple sales determinants and multiple measures of performance within the same underlying study (Churchill Jr. *et al.*, 1985; Verbeke *et al.*, 2011). In addition, as sales researchers have begun utilizing longitudinal research designs more frequently, multiple observation periods must also be considered. In meta-analysis a study's sample size is used to represent the study's level of precision, with larger samples considered of higher precision than smaller samples. However, in studies where, multiple outcomes exist, the study's sample size is replicated for each individual combination of sales determinant, observation period and measurement method, even though the observed effects are not generated from independent samples but from the same sample, resulting in an overestimation of that studies precision (Borenstein *et al.*, 2009, p.226),

To address this overestimation we used a feature within the Comprehensive Meta-Analysis software package that is based on a procedure recommended by Borenstein *et al.* (2009, p.226) for coding complex data structures. It provides for the coding of data in a hierarchal fashion to link study effects which use the same underlying study sample due to the presence of multiple sales determinants, performance measures or observation periods. For example, the sub-category, *managerial factors* includes 37 independent study samples and a total sample population of

9935. However, If we were not to adopt this hierarchical approach and allow the same sample to be replicated for each study effect-outcome combination, a total of 57 “independent” study samples with a total sample population of 17013 would be used in meta-analytic calculations. This would result in an overestimation of precision, falsely narrowing the prediction interval from [-.189 to .537] to [-.141 to .507] at a 95% confidence interval, ultimately influencing the reliability adjusted effect size.

For consistency, each of the 150 studies were reviewed and coded into our dataset as follows. First, for each selected study, we identified the reported determinants of salesperson performance, the effect size (i.e., correlation), a measure of reliability (mostly reported as either alpha or composite reliability), the sample size, and any of the 10 moderating variables present within each underlying study. To ensure a sufficient number of raw effects for analysis, each individual study variable was coded into one of the 21 sales performance determinant sub-categories described in our conceptual framework (see table 2).

In coding our study variables, we found several study determinants that had been conceptualized in the reverse direction of the sub-category in which they were to be placed (e.g., role clarity within the negatively framed psychological demands sub-category). In these cases, we reverse scored the effect size of the study variable to match the overall direction effect of the sub-category, consistent with Verbeke *et al.* (2011). To identify potential outlier effects within our dataset, we calculated the sample-adjusted meta-analytic deviance (SAMD) statistic for each independent sample. We then conducted a scree plot analysis of each SAMB statistic to identify outliers visually, as Huffcutt and Arthur (1995) recommend. This eliminated 41 raw effects from our dataset, leaving 936 raw effects for analysis. A complete list of the final studies included in our meta-analysis is available in Web Appendix A. Importantly only 19 of the 21 sub-categories

used in our framework contained study effects, as no effects meeting our data collection and level of analysis criteria were identified for *cognitive aptitude* or *technological factors*.

All raw correlations in our dataset were adjusted for measurement error associated with both the independent variable (i.e., determinant) and dependent variable (i.e., salesperson performance) by dividing each raw effect by the product of the square root of each variable's respective reliability score (Hunter and Schmidt, 2004). Where a reliability score was not provided within a specific study, it was assigned based on that variable's mean reliability score across all other studies that reported it (Kirca, Jayachandran, and Bearden, 2005). We then conducted two types of analysis on our dataset, bivariate analysis, and meta-regression, which we now describe.

Bivariate Analysis

We used the Compressive Meta-analysis (CMA) software package (Borenstein *et al.*, 2014) to conduct our meta-analysis. CMA allows the user to select from either fixed-effects or random-effects meta-analytic models. Fixed-effect models assume that the true effect size across all studies is the same, and that reported differences are due to sampling error (Field, 2005). We chose to use a random-effects model as each of the determinants within our investigation represent a sub-category of related but not identical predictors of salesperson performance. There is therefore no reason to assume each study would generate the same true effect. For example, the sales determinant sub-category *sales-related knowledge* is comprised of several underlying variables, including product knowledge and competitive knowledge, which are not likely to generate the exact same effect size. Because a random-effects model does not assume a single true effect size exists, the goal is to “estimate the mean of a distribution of effects,” resulting in a

sample weighting of the impact that does not dismiss studies with small sample sizes compared to a fixed-effect model (Borenstein *et al.*, 2009, p. 79).

To conduct our bivariate analysis, a random-effects, sample-weighted, reliability-adjusted mean effect size was calculated for each sales determinant sub-category along with its corresponding confidence intervals and z and p values. In addition, we tested for heterogeneity across studies by calculating Q-statistics, tau, tau-squared, and I^2 statistics for each determinant (Borenstein *et al.*, 2009). In addition, because a random-effects model has been employed, we calculated the prediction interval of each effect size to “describe the distribution of the true effect size” (p. 128). One criticism of meta-analysis is that it can suffer from publication bias by missing unreported effects contained in unpublished studies. We addressed this issue by calculating the Rosenthal fail-safe *N file drawer* statistic for each determinant, representing the number of missing studies that would be needed for $p > .05$ (Rosenthal, 1979).

One limitation of bivariate analysis is that the strength of each sales determinant is assessed independently from all other sales determinants within the study. Sales scholars have begun to address this issue by re-analyzing their data using meta-analytic structural equation modeling (Viswesvaran and Ones, 1995). One challenge in using meta-analytic structural equation modeling (MASEM) is the need to establish a robust correlation matrix containing sufficient intercorrelations between each of the predictor variables present within the underlying studies. For example, in identifying potential sales determinants for their MASEM, Verbeke, Dietz and Verwaal (2011) chose to use a minimum threshold of three intercorrelations and were still only able to include five of 18 sales determinants under investigation in their analysis.

In reviewing the number of intercorrelations available across the underlying studies in our dataset, only three of 19 predictor sub-categories from our conceptual framework would meet the

Verbeke, Dietz and Verwaal (2011) threshold for inclusion. As the primary focus of our study is exploratory rather than confirmatory, MASEM did not serve our purpose given its inability to say anything about a broader cross-section of our sales determinant sub-categories. As such, we chose an alternative approach to understanding the relative strength of each of the sub-categories, which we discuss in the following section.

Multi-Regression Analysis

Within meta-analysis, multi-regression is predominantly used to “assess the relationship between one or more covariates (moderators) and a dependent variable” (Borenstein *et al.*, 2014, p. 187). Utilizing the study effects available for each determinant, meta-regression is conducted by applying dummy-variables within the following regression model (Eq. 1):

$$r_{SP,d} = \mu + \phi_1 Y_1 + \phi_2 Y_2 + \phi_3 Y_3 + \dots + \phi_i Y_i \dots \quad (1)$$

Where $r_{SP,d}$ is the z-transformed value of the correlation between salesperson performance and each determinant d , ϕ_i are parameter estimates and Y_i are dummy-coded moderating variables. We used this same approach to assess the influence of the ten moderating variables included in our study. We also employed multi-regression to understand the relative influence each sales determinant had on the mean effect size in our meta-analysis, as an alternative to MASEM. This was accomplished by first establishing an overall *general factor* sales determinant which included all raw effects from our study, regardless of which sales determinant each was originally coded under. Because one of our sales determinant sub-categories, *psychological demands*, was originally conceptualized in the reverse direction of all other sub-categories, we reverse scored all effects from this sub-category to match the overall direction of the *general factor*. We then conducted a meta-regression, where all sales determinant sub-categories were introduced as moderating variables within a single regression model. We used

the *biographical* sub-category as our reference variable given that it contained the most raw effects (Borenstein *et al.*, 2014) and is frequently used as a control variable in the sales literature. Finally, given the significant influence performance measures had on our findings (which we discuss in the results section) we also included measurement type (i.e., objective versus subjective) as a control variable within our model.

Results

We present our bivariate analysis results in table 3 at the sub-category, sales determinant level, ordered by reliability adjusted mean effect size. The number of raw effects for each range from 10 to 203 across the 19 sub-categories containing study effects. For further transparency, an expanded bi-variate results table is provided in Web Appendix B, which includes a selection of individual variables where that variable makes up a meaningful portion of a sub-category's total raw effects. For example, *task-specific self efficacy* makes up 14 of 20 raw effects within the self-regulation metacognition sub-category of motivation and therefore was included in this extended table.

<Insert table 3 about here>

Reliability adjusted mean effect sizes range from $r = -.223$ (*psychological demands*) to $r = .488$ (*self-regulation metacognition*) at the sub-category level. In total, 18 of 19 sales determinant sub-categories had statistically significant mean effect sizes with the *general factor* (all determinants combined) having a mean effect size of $r = .268$ ($p < .01$). Only *dispositional traits* appeared to have no significant relationship with salesperson performance. Q-statistics for all results were significant ($p < .01$), indicating that actual results vary across studies, supporting our use of a random-effects model.

As previously discussed, we wanted to understand the relative strength of each sales determinant included in our study, not possible using bivariate analysis. This was accomplished by conducting a meta-regression on the *general factor* determinant. All 19 sub-categories had sufficient raw effects to assess their relative influence, as moderators of the *general factor*, except *job-control*.

We present our findings in table 4. The resulting R^2 value of 0.14 in model 1, increase to 0.23 in model 2, when performance measurement (subjective versus objective), sample type (cross-firm versus case study), sales approach (field sales versus retail), and the publication quality of underlying studies are controlled for. In considering model 2, the sales determinants with the strongest influence on the *general factor's* predictive strength include *self-regulation metacognition* ($\beta = .272, p < .10$), *interpersonal skills* ($\beta = .266, p < .10$), *personal concerns* ($\beta = .247, p < .01$), *work-related social support* ($\beta = .222, p < .01$) and *salesmanship* ($\beta = .203, p < .01$). The least influential factors include *macro-economic & operating environment* ($\beta = .149, p < .10$), *strategic behaviors* ($\beta = .144, p < .01$), *managerial factors* ($\beta = .144, p < .05$), *goal orientation* ($\beta = .110, p < .10$), and *work engagement* ($\beta = .106, p < .10$), and). Our findings also indicate that *psychological demands*, *dispositional traits*, and *cognitive choice* had no significant influence on the strength of the general factor.

<Insert table 4 about here>

To better understand the contextual influence associated with each sales determinant's predictive strength we conducted moderator analysis on three broad moderator categories, (1) study context, (2) selling context, and (3) performance measurement context using meta-regression. We present our findings in table 5 and identify those cases where the combination of

moderator and sales determinant variables did not provide sufficient data points to allow for meaningful analysis.

<Insert table 5 about here>

First, from a visual examination of table 5, we note that the performance measurement context had the broadest impact on the predictive strength of our sales determinants over the past decade. All determinant categories, excluding the *biographical* and *external environment*, were influenced in some fashion by performance measurement design choices. Of the four moderating variables assessed within performance measurement context, three (measurement type, measure dimensionality, and control orientation) had significant influence across a broad selection of sales determinants. In contrast, *rater source*, which considered the relative influence of self-reported ratings of performance versus managerial ratings, had very little impact, only affecting two sales determinants, *cognitive choice* ($\beta = .374, p < .05$), and *self-regulation metacognition* ($\beta = .572, p < .01$). Of all sales determinant categories, *motivation* appears most sensitive to differences in salesperson performance conceptualizations and operationalization, having been influenced by all four moderating variables.

Second, within study context only sampling method had a significant influence on the predictive strength of the sales determinants under investigation. In total eight determinants (*personal concerns, cognitive choice, self-regulation metacognition, goal orientation, work engagement, work-related social support, selling-related knowledge, and strategic behaviors*) were significantly influenced by case versus cross-firm sample design decisions. In contrast, publication date (*goal orientation, work engagement, and psychological demands*) and publication quality (*work engagement, non-strategic behaviors, and biographical factors*) only influenced three determinants each.

Third, and perhaps most surprising, was that the selling context moderators had the narrowest influence on predictive strength across our sales determinants. For example, in comparing results from B2B studies versus B2C, only *self-regulation metacognition* ($\beta = .421$, $p < .01$), and *non-strategic behaviors* ($\beta = .270$, $p < .05$), were affected. Similarly, only *job-control* was significantly influenced by *selling approach* (non-retail versus retail) ($\beta = -.278$, $p < .01$). Of the three selling context moderators, *product type* (service versus product) offered the broadest influence, affecting three sales determinants, *salesmanship* ($\beta = -.235$, $p < .01$), *inter-organizational skills* ($\beta = .236$, $p < .05$), and *non-strategic behaviors* ($\beta = .323$, $p < .05$).

Discussion

Given the ongoing transformation of professional selling, our study updates and extends previous meta-analyses (Churchill Jr. *et al.*, 1985; Verbeke *et al.*, 2011), re-examining the relative importance of sales performance determinants from the last decade (2009 – 2020). Overall, the current drivers of salesperson performance are now more fragmented, with a wider set of determinants showing a significant relationship with performance than the previous decade (see table 3). At the same time, some determinants appear to have a relatively stronger relationship to performance than others (table 4). We therefore discuss our findings in relation to previous work, focusing on the most salient determinants of sales performance, prior to outlining a series of implications for managing performance in contemporary sales organizations.

Comparison of Findings

In comparing our findings to Verbeke *et al.* (2011) we make five important observations, (1) the identification of determinants not previously established or considered important, (2) the highlighting of determinants whose predictive strength has endured over time, (3) evidence

supporting the contention that how salesperson performance is conceptualized and measured influences sales research findings, (4) the increasing importance of product type in understanding a sales determinant's predictive power, and (5) the apparent loss in the collective predictive strength across determinants, We now discuss each of these observations in turn.

First, *interpersonal skills* and *personal concerns* (e.g., emotional intelligence, empathy) have become significant predictors of salesperson performance in the current decade. Even while professional selling embraces analytics and new sales enablement technologies (Peesker *et al.*, 2022), traditional interpersonal skills, such as listening and rapport building, along with those personality constructs important to their execution, such as empathy, and emotional intelligence have become a critical differentiator of higher sales performers.

The updated typology applied in our study has also uncovered the importance of two determinants, not previously considered, *work-related social support* (e.g., leader-member exchange, supervisory support) and *self-regulation metacognition* (e.g., task-specific self-efficacy). There are several possibilities as to why work-related social support has become a significant predictor of performance. First, with the introduction of the *work-related social support* category, variables which represent the informal connectedness and support that exists between a salesperson, their manager, and colleagues have been separated from more formal managerial interventions, such as structure and sales control, potentially exposing their latent predictive strength, previously masked by other organizational factors in the previous typology. Second, the continued use of team selling models to support complex solution sales has increased the importance of inter-organizational relationships (Marcos Cuevas, 2018). In addition, our bivariate and multi-regression analysis identified *self-regulation meta-cognition* and the underlying variable primarily driving it, *task-specific self efficacy* as an important

determinant of salesperson performance not considered previously. However, unlike other determinants, the construct of task-specific self efficacy and its relationship with performance remain contentious. First, Peterson (2020) argues that the measurement of task-specific self efficacy (also referred to as domain-specific self-efficacy) in sales research has suffered from content, construct and nomological issues which are currently masking its true influence. Second, in their meta-analyses of 38 studies, Sitzmann and Yeo (2013) observed correlation levels between self efficacy and performance similar to our results. However, using longitudinal data within their sample, they contend that a reverse relationship is far stronger.

Notwithstanding the above, an argument for task-specific self-efficacy as a legitimate antecedent of sales performance exists. First, increasing levels of task-specific self-efficacy enable goal-oriented behaviors that are important to achieve sales objectives (Gao, Murphy and Anderson, 2020). Second, self efficacy is a central construct in social-cognitive and behavioral theory (Bandura, 1977; Ajzen, 1991) responsible for the intention to behave in a specific manner, for instance, the salesperson's focus on selling new products versus existing products (Fu *et al.*, 2010). In this way, self efficacy can influence individuals' choice of objectives to be accomplished, the activities they become involved in, and the effort they exert in pursuing their goals (Bandura, 1977). Thus, self efficacy may be a crucial driver of performance if one reflects on some of the realities of today's professional selling: increasingly challenging sales quotas, the need for enhanced focus on key segments and customers, and sustained effort to manage protracted sales cycles. To further support this contention, we observed from our findings that the predictive strength of task-specific self efficacy is significantly stronger within a B2B context versus B2C. Finally, we note that, while compelling, the underlying studies used in Sitzmann and Yeo (2013) did not come from a sales context, nor were the majority of studies used work-

performance related. That said, given that no self efficacy-based longitudinal studies were present within our dataset we are unable to confirm or challenge the claim of reverse causality within a sales context.

Our second observation involves a set of determinants whose predictive power has remained relatively stable since Verbeke *et al.* (2011). *Sales-related knowledge*, *work engagement*, and *salesmanship* (i.e., adaptiveness) have all maintained their relative significance in the findings of our meta-analysis. We expect these determinants will remain strong predictors of performance, as they represent a salesperson's ability to understand, adapt and embrace sales challenges, which are likely to grow in significance in the coming years as customer solutions increase in complexity, requiring salespeople to navigate a broad sales ecosystem (Rustholkarhu, Hautamaki and Aarikka-Stenroos, 2020).

Third, our study supports claims made by Verbeke *et al.* (2011) regarding the influence that sales performance measurement decisions have on sales research. How individual sales performance is measured remains a contentious issue within the literature (Bolander *et al.*, 2021). Kerr and Marcos Cuevas (2022) argue that the exclusive use of objective or subjective performance measures in sales research increases measurement error as it does not recognize the trade-offs salespeople often make to meet the wide range of objectives set by management. For example, the measurement of salesperson performance by sales researchers is solely based on outcomes (e.g., a revenue quota or specific customer-oriented objective) may be inaccurate as the salesperson may have purposefully traded-off short-term quarterly revenues with revenues for another period in order to provide enhanced benefits to some customers (Saxe and Weitz, 1982). Our findings lend further weight to this argument as we observed that the relationship between sales performance and those determinants which drive behavioral decisions, such as *cognitive*

choice, self-regulation metacognition, inter-organizational skills and strategic behaviors are now significantly moderated by measurement conceptualization and operationalization.

In addition to the measurement decisions researchers make, we also looked at publication date, sample design (case versus cross-sectional) and publication quality as potential moderators. Of these three, only sample design appeared to have a significant effect, impacting the strength of eight sales determinants most notably within the *motivation* category. Conversely, only three determinants were influenced by publication quality, *work engagement, non-strategic behaviors, and biographical factors*. Publication date impacted three determinants with relatively minor effects, ranging from *goal orientation* ($\beta = .072, p < .01$) to *work engagement* ($\beta = .025, p < .05$). These findings lend weight to the argument that the predictive strength of some sales determinants may be more context-specific necessitating the use of more cross-organizational sampling designs to identify and establish sufficient predictive power.

Fourth, the expanded topology used in our analysis has made visible the influence product type has on the predictive strength of salesperson skills and behaviors, not seen a decade ago. For example, the predictive strength of *salesmanship, inter-organizational skills and non-strategic behaviors* are significantly higher in service-focused industries versus product-focused industries. These findings are relevant for several reasons. First, unlike other determinant categories, selling skills are defined as “the individual’s learned proficiency at performing the necessary tasks for the sales job” (Rentz *et al.*, 2002, 13). As salesforce automation and enablement tools allow for greater firm-level customization (Rustholikarhu, Hautamaki and Aarikka-Stenroos, 2020), transforming at different speeds (Marcos Cuevas, 2018), selling roles and the skills and behaviors necessary to accomplish them have adapted accordingly. Thus, we expect the predictive power of determinants within the *skills and behaviors* categories to be more

sensitive to changes in the selling environment than determinants that are less role specific. We further discuss this increasingly contingent nature of sales performance in the following section.

Our final observation involves the apparent loss in the collective predictive strength across all determinants from the adjusted R^2 of 0.32 reported by Verbeke *et al.* (2011) and our current R^2 results (i.e., 0.23 with control variables and 0.14 without). First, we note that a direct comparison of the two findings is somewhat dubious given that the former calculation was done through MASEM based on only five determinants, while the latter was conducted using meta-regression across all determinant categories. That said, we remain convinced that the collective predictive power of sales determinants is decreasing, primarily due to the contingent nature of professional sales. As evidence we point to the increase in R^2 in model 2, where we control for four contextual factors, versus model 1, where no controls are included. We now discuss the contingent nature of our findings in more detail.

Reclaiming the ‘contingent’ nature of the determinants of salesperson performance.

The fundamental changes in professional selling over the past three decades and the underpinning predictors of salesperson performance in this evolving context continue to stoke healthy debates, in line with recent research findings surrounding the transformation of the professional selling environment (Ahearne *et al.*, 2022). We propose that the relative strength of each sales determinant within our study (see table 4) may indicate its current position on a continuum between those sales determinants that are universal, those that are context-specific and those that are necessary, but insufficient to predict higher performance as shown in our sales determinant continuum in figure 2. We now review our rationale by discussing determinants that appear to be exemplars at each stage of the continuum, providing a set of plausible explanations for each.

<Insert figure 2 about here>

Universal predictors of salesperson performance

First, we suggest that those sales determinants which appear to have the strongest influence in our meta-regression (e.g., *interpersonal skills*, *personal concerns*, and *work-related social support*) do so, given their universality across selling contexts. They are less influenced by specific moderating factors within our study and, given their nature, are less contingency-driven in general. For example, *interpersonal skills* refer to the ability of the salesperson to build rapport and listen attentively to customer's needs and requirements. These also include the ability to communicate and influence in sales situations. It is received wisdom that customers both in consumer and business markets have become more discerning and informed, thus, elevating the 'sales conversation' from one centered around features/benefits to one characterized by value co-creation, enhanced experience, and knowledge exchange. Furthermore, interpersonal skills, such as rapport building are critical to building trust, allowing salespeople to engage in solution co-creation discussions (Kaski, Niemi and Pullins, 2018). Given the importance of interpersonal skills, it is not surprising that *personal concerns*, which amalgamates a number of role-related traits, such as empathy, emotional intelligence, and cultural intelligence is also considered of vital importance across sales environments (Plouffe, Hurland and Wachner, 2009; De La Cruz, D'Urso and Ellison, 2014). Other important personal concern variables include resiliency, and job resourcefulness (Harris *et al.*, 2013; Krush *et al.*, 2013).

At an organizational level, our study revealed that *work-related social support* including trust in the manager, and leader-member exchange relationship strength, supervisor support and co-worker civility is an important predictor of performance across a variety of contexts (Sliter, Sliter and Jex, 2012; Martinaityte and Sacramento, 2013). Moreover, social capital and brand

identification explain the salesperson's ability to mobilize resources and align these to solve both explicit and implicit customer needs (Gammoh, Mallin and Pullins, 2014; Böhm *et al.*, 2020).

Context – specific determinants of sales performance

We discussed above the factors that we believe have a profound effect on sales performance regardless of the sales context. However, in different industries, the determinants of salespeople's performance may differ significantly. For instance, sales in highly complex solution-driven sectors such as professional services, engineering, and technology emphasize a customer-oriented, consultative approach, and deep customer involvement in solution development (Peesker *et al.*, 2022). By complex sales we refer to contexts where there is high level of volatility, large average deal/transaction size, long and protracted sales cycles and where there is a nuanced interplay between product and services in conforming a total solution. We argue that the degree of sales complexity will determine the extent sales determinants, such as *strategic behaviors, selling-related knowledge, inter-organizational skills*, and customer-driven *external environment factors* are necessary for establishing the co-creation of value (Rustholkarhu, Hautamaki and Aarikka-Stenroos, 2020), ultimately driving higher levels of salesperson performance, thus placing them in the context-specific area of our continuum. In contrast, highly transaction-oriented sales through automated sales processes may be better explained by non-strategic behaviours such as time management, cross-selling, upselling, and the efficient use of information exchange to drive sales volume and velocity (Kerr and Franco-Santos, 2023). In these contexts, the use of financial incentives are widespread and associated with fostering outcome performance. The degree of sales automation and digitization in some sales contexts also makes technology skills an important predictor of salesperson performance. Salespeople who display a higher degree of technology adoption, and proficient use of social media are able

to more effectively execute activities, such as customer targeting, and the synthesis of customer needs (Inyang, 2019), the relative importance of which may vary across selling contexts.

Necessary but insufficient determinants

Finally, reflecting on the major drivers of transformation in sales highlighted in recent years, like rising customer requirements, new information and communication technologies and globalization and competition, we realise that our findings also point to a set of determinants that are necessary but insufficient as predictors of salesperson performance. For example, *cognitive choice* and *psychological demands*, while statistically significant in our bivariate analysis, did not significantly influence our general factor determinant. *Cognitive choice* is driven by salesperson effort, which, while important must be increasingly targeted at the correct customers and the correct selling activities to drive higher levels of performance (Peesker *et al.*, 2022) regulating its predictive strength. Furthermore, as sales roles continue to expand and sales cycles increase, sales managers are increasingly adopting more diverse performance measurement schema and higher levels of fixed compensation all of which serve to reduce negative role perceptions which underpin psychological demands, such as role ambiguity and role conflict (Kerr and Marcos-Cuevas, 2022). Together these trends have likely reduced the importance of these sales determinants in explaining high sales performance compared to a decade earlier (Verbeke, Dietz and Verwaal, 2011).

Implications for sales management practice

In light of the results of our meta-analysis, we argue that the predictors of salesperson performance can be seen fundamentally as a continuum from universal to highly context-dependent determinants, to those important but insufficient to predict performance. Based on this

classification, we identify a number of implications for sales management, structured into three mutually reinforcing approaches to enhance salesperson performance: Targeted acquisition & onboarding, aligned interventions, and holistic development.

Targeted acquisition & onboarding

Those determinants deemed necessary but insufficient to predict performance are arguably ‘table stakes’, expected to be present in all sales professionals. Sales leaders are advised to implement talent attraction and recruitment policies and diagnostic tools to identify the desired *work engagement* and *goal orientation* characteristics before hiring sales professionals. Onboarding activities should focus on establishing role clarity for new salespeople through properly aligned sales control design decisions that reduce negative *psychological demand* perceptions. Sales managers can also facilitate more appropriate *cognitive choice* outcomes in professional selling, by providing more overt funnel activity guidance (Peesker *et al.*, 2022) and making a direct connection between the salesperson’s individual contribution and the overall growth strategy of their firms.

Aligned interventions

These interventions are primarily focused on enhancing the determinants that best align with a particular sales context. For instance, in complex sales, sales managers can foster sustained salesperson performance by enabling knowledge creation and deliberate learning in sales organizations. Selling-related knowledge can be developed through structured learning programs (Bolander, Bonney and Saturnino, 2014) and by prioritizing the development of analytical skills (Peesker *et al.*, 2022) in sales teams. Furthermore, sales managers can create effective sales

coaching interventions (Pousa and Mathieu, 2014; Nguyen *et al.*, 2019) focusing on appropriate *strategic behaviors* and *inter-organizational skills*.

In some contexts, evolving customer engagement models will call for sales managers to implement systems and processes that enable multiple and dynamic buyer-seller relationships across multiple channels. Our findings suggest that one of the most effective ways of enhancing performance, is designing organizational structures and processes that support organizational connectedness enabling the development of salespeople's networks (Steward *et al.*, 2010; Nowlin, Walker and Anaza, 2018). Self-directed teams (see McIntyre and Foti, 2013) can help complement individual one-on-one interpersonal skills with those collective supplier-customer networks to marshal the organization's resources to deliver value for the customer. In addition, context-specific determinants will often require investing in sales enablement technologies and a dedicated effort to increase its adoption and the skill in its use (Hunter and Panagopoulos, 2015; Ogilvie *et al.*, 2018).

Holistic development

These are wide-ranging approaches to reinforce the universal determinants of salesperson performance. Sales leaders are advised to address salespeople's performance in a more holistic fashion, adopting multiple measures to capture the effectiveness, efficiency and competency of their people (Bolander *et al.*, 2021; Kerr and Marcos-Cuevas, 2022). As a result of the more nuanced nature of sales performance and the high levels of variability in the selling context, it seems appropriate for sales managers to conduct shorter cycle and more regular reviews of their team's performance. Traditional quarterly or annual reviews may prove insufficient to jointly enhance the benefits associated with the factors underpinning *salesmanship* or to further develop appropriate *interpersonal skills*. Moreover, the speed of change in the sales environment is such

that deeper and more regular performance discussions may be needed (Kerr and Franco-Santos, 2023).

Finally, sales managers may need to be aware of some promising developments that are occurring in artificial intelligence and machine learning. These technologies have the potential to capture, analyse and structure performance data in ways that humans cannot. We envisage wider adoption of these technologies applying them to not just business decisions (such as customer qualification, profiling, and risk assessment), but also to talent and human capital matters (shortlisting salespeople, suggesting coaching opportunities, analyzing skills gaps, etc.).

Limitations and Future Research

The strength of our research findings is directly related to the number of studies and associated effects found and included in our analysis, as well as the validity of the underlying individual study results. The reported effect sizes in the individual studies collected for our meta-analysis are a function of the measurement validity of the determinant variable and the measures of salesperson performance utilized. Many of the effects collected come from subjective measures of performance (i.e. self-reported and management evaluations), and, as such, may suffer from different forms of methods bias, such as social desirability or leniency bias (Podsakoff *et al.*, 2003). Furthermore, given the evolving role of salespeople, the exclusive use of objective, financial outcomes or subjective measures of performance may not be providing sufficient construct validity in certain research contexts, influencing the effect sizes reported by the individual studies (Kerr and Marcos-Cuevas, 2022). In this regard, only 2.6% of studies captured in our analysis included both objective and subjective measures of performance.

With regard to the construct validity of the sales determinants in our study, a cursory review of the scales used over the past decade from our dataset, indicates that scholars appear

more interested in measuring the presence or absence of a particular construct, rather than how it manifests itself in practice. This is becoming problematic in the context of an increasingly specialized sales profession for two reasons. First, researchers often use the same variable label and scale to describe and measure a particular selling activity or behavior, while in practice it is carried out in completely different ways. For example, the importance of one's ability to establish rapport may remain stable over time, however, building rapport in virtual interactions may be done very differently than in face-to-face contacts, requiring a different scale to measure it. We recommend conducting more qualitative and exploratory studies surrounding the behavioral, activity and competency-based determinants detailed in our study to ensure future scholars are actually reflecting how these determinants manifest in the field. Second, the increasingly specialized nature of sales continues to widen the number of determinants significantly related to salesperson performance and reduce the collective strength of all determinants. Thus, our ability to develop a universally accepted or 'grand theory' about salesperson performance becomes increasingly challenging. We can however, develop 'mid-range theories' that provide plausible explanations for the salesperson performance phenomenon in particular selling contexts. These mid-range theories are characterized by their contingent nature, i.e., rather than seeking wide ranging generalization, they favor local understanding of sales performance in particular contexts. For example, in this study we had hoped to better understand the impact on the predictive power of sales determinants in contexts where solution selling was actively pursued. However, we were limited by the sampling descriptions included in the underlying studies that made coding of a solution selling context problematic.

Given the above, we suggest opportunities for future research into two key areas. First, we do not believe that scholars have sufficiently addressed the competency trade-offs required in

recruiting and developing the ideal salesperson. In particular, the trade-off between relationship skills (i.e. interpersonal and inter-organizational skills) versus cognitive competency proposed by Verbeke *et al.* (2011). While the past decade has seen a substantial research focus on interpersonal and inter-organizational determinants, comparatively less energy has been put towards understanding the link between performance and cognitive competencies, such as analytical skills (Peesker *et al.*, 2022), and even less effort into the relative importance of these two dimensions across different selling contexts. We echo the recommendations put forward by Peesker *et al.* (2022), that sales scholars should draw on research and frameworks published within the operations and customer service domains, as these may provide valuable insight into assessing the trade-off between interpersonal and knowledge-based cognitive competencies (Frei, 2008).

Second, there is much work required to better understand how different role configurations and motivational determinants create and deliver value in different selling contexts (Eggert *et al.*, 2018). Current and future studies need to further our understanding of the conditions under which task-specific self-efficacy is developed and sustained, along with longitudinal approaches to better clarify the direction of the self-efficacy–performance relationship from a sales context.

Finally, and within the context of our suggested areas for future research, we note the significant impact the measurement of salesperson performance has had on the predictive strength of the determinants in both our study and that of Verbeke *et al.* (2011) a decade earlier. The findings of our meta-analysis support recent calls for more thoughtful approaches to measurement within sales research in general, and in addressing weaknesses in the operationalization of the sales performance construct in particular (Hall and Lee, 2019; Bolander *et al.*, 2021; Kerr and Marcos-Cuevas, 2022). Sales performance occurs in situation-specific

ways, thus, the alignment between research sampling and performance measurement needs greater attention. For example, the use of *percent to quota*, the traditional gold-standard of sales performance measurement in academic research is increasingly problematic in certain sales environments given longer, solution-driven sales cycles and business strategies which demand higher levels of customer-orientation and the trade-off of immediate sales for longer-term customer satisfaction this often represents (Kerr and Marcos-Cuevas, 2022).

Conclusions

The objective of this study was to investigate the determinants of individual salesperson performance in modern selling over the past decade. Our meta-analysis enhanced the classification structure put forward by Chawla *et al.* (2020) to a total of 21 sub-category predictors of salesperson performance, offering a stronger foundation for further research and informing sales management practice. The nuances associated with this enhanced typology along with fundamental shifts in the nature of professional selling provided a compelling justification to conduct our extended meta-analysis and allowed us to better understand the relative importance and contingent nature of the sales determinants under investigation.

Our study further supports recent pleas for ensuring alignment between the operationalization of salesperson performance and sample frame decisions (Kerr and Marcos Cuevas (2021)). We argue that sales roles are becoming increasingly specialized in their value creation processes, and, as a result, a greater alignment is required between the sample frame chosen for research purposes and the specific way in which performance is evaluated for that sample going forward.

Research into salesperson performance is at an exciting juncture. We see two mutually reinforcing strands of further work. Similar meta-analytical studies to validate ‘grand theories’

and generalizable insights of the determinants of salesperson performance and ‘mid-range,’ ‘contingency’ models that provide deeper, ‘local’ explanations of sales performance in particular contexts.

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Table 1. A comparison of sales determinant research focus over time

Study & Time period	Churchill et al. (1985) 1918-1981 ¹	Verbeke et al. (2011) 1982-2008 ¹	Current Study 2009-2020 ¹
Sales Determinant Categories	Aptitude (50%)	Org & env factors ² (30%)	Motivation (23%)
	Personal factors (25%)	Skills (19%)	Personal factors (22%)
	Skills (11%)	Motivation (17%)	Aptitude (16%)
	Motivation (8%)	Aptitude (14%)	Skills (19%)
	Role perceptions (4%)	Role perceptions (11%)	Org & env factors ² (15%)
	Org & env factors ² (3%)	Personal factors (9%)	Role perceptions (5%)

¹Percentage of raw study effects during time period; ²Organizational & external environment factors.

Note: Sales determinant categories based on Churchill et al. (1985) topology for comparison purposes.

Table 2. Sales determinant typology and analysis structure

Category and Definition	Sales Determinant (Sub-Category)	Predictor Variables Included
Aptitude <i>Native abilities or enduring personal traits relevant to the performance of job activities which are stable over time (Walker, et al. 1977)</i>	Disposition traits	<i>Agreeableness, conscientiousness, openness, extraversion, neuroticism</i>
	Personal concerns	<i>Empathy, emotional intelligence, resiliency, sportsmanship, maveness, polychronicity, job resourcefulness, resistance to change, coachability, proactivity, planfulness, lone wolf tendencies, spirituality, cultural intelligence, general self efficacy.</i>
	Cognitive aptitude	<i>None</i>
Motivation <i>The role-related state-of-mind and behavioral orientation driving the level of effort expended on specific job tasks (Walker, Churchill Jr., and Ford, 1977)</i>	Cognitive choice	<i>Effort, grit</i>
	SR- metacognition ¹	<i>Task-specific self efficacy, emotion regulation</i>
	Goal orientation	<i>Achievement focus, entrepreneurial focused, learning orientation, performance orientation</i>
Personal-Biographical	Work engagement	<i>Job satisfaction, citizenship, organizational commitment, organizational identity, job dedication, interpersonal facilitation, helpfulness, intrinsic motivation, extrinsic motivation, turnover intentions, job involvement, emotional engagement, organizational advocacy, positive affectivity, continuance/normative commitment</i>
	Biographical	<i>Sales experience, tenure (with company), age, gender, education</i>
	Psychological demands	<i>Role ambiguity, role conflict, role overload, role burnout, emotional exhaustion, job stress, ethical ambiguity</i>
Job-related psychosocial factors which determine the extent of job strain (Johnson and Hall 1988)	Job-control	<i>Salesperson autonomy, power, psychological empowerment, perceived dependency</i>
	Work-related social support	<i>LMX, brand identification/fit, trust in manager, supervisor support, coaching, trust in manager, social capital, co-worker incivility</i>
	Salesmanship	<i>Adaptability, improvisation skills, presentation skills, opportunity qualification skills, selling process skills</i>
Skills <i>Learned proficiency at performing necessary [job] tasks (Johnston & Marshall (2016, p. 197)</i>	Interpersonal skills	<i>Guanxi, rapport building skills, listening skills, non-verbal cue detection, sales influence skills.</i>
	Inter-organizational skills	<i>Network breadth/depth/quality/info value, political savviness, team interconnectedness</i>
	Technology skills	<i>Technology adoption, SFA usage, social media usage</i>
Strategic activities are behaviors used to help implement sales strategy (Chawla et al. 2020)	Selling-related knowledge	<i>Product knowledge, technical knowledge, regulatory knowledge, thinking style, CI gathering/quality/use, thinking style, idea transfer.</i>
	Strategic behaviors	<i>Customer orientation, consultative communication, solution involvement, value-opportunity recognition, sales strategy implementation</i>
	Non-strategic behaviors	<i>Time mgmt., failing fast, moral judgement, ethical/unethical behavior, cross-selling, upselling, exploitative learning, information exchange, exploratory navigation, use of financial incentives</i>
Internal environment Factors influencing performance inside the firm (Verbeke et al.2011)	Culture and identity	<i>Ethical climate, organizational learning, trust in organization, organizational norms, sales climate, service climate, pressure to perform, competitive psychological climate, Negative HQ beliefs, Sales control factors, transformational leadership, transactional leadership, use of incentives, structure, Manager citizenship, territory size, product scope, sales training, segmentation, prioritization, manager power, access to resources, manager likeability</i>
	Managerial factors	<i>None</i>
	Technological factors	<i>None</i>
External environment	Macro-economic and operating environment	<i>Customer relationship quality, customer need knowledge, customer incivility, customer helpfulness, customer citizenship, trust in salesperson, customer product knowledge</i>

¹Self-regulation metacognition; LMX=leader-member exchange; SFA=salesforce automation; HQ=headquarters

Table 3. Results of bivariate analysis

Sub-Category Determinant	Ind. Study Samples ^a	Raw Effects	Sample Size	Rel. Adj, $r^{b,c}$	Z- Value ^c	95% Confidence interval		Prediction interval		Fail- safe N^d	Heterogeneity	
						Lower Limit	Upper Limit	Lower Limit	Upper Limit		Q	I ²
Self-regulation metacognition	20	23	6291	.488	8.11	.384	.580	-.085	.818	8194	494.8	96.2
Interpersonal skills	15	38	2329	.360	5.45	.236	.471	-.185	.735	1266	146.6	90.5
Salesmanship	34	54	9551	.349	10.53	.288	.407	-.029	.640	9715	359.8	90.8
Selling-related knowledge	18	32	6961	.345	6.66	.249	.435	-.119	.686	3015	318.0	94.7
Internal culture & identity	19	25	6630	.338	6.91	.247	.424	-.111	.673	3339	297.0	93.9
Cognitive choice	13	13	2786	.335	4.19	.183	.471	-.306	.767	1116	222.7	94.6
Work engagement	43	73	12269	.320	9.82	.258	.378	-.097	.642	2859	554.5	92.4
Work-related social support	19	26	5198	.318	8.49	.248	.385	-.007	.583	2717	132.6	86.4
Macro-economic & op env.	12	21	2991	.299	2.78	.090	.482	-.512	.828	633	374.9	97.1
Strategic behaviors	42	58	13598	.292	8.71	.229	.352	-.136	.627	1220	631.0	93.5
Goal orientation	11	22	3391	.277	4.92	.169	.377	-.145	.613	766	108.9	90.8
Personal concerns	39	80	7779	.240	5.07	.149	.327	-.339	.687	4119	666.7	94.3
Technology skills	9	18	2216	.224	5.45	.145	.300	-.041	.460	235	29.5	72.9
Psychological demands	18	27	5377	-.223	-5.21	-.302	-.140	-.538	.148	1069	160.4	89.4
Inter-organizational skills	14	48	3029	.220	3.53	.099	.335	-.270	.620	516	144.6	91.0
Non-strategic behaviors	21	35	4642	.202	4.13	.107	.293	-.248	.580	962	215.1	90.7
Managerial factors	37	76	9489	.202	6.08	.138	.264	-.189	.537	3314	370.0	90.3
Job-control	5	10	2177	.173	3.21	.068	.274	-.211	.511	75	23.1	82.7
Biographical	78	203	22312	.106	5.92	.071	.141	-.177	.373	4747	513.4	85.0
Dispositional traits	12	53	3467	.024 _{ns}	.56 _{ns}	-.060	.108	-.274	.318	na	60.9	81.9

^aNumber of independent study samples; ^bReliability adjusted sample mean effect size; ^cAll values in column significant at $p < .01$ unless otherwise indicated; ^dRosenthal's fail safe N required for $p > .05$; na=not applicable ($p > .05$); ns=non-significant result

Table 4. General factor meta-regression of sales determinants

	Model 1 β	Model 2 w/controls β
Direct effects		
General factor	.268***	
Moderation effects ¹		
Self-regulation metacognition	.319**	.272*
Interpersonal skills	.320*	.266*
Personal concerns	.267***	.247***
Work-related social support	.261***	.222***
Salesmanship	.223***	.203***
Inter-organizational skills	.151	.189*
Technology skills	.174*	.188*
Selling-related knowledge	.132	.172**
Culture & Identity	.230***	.169**
Non-strategic behaviors	.236**	.169*
Macro-economic & operating env.	.186**	.149*
Managerial factors	.172***	.144**
Strategic behaviors	.152***	.144***
Goal orientation	.137**	.110*
Work engagement	.127**	.106*
Psychological demands	.097	.074
Dispositional traits	.034	.071
Cognitive choice	.055	.044
Job-control	na	na
Control variables:		
Measurement type - Subj(1) vs Obj (0)		.081**
Sample design - X(1) vs C(0)		.044
Sales approach – Non (1) vs RTL (0)		-.007
Pub. quality – AA/A/B (1) vs C/D (0)		-.065*
R^2	.14	.23

¹Biographical category used as base reference variable (0);

***p< .01; **p< .05; *p< .10; Subj=subjective; Obj = objective;

X=cross-firm sample; C= case study; Non = non-retail, RTL = retail;

Pub. Quality = publication quality per ABDC, where D includes dissertations or unranked manuscripts; na=insufficient number of observations;

Table 5. Meta-regression moderator analysis

Predictor	Study Context					Selling Context			Measurement Context				
	Pub Date	Cross Firm vs Case (0)	Publication Quality A-ranked (0)			B2B vs B2C (0)	Non-Retail vs Retail (0)	Service vs Prod. (0)	Measure Type Subj vs Obj (0)	Rater Source		Control Orientation OC only (0)	
			A+	B	C/D					Self vs Mgr.(0)	Mgr. vs Obj (0)	BB Only	BB + OC
Aptitude													
Dispositional traits	-.011	.149	-.051	-.110	.097	.181	-.032	.029	.181*	.035	.159	na	.030
Personal concerns	.011	.233**	.074	-.143	-.089	.246	.130	.060	.148	.101	.071	.307	-.009
Motivation													
Cognitive choice	.021	.432**	.126	na	-.179	.078	.200	.061	.389*	.374*	.110	na	.389*
SR-metacognition	.021	.296**	-.087	-.039	na	.421**	.286	.200	.390**	.572**	-.147	.366*	.363**
Goal orientation	.072**	.443**	-.059	na	na	.121	-.012	-.012	.260**	.120	.190	na	.260**
Work engagement	.025*	.169*	-.028	-.058	.238*	.032	-.113	-.011	.220*	-.027	.244	-.010	.201**
Job-related psych.													
Psych. Demands	-.032*	-.138	.054	-.046	.339	-.178	-.115	.128	-.192	.147	na	-.181	-.111
Job-control	-.023	-.140	-.154	na	na	na	-.278**	.140	.138	na	na	na	-.040
Work-related social	.013	.244**	-.165	.062	.052	-.073	.050	-.213	.291**	.073	.220	.293**	.287**
Skills													
Selling knowledge	-.014	.220**	-.055	.071	-.118	-.090	-.035	-.004	.277**	-.248	na	.288	.275**
Salesmanship	.008	.058	-.042	-.116	-.013	.128	.124	-.235**	.130	.136	.118	-.060	.136*
Interpersonal	-.011	.285	.093	.273	.291	-.025	-.209	.200	.311*	na	na	.502	.283*
Inter-organizational	.006	.233	.072	.025	.287	-.069	na	.236*	.332**	.244	.175*	.467**	.305**
Technology	.005	-.048	.144	.249	.174	na	na	na	-.141	na	na	na	.086
Behaviors													
Strategic	.011	.144*	-.066	-.032	.149	.180	.032	.090	.230**	-.106	-.040	.351	.118
Non-strategic	-.003	.111	-.061	-.575*	.333	.270*	-.072	.323*	.291**	-.143	.406*	.208	.304**
Personal factors													
Biographical	.002	.009	.000	.064	.120*	.079	.058	-.042	.031	.103	-.048	-.018	-.001
Internal environment													
Culture & identity	.005	.114	.076	-.006	.156	-.065	-.187	-.220	.161	-.015	.200*	-.048	.190
Managerial	.009	.065	.121	.121	.000	-.075	.073	.075	.051	.018	.037	-.414**	.083
External environment													
Macro & operating	-.106	.042	na	.114	.367	-.373	-.297	.003	.197	na	na	-.141	.339

Pub = publication; na=insufficient number of observations; Prod=product; Subj=subjective measures; Obj=objective measures; Self = self-reported ratings
Mgr = manager ratings; Dim=Dimensionality; M=multi-dimensional; S = single dimension; OC = outcome-based measures; BB = behavior-based measures;
SR-metacognition=Self-regulation metacognition; **p<.01; *p<.05

Figure 1. Conceptual framework

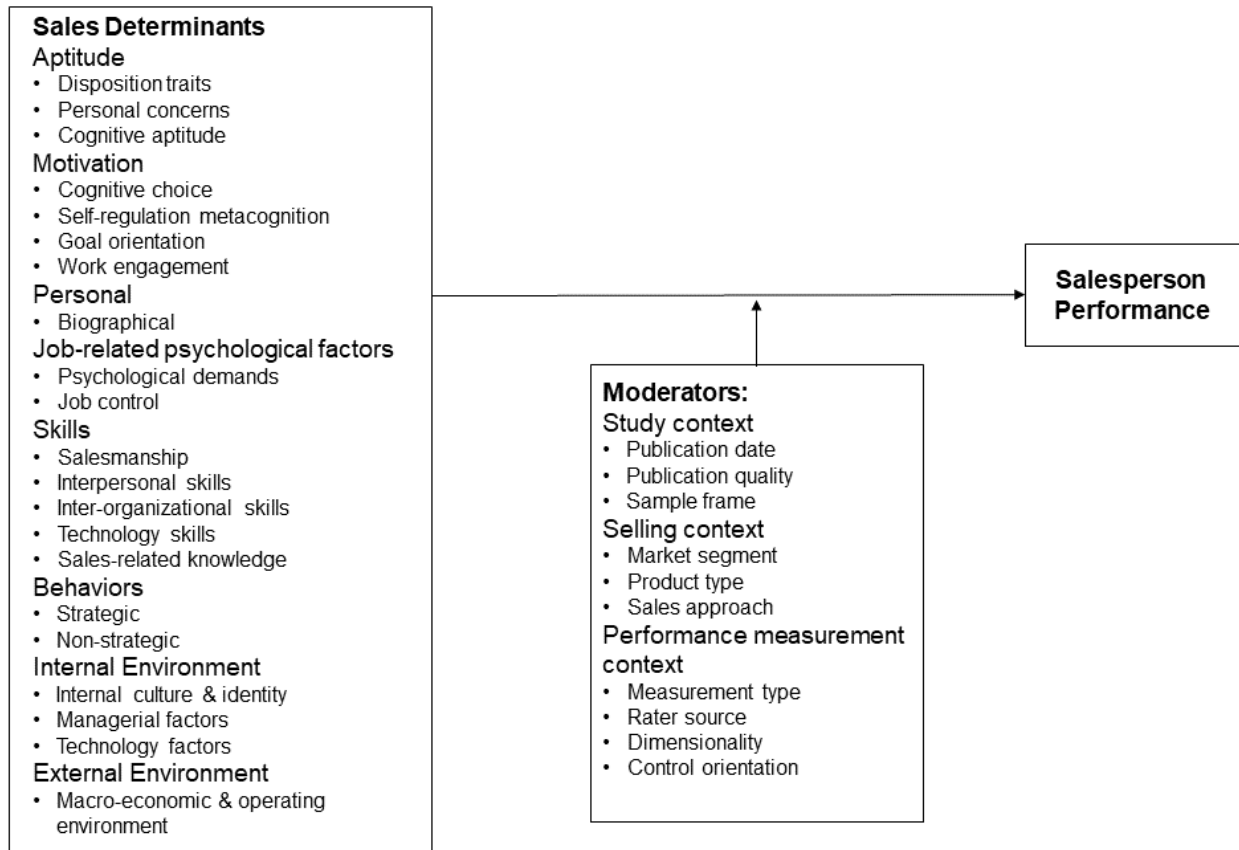


Figure 2. Sales determinant continuum

