

The SalesMax System

Version 6.0

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Technical Manual

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1 Introduction

The purpose of this technical manual is to describe the development and initial validation of SalesMax, a computerized testing system for professional sales job applicants. Based on our twenty-year experience of assessing salespeople and sales managers for our client companies, we developed SalesMax to measure the three areas of most concern to our sales clients:

- ✓ Sales Personality - relatively stable characteristics which impact sales behaviors. These core characteristics do not change easily over time, even with training.
- ✓ Sales Knowledge - the understanding of effective strategies at key stages of the sales cycle.
- ✓ Sales Motivation - motivations which drive the person.

In late 1996, drawing from our expertise in assessing professional sales candidates, advice from sales trainers and the published literature on selecting successful sales candidates, we developed a preliminary version of the SalesMax Survey. This survey consisted of 45 sales knowledge items, 28 sales motivations items and 216 work-related personality survey items. Further, the preliminary survey also contained self-ratings of sales behaviors, sales effectiveness and sales performance as well as descriptive information about work experience and demographics, and self-report of motivations.

At the same time we also developed a performance evaluation survey which asked sales managers to rate their employees on the same list of sales behaviors, sales effectiveness and sales performance dimensions. Sales managers also provided information regarding how familiar they were with the individual's performance.

The SalesMax validation packet was distributed to sales professionals and sales managers in three companies during 1997 as part of a research/development project. Results from this research project became the foundation for the SalesMax system. The remainder of this report will describe the development and initial validation of each of the SalesMax components - Personality, Knowledge and Motivations.

The SalesMax Development Sample

Three companies participated in the survey development study. These companies were representative of the following industries: business products, business services, and homesiding sales. Packets were mailed to participants and to their sales managers explaining the purpose of the study, guaranteeing confidentiality of results and requesting their participation. A total of 151 completed packets were returned (those for whom we had both survey and performance evaluations). Descriptive data for the SalesMax Development Sample is provided in the following table.

Table 1
Development Sample Demographics

Development Sample Demographics	n	%tile
Gender		
Female	55	36.4
Male	96	63.6
Ethnicity		
African-American/Black	3	2.0
American Indian	-	-
Asian or Pacific Islander	1	0.7
Caucasian	145	96.0
Hispanic /Latino, Latina	-	-
Other	2	1.3
Age		
Under 20	-	-
20-29	42	27.8
30-39	67	44.4
40-49	28	18.5
50-59	13	8.6
60 or over	1	0.7
How are you paid?		
Straight salary	5	.7
Salary and bonus	55	36.4
Salary and commission	67	44.4
Straight commission	8	5.3
Commission and bonus	2	1.3
Other	10	6.6
Did not answer	8	5.3
How much experience do you have in sales?		
I'm just starting out	8	5.3
Some sales experience	29	19.2
As much experience as my peers	46	30.5
Somewhat more experience than my peers	42	27.8
More experience than my peers	21	13.9
Did not answer	5	3.3

2 Sales Personality

Based on preliminary research and our experience testing the personalities of sales professionals and sales managers in the past, we selected or developed personality scales we thought would predict long-term suitability to and productiveness in sales for inclusion in SalesMax. In a concurrent validation study, results from a sample of 151 salespeople in 3 companies indicated eight (8) of these scales predicted sales performance. Three (3) other scales were retained in the final SalesMax instrument to provide potentially useful information for managing the candidate, if hired. A description of the 11 sales personality scales is provided in Table 2 on the following page.

Table 2
SalesMax Personality Scales

Personality Scale	Code	Example of Low Level	Example of High Level
Energetic	Eng	Lack of urgency, slow to complete work	Enthusiasm, hard work, visible effort
Follows Through	FT	Undependable	Completes tasks, follows through on commitments
Optimistic	Opt	Negative, pessimistic outlook	Positive, optimistic outlook; Weathers adversity well
Resilient	Rsl	Sensitive to criticism and rejection	Thick-skinned; able to handle criticism and rejection well
Assertive	Asr	Difficulty exerting influence, taking charge or asking for the sale	Possesses a confident sales presence
Social	Soc	Shy, more of a loner than a people person	Outgoing, enjoys client/customer contact
Expressive	Exp	Reserved, may have difficulty displaying enthusiasm	Free and easy conversational style
Serious-Minded	Resp	Makes decisions too quickly or takes unnecessary risks	Serious-minded, businesslike and professional
Self-Reliant ¹	SR	Lacks initiative	Takes charge, gets things done
Accommodating ¹	Acc	Overly competitive, aggressive and disagreeable	Win-win style
Positive About People ¹	PAP	Distrustful, negative view of people and their intentions	Balanced outlook regarding people and their intentions

Note: ¹Factors which do not predict success but will help to manage the candidate, if hired.

Development of the Personality Scales

With the exception of the *Follows Through* scale (which contains 12 items), each of the ten preliminary scales contained 19-20 items. These scales were blended to form a preliminary personality instrument and administered to the SalesMax development sample. Reliability analysis and evaluations of predictive usefulness of scale items were used to reduce the scales to their final form.

A careful analysis of one scale, originally named *Restraint*, led to the realization that the scale should be split into two scales. One, named *Serious-Minded*, measures a type of serious-mindedness and risk-aversion associated with being a responsible sales professional. The second, named *Expressive*, measures spontaneity with regard to displaying enthusiasm.

Of these 11 scales, 8 were found to predict sales performances in the development study. The other 3 scales were retained in the final SalesMax instrument to provide potentially useful information for managing the candidate, if hired.

Tables 3-5 provide distributional data for the SalesMax Personality scales. This is followed by scale reliabilities in Table 6 and scale intercorrelations in Table 7.

Most of the final scales contain 7-10 items, and some contain more. However, *Expressive* and *Follows Through* are shorter than desired. For this reason, non-scored additional scale items have been retained pending future research to lengthen the scored scales.

Table 3
Descriptive Statistics for Personality Scales

Scale	Code	Range	Mean	s.d.
Energetic	Eng	0 - 10	6.6	1.95
Follows Through	FT	0 - 6	4.4	1.05
Optimistic	Opt	0 - 7	5.0	1.38
Resilient	Rsl	0 - 12	7.8	2.47
Assertive	Asr	0 - 8	6.0	1.60
Social	Soc	0 - 9	7.0	1.90
Expressive	Exp	0 - 4	1.9	1.03
Serious-Minded	Resp	0 - 8	3.3	1.56
Self-Reliant ¹	SR	0 - 8	4.8	1.54
Accommodating ¹	Acc	0 - 16	10.8	2.27
Positive About People ¹	PAP	0 - 18	13.6	3.04

Note: ¹ Factors which do not predict success, but will help to manage the candidate, if hired.

Table 4
Score Distributions on Predictive Personality Scales

Score	Eng	FT	Opt	Rsl	Asr	Soc	Exp	Resp
12				99				
11				96				
10	99			83				
9	95			74		99		
8	83			57	99	77		99
7	63		99	41	78	43		98
6	43	99	87	30	56	32		97
5	31	91	59	21	35	24		92
4	14	41	31	11	17	14	99	81
3	8	23	16	5	7	6	94	62
2	1	4	6	2	3	1	79	31
1	1	1	--	--	1	--	26	9
0	--	--	--	--	--	--	13	4
n	138	141	141	141	144	138	142	140

Table 5
Score Distributions on Additional Personality Scales

Score	SR	Acc	PAP
18			99
17			91
16		99	81
15		99	65
14		97	54
13		93	46
12		76	33
11		56	25
10		38	18
9		25	11
8	99	15	5
7	98	10	3
6	87	7	3
5	67	1	--
4	34	--	--
3	21	--	--
2	8	--	--
1	3	--	--
0	--	--	--
n	141	141	142

Table 6
Personality Scale Reliabilities

Scale	Code	Alpha
Energetic	Eng	.55
Follows Through	FT	.46
Optimistic	Opt	.46
Resilient	Rsl	.67
Assertive	Asr	.55
Social	Soc	.68
Expressive	Exp	.42
Serious-Minded	Resp	.44
Self-Reliant	SR	.51
Accommodating	Acc	.54
Positive About People	PAP	.74

Table 7
Personality Scale Intercorrelations

Scale	Code	Eng	FT	Opt	Rsl	Asr	Soc	Exp	Resp	SR	Acc	PAP
Energetic	Eng	1.000										
Follows Through	FT	.401*	1.000									
Optimistic	Opt	.222	.295*	1.000								
Resilient	Rsl	.194	.189	.452*	1.000							
Assertive	Asr	.454*	.212*	.315*	.419*	1.000						
Social	Soc	.353*	.179	.559*	.443*	.540*	1.000					
Expressive	Exp	.000	.071	-.088	.092	-.046	-.128	1.000				
Serious-Minded	Resp	.080	.233*	.041	.191	-.023	-.010	.213*	1.000			
Self-Reliant	SR	.058	.112	.064	-.134	.105	.002	-.054	-.149	1.000		
Accommodating	Acc	-.022	.151	-.009	.017	-.265*	.015	.168	.285*	-.121	1.000	
Positive About People	PAP	.218*	.200*	.300*	.287*	.095	.164	-.016	.144	-.096	.315*	1.000

*p < .05

Desirable Ranges of the Personality Scales

The data from the development sample clearly indicated that different salespeople displayed different amounts of the personality characteristics measured, and success (as indicated by being in the top 50% in sales performance) was associated with having at least a minimum of each of the predictive characteristics. Desirable ranges for each of the predictive personality characteristics are presented below in sales percentile scores.

Table 8
Desirable Ranges of the Personality Scales
(in percentiles)

Scale	Avoid	Look For
Energetic	1 - 24%	25 - 100%
Follows Through	1 - 54%	55 - 100%
Optimistic	1 - 44%	45 - 100%
Resilient	1 - 34%	35 - 100%
Assertive	1 - 24%	25 - 100%
Social	1 - 11%	12 - 100%
Expressive	1 - 19%	20 - 100%
Serious-Minded	1 - 79%	80 - 100%
Self-Reliant ¹	n/a	n/a
Accommodating ¹	n/a	n/a
Positive About People ¹	n/a	n/a

Note: ¹ Factors which do not predict success but will help to manage candidate, if hired.

The Sales Personality Index

An overall Sales Personality Index score was computed by measuring the strength of the desired characteristic and weighting this by the predictive value of the scale for each scale associated with top sales performance. These scale scores were then summed to create the Sales Personality Index. The result is a measure of the suitability of a candidate's personality for sales that has a range of 0-45 and correlates strongly with actual sales performance ($r=.40$).

The Sales Personality Index is categorized into five advice ranges: AVOID, OK, GOOD, BETTER and BEST. Distributions for the full index and the categorized index are given in Tables 9 and 10.

Table 9
Personality Index Distribution

Score	% tile	Score	% tile
45	99	22	40
44	99	21	32
43	99	20	28
42	99	19	24
41	99	18	17
40	99	17	15
39	98	16	12
38	98	15	8
37	94	14	7
36	94	13	5
35	91	12	2
34	87	11	2
33	86	10	2
32	84	9	1
31	80	8	1
30	76	7	1
29	72	6	1
28	67	5	--
27	65	4	--
26	59	3	--
25	55	2	--
24	48	1	--
23	43	0	--

Table 10
Distribution of Personality Index Advice Ranges

Index Score Range	Advice	% tile
34 - 45	Best	87 - 99%
27 - 33	Better	60 - 86%
24 - 26	Good	44 - 59%
19 - 23	OK	18 - 43%
00 - 18	Avoid	0 - 17%

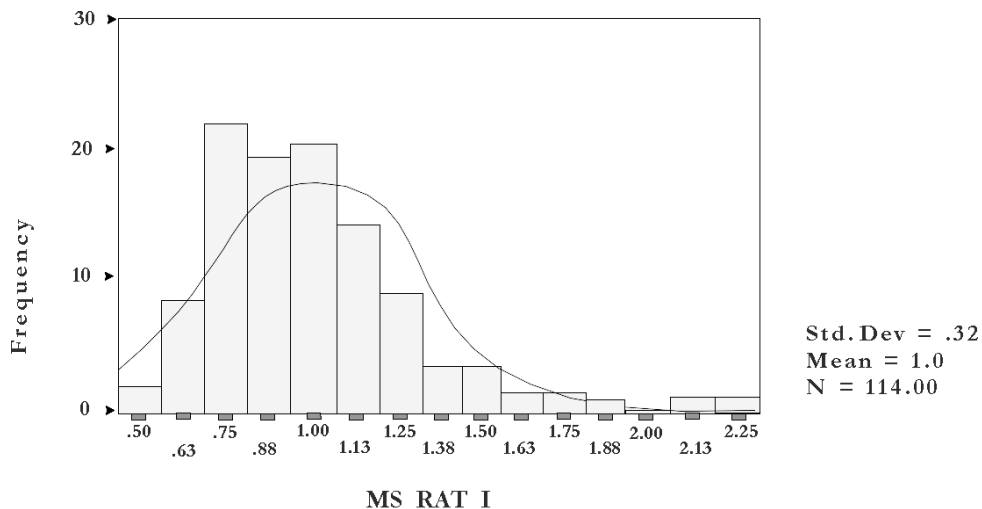
Validation Results

Development Sample

Sales income was selected as the prime criterion for the development and validation of the Sales Personality Index. Since the quality and potential of territories varies within and across companies and across product lines, it was thought that a simple measure of sales volume would not capture the effort or ability of an individual salesperson working with a particular line of products and a particular territory. Since salaries, commissions, and bonuses tend to be adjusted for the difficulty or level of effort required by a product line or territory, sales compensation was selected as a truer measure of performance. However, this study was conducted across a group of companies with different compensation schemes. For this reason, a relative measure was used. Total sales compensation was expressed as a percentage of his or her company average sales compensation for each participant.

The distribution of the measure of sales compensation is given in Chart 1. Here a value of 1.0 indicates this participant's actual dollar compensation was exactly at the average for salespeople in comparable jobs in his or her company. A value of .75 indicates compensation at 75% of average, 1.30 indicates compensation at 130% of average, etc.

Chart 1
Distribution of Sales Income Ratios



A useful indicator of the predictive power of the personality portion of SalesMax can be seen from the following estimate. For all salespeople in the development sample, we classified them simply as falling in the top or bottom half of sales performers in their company. Using this classification and their Sales Personality scores, we were able to estimate the probability of sales success (performing in the top 50%). Clearly, this data indicates that companies should attempt to hire candidates scoring in the top three Advice ranges, consider carefully those scoring in the OK range and should avoid candidates with scores in the bottom range.

Table 11
Probability of Sales Success

Index Score Range	Advice	Probability of Bottom Half Performers	Probability of Top Half Performers
00 - 18	Avoid	84.2%	15.8%
19 - 23	OK	53.8%	46.2%
24 - 26	Good	33.3%	66.7%
27 - 33	Better	32.0%	67.8%
34 - 45	Best	33.3%	66.7%

An alternative demonstration of the predictive power of the Sales Personality Index is to compare average sales productivity for each index advice level. As can be seen in Table 12, candidates with Sales Personality Index scores in the 0-18 range are predicted to achieve sales compensation levels at only 87% of the company average. Those whose indices are higher are predicted to achieve higher compensation levels. The difference in average ratios predicted for the Good, Better and Best groups suggests that while the proportion of top performers in each of these groups will be about the same (see Table 11), top performers will average higher levels of compensation in the Better and Best categories.

Table 12
Average Sales Performance Ratios by Sales Personality Index Range

Index Score Range	Advice	Average Sales Ratio
00 - 18	Avoid	.87
19 - 23	OK	.94
24 - 26	Good	.97
27 - 33	Better	1.04
34 - 45	Best	1.21

Additional Validation Results at a Major U.S. Insurance Company

During the winter of 2001 and spring of 2002 a Fortune 500 Insurance Company conducted a validation study using SalesMax for the Group Sales Representative (GSR). While the sample size is small, and follow-up analysis will need to be conducted, the preliminary information indicates that SalesMax is a useful tool in assisting the organization in their selection of Group Sales Representatives. A criterion-related validation process was followed to determine the relationship between assessment results and job performance for a U.S. based insurance company.

Based on a thorough job analysis a test battery (SalesMax) was chosen that tapped the essential skills needed to perform the job successfully. Next, a sample of current GSR and producing managers completed the SalesMax Survey, and, using this sample, the test was validated against sales criteria. The sales criteria consisted of a primary performance measure 'Total Sales' (aggregate of all sales during 2001) as well as secondary measures (component sales for various lines such as Life Sales, Health Sales, Dental Sales, etc.).

The initial sample size contained 62 representatives and producing managers. However after removing those who did not complete the assessment (8), less than one year of experience (13), and no performance data (4), the resulting sample size for the validation study was 37.

SalesMax correlated significantly with the primary performance measure, Total Sales. Further, a significant correlation was also found with one of the secondary measures, Health Sales. (See Table 13 below)

Table 13
Correlation of Sales Personality Index and
Key Performance Criteria

SalesMax Index Score	
Health	.26**
Total sales	.26**

N= 37 ** p < .05

Some situational factors may have negatively impacted the sales criteria and could have impacted the validation results. Specifically, all product lines are not sold equally throughout the country. Some areas have a better market for one of the six product lines, therefore inappropriately inflating sales for some sales representatives on a specific product line. As a result, the best measure of this assessment's effectiveness may be its ability to predict overall sales success and not just individual product sales success - and it does.

Another demonstration of the predictive power of the Sales Personality Index is to compare average sales productivity at various index ranges. Table 14 presents average sales performance ratios at various Index levels. Average performance sales ratio is equal to each individual's total sales expressed as percentage of the Company's Group sales average. For example, individuals with a sales ratio of .75 only produce 75% of the average sales, while 1.90 indicates that these individuals produce nearly 2 times the average sales.

Table 14
Average Sales Performance Ratios by
Sales Personality Index Range

Index Score Range	Number in range	Average Sales Ratio	Average Production
00 – 19	8	.75	\$2,811,727
20 – 24	8	.72	\$2,699,258
25 – 29	12	.86	\$3,224,114
30 – 35	9	1.90	\$7,123,043

Mean Sales = \$3,748,970

Utility - Sales Ratio

Looking again at the sales performance in terms of average production (Table 15), the results indicate that a non-superficial financial improvement could result by screening out those candidates scoring in the bottom two ranges (below 25) on the SalesMax Success Index. Based on these results, if the 16 participants from the bottom levels had been screened out, there was a potential for an average improvement in sales of \$1,146,113 per GSR or sales manager.

Table 15
Average Sales Production by
Sales Personality Index Range

Index Score Range	Number in range	Average Sales Ratio	Average Production
00 – 24	16	.74	\$2,755,492
25 – 29	12	.86	\$3,224,114
30 – 35	9	1.90	\$7,123,043

Mean Sales for Selected Group= \$ 4,895,083

Adverse Impact

Adverse impact occurs when an employment practice or process works to the disadvantage of members of an ethnic, gender or age group. In offering guidance for determining adverse impact, The Uniform Guidelines offers the four-fifths rule: "A Selection rate for any race, ethnic or gender subgroup which is less than four-fifths (4/5) or eighty percent for the group with the highest rate will generally be regarded as adverse impact ..."

Development Sample Analysis

In the initial development of the SalesMax Sales Personality Index, the sample contained sufficient sub-sample sizes to conduct adverse impact analysis by gender but not by ethnicity. In the gender analysis (see Table 16), the findings demonstrated that males and females had similar pass rates except at Better and Best score levels where it appeared there would be adverse impact if cut-off scores were established at these high levels. The general recommendation for use of the SalesMax Personality Index was to avoid those scoring in the Avoid and OK ranges where no significant adverse impact was introduced.

Table 16
Estimate of Potential for Adverse Impact
Development Sample

		Percent Pass			
Sales Personality Index Cut-Off Score	Advice	Total	Men	Women	Ratio*
19 - 23	OK	83.6%	83.1%	84.6%	1.02
24 - 26	Good	57.3%	59.2%	53.9%	.91
27 - 33	Better	41.8%	47.9%	30.8%	.64
34 - 45	Best	13.6%	16.9%	7.7%	.45
N		125	76	49	

** The commonly accepted standard for adverse impact is a selection ratio outside the range of .8 to 1.2.*

Applicant Sample (2002)

In May 2002, Bigby-Havis, using data from a sample of 4050 SalesMax candidates, conducted adverse impact analyses for both gender and ethnicity (see Table 17). As with the initial validation sample, males and females had similar pass rates and, in this larger sample, this held true at even the highest score levels. Impact ratios at every advice level were well within EEOC guidelines (.96 to 1.02).

Further, the sample contained sufficient minorities to be able to conduct analyses for majority-minority comparisons. Majority and minority candidates had similar pass rates except at the highest index score levels where it appears there would be adverse impact if cut-off scores were established at the Best range.

Table 17
Adverse Impact Ratios for SalesMax Personality Index
By Gender and Ethnicity
Applicant Sample

Percent Pass							
Index	All Applicant	White	Minority	Ratio *	Men	Women	Ratio *
N	4050	3107	673		2642	1240	
Avoid							
Okay	94.1	95.3	90.9	.95	93.7	95.1	1.01
Good	79.2	81.4	71.9	.88	78.8	80.2	1.02
Better	63.1	65.5	52.9	.81	62.8	63.1	1.00
Best	18.2	19.4	13.8	.71	18.4	17.7	.96

* *The commonly accepted standard for adverse impact is a selection ratio outside the range of .8 to 1.2.

Next, analyses were conducted for ethnic subgroups with sufficient sample size, these included African Americans, Asians, and Hispanics (the sample size for Native Americans was too small to include in the analysis). When examining data at this level (see Table 18) it became apparent that Asians were adversely impacted when cut-off scores were set at a more moderate ranges (Good, Better and Best).

In response BHA took steps to examine item level data and to revise wording to improve clarity and cultural understanding of the items.

The improved items were implemented in June 2002 and analysis from the sample of candidates surveyed since the revision shows improved selection ratios (see Table 19). Early indications from a sample of 915 applicants shows selection ratios for all ethnic subgroups to be well within EEOC guidelines, except at the highest score range. While this sample size is small, we find the results to be very encouraging. We will continue to monitor the data in the upcoming months to ensure the trend continues.

Table 18
Adverse Impact Ratios for SalesMax Personality Index
By Ethnic Subgroup
Applicant Sample

Percent Pass								
Index	All Applicant	White	African American	Ratio *	Asian	Ratio *	Hispanic	Ratio *
N	4050	3107	168		233		150	
Avoid								
Okay	94.1	95.3	97.6	1.02	85.4	.90	95.3	1.00
Good	79.2	81.4	84.5	1.04	58.4	.72	85.3	1.05
Better	63.1	65.5	60.1	0.92	40.3	.62	66.0	1.01
Best	18.2	19.4	18.5	0.95	06.4	.33	18.0	0.93

*The commonly accepted standard for adverse impact is a selection ratio outside the range of .8 to 1.2.

Table 19
Adverse Impact Ratios for SalesMax Personality Index
By Ethnic Subgroup
Applicant Sample

Revised Item Set (6/2002)

Percent Pass								
Index	All Applicant	White	African American	Ratio *	Asian	Ratio *	Hispanic	Ratio *
N	915	730	38		30		45	
Avoid								
Okay	92.5	95.3	97.4	1.02	90.0	0.94	97.8	1.03
Good	81.4	80.2	92.1	1.15	83.3	1.04	80.8	1.01
Better	66.8	66.5	76.3	1.15	56.6	0.85	66.7	1.00
Best	20.7	22.0	13.1	0.60	16.6	0.75	11.1	0.50

*The commonly accepted standard for adverse impact is a selection ratio outside the range of .8 to 1.2.

Using the Sales Personality Results

SalesMax personality results can be used to help organizations select candidates who have the natural inclinations (personality) to be effective in consultative sales. The Sales Personality Index score is an indicator of the candidate's potential for success. Based on the results of the validation study using earned sales compensation as the criterion, as well as EEOC guidelines for adverse impact, we recommend candidates with index scores below 19 be screened out of the selection process, those with scores of 19 to 23 be considered carefully, and those with index scores of 24 or higher be pursued further.

3 Sales Knowledge

Based on consultation with sales training experts, six (6) knowledge areas were selected for inclusion in SalesMax. These areas represent key stages of the consultative sales process. The SalesMax knowledge scales are designed to be used descriptively to aid organizations in gauging the candidate's understanding of the basic strategies required to sell successfully in a consultative sales environment. The Knowledge scales are described in Table 14 on the following page.

Table 20
Sales Knowledge Dimensions

Knowledge Scale	Code	Description
Prospecting / Pre-qualifying	PPQ	Identifying sales prospects and pre-qualifying them.
First Meetings / First Impressions	FFI	Recognizing the importance of first impressions in initiating positive and productive sales relationships.
Probing / Presenting	PPR	Developing a clear understanding of the customer's specific needs.
Overcoming Objections	PSO	Problem solving and overcoming objections.
Influencing/Convincing	INF	Convincing the customer of the value of company products and/or services.
Closing	CLS	Negotiating and closing the sale.

Development of the Knowledge Scales

Drawing upon the expertise of consultative sales training experts, forty-five (45) preliminary sales situations were developed to measure the knowledge dimensions. These were included as part of the preliminary survey administered to the development sample. Each item presents the respondent with a particular sales situation and the candidate is asked to respond by ranking the four possible action responses (A through D) from First Choice to Fourth Choice. Table 15 below presents an example of a prospecting situation.

Table 21
Example Prospecting Item

<p>You are making phone calls to new prospects. Rank the following approaches:</p>	<p>A) Pre-qualify them to determine whether they are the buyer or the decision-maker and try to sell them your product or service on the telephone.</p> <p>B) Simply try to set up a time when you can meet with them.</p> <p>C) Pre-qualify them and set up an appointment.</p> <p>D) Determine their interest and ask them if you could send them information on your product or service.</p>
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Sales Knowledge Scale Scores

In developing the scoring for the Knowledge scales, we asked an expert in consultative sales training to a) review each of the 45 situations to ensure that each was content valid (i.e. representative of consultative sales situations and behaviors) b) to evaluate the effectiveness of each action response by rank ordering the responses from best to worst and c) to select the best six situations representative of each dimension. As a result of this exercise, nine (9) items were removed and the remaining 36 situations were retained for scoring.

For the remaining 36 situations, the candidate's top ranked action response is compared with the consultative sales expert rankings to calculate an item score. Top ranked responses were chosen because it was felt that these would be most representative of the candidate's actual behavior.

If the sales expert's top/most effective action response was chosen as the candidate's first choice, two points are awarded. If the sales expert's second-highest ranked effective action response was the candidate's first choice, one point is awarded. Therefore, for each situation, a range of points from 0 to 2 can be awarded.

SalesMax Knowledge Scale scores (*Prospecting/Prequalifying, First Meetings, Probing/Presenting, Overcoming Objections, Influencing/Convincing and Closing*) are calculated by summing the item points for each of its six corresponding situations. Therefore, the range of possible scores for each scale dimension is between 0 and 12 (2 points x 6 situations).

Development Sample Results

Descriptive data for each of the six Sales Knowledge scales, based on the SalesMax development sample (as described earlier in this manual), is provided in Table 16 below. This is followed by scale intercorrelations in Table 17 (see next page).

Table 22
Sales Knowledge Scales
SalesMax Development Sample

Scale	Range	Mean	s.d.
Prospecting/Pre-qualifying	0 - 11	5.56	2.37
First Meetings/Impressions	1 - 11	4.81	1.76
Probing/Presenting	2 - 11	6.86	2.05
Overcoming Objections	0 - 11	5.57	2.01
Influencing/Convincing	3 - 10	6.54	1.42
Closing	2 - 11	6.60	1.95

Table 23
Sales Knowledge Scale Intercorrelations

Scales	Prospecting/ Pre-qualifying	First Mtgs/ 1st Impress.	Probing/ Presenting	Overcoming Objections	Influencing/ Convincing	Closing
Prospecting/ Pre-qualifying	1.000					
First Mtgs/ 1st Impress.	-.009	1.000				
Probing/ Presenting	-.004	-.002	1.000			
Overcoming Objections	-.007	-.151	-.018	1.000		
Influencing/ Convincing	.107	.013	.048	.049	1.000	
Closing	.064	-.146	-.117	.395*	-.036	1.000

*p < .05

Using the Sales Knowledge Results

SalesMax Knowledge results provide an indication of the "amount" of knowledge (percent of points out of a possible 12) the candidate has on each of the six dimensions of consultative sales. For example, a raw score of 9 on the Closing dimension indicates the candidate received 75 percent of the possible points (9 out of 12) on this dimension.

We recommend that the results of the Sales Knowledge section be used to identify possible training needs. For the inexperienced sales candidate, scores falling below 25 percent (4 out of 12 correct) suggest that he or she is likely to benefit from additional formal training. For an experienced salesperson such scores suggest he or she may have developmental needs in certain areas. These areas may be fine-tuned through formal training or informal coaching.

4 Sales Motivations

Based on a review of the existing literature on personal motivations, particularly for salespeople, eight (8) potential motivators were selected for inclusion in SalesMax. Results from this portion of SalesMax are used descriptively to aid organizations in selecting motivational techniques that are appropriate to an individual. The scales are summarized in Table 18 on the following page.

Table 24
Motivation Scales

Motivation	Code	Description
Recognition/Attention	RM	Extent to which one values recognition for work well done; enjoys being the center of attention.
Control	CM	Extent to which one prefers positions of leadership or control. Likes to be in charge.
Money	MM	Extent to which one is motivated by financial rewards, such as money and material possessions.
Freedom	FM	Extent to which one values personal freedom to make decisions and function independently.
Developing Expertise	EM	Extent to which one values becoming an expert and perfecting skills within a chosen field.
Affiliation	PM	Extent to which one is motivated by interactions with other people. Enjoys helping and dealing with people.
Security/Stability	SM	Extent to which one is motivated by stability and security in life and in career.
Achievement	AM	Extent to which one is motivated by overcoming successive challenges; enjoys challenges for their own sake.

Development of the Motivation Scales

The scale development process began with research into existing literature concerning sales motivations and values, as well as more general theoretical frameworks of human motivation. In addition, existing measures of sales values and motivations were also reviewed.

Based on this research, the list of eight (8) motivation dimensions most relevant to sales positions were selected. Psychometrically appropriate items were then created to measure each of these dimensions. Each item presents the respondent with the beginning phrase of a sentence and asks the respondent to choose the three endings -- ranked most, second most, and third most -- that most closely match his/her opinions, feelings, or attitudes. Each ending is associated with a particular motivational dimension (e.g. control, affiliation, or money). Table 19 below presents an example item.

Table 25
Example Motivations Item

1. I would like to be a leader ...	A) so I could get more recognition for my work. B) so I could have more decision-making power. C) so I could make enough money to obtain the things I want. D) so I could have more freedom. E) so that people will look up to me for my knowledge. F) so that I can help others grow professionally.
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Twenty-eight items, each with six possible response endings, were included in this section of the SalesMax survey. To allow for appropriate balancing--measuring the eight dimensions in a design that presents endings for each dimension in all possible response positions and in equal combination with endings representing the other dimensions--each dimension was represented in 21 of the 28 items.

Sales Motivation Scale Scores

For each item, the dimensional ending selected as “most like me” received a weight of three (3), the ending selected as “second most like me” received a weight of two (2), and the third ranked ending received a weight of one (1).

Scale scores for each of the motivational dimensions were calculated by summing the weighted responses for that dimension. Thus, each motivational scale had a possible score range of 0 to 63 (21 items X 3).

Development Sample Results

Table 20 provides descriptive data for each of the eight (8) motivation scales, followed by scale reliabilities in Table 21 and scale intercorrelations in Table 22 for the SalesMax development sample (described earlier in this manual).

In reviewing Table 20, the reader will note the highest scale scores achieved in the development sample are generally about 50 rather than approaching the maximum of 63. While 63 is a theoretical maximum score, the ipsative nature (forced ranking) of the items precludes, for the most part, this possibility. (The only means of achieving a score of 63 would be for the candidate, in every instance, to select as a top choice a single motivator, to the complete exclusion of all others.) As SalesMax was designed to focus on many motivators important to salespeople, we did not expect that only a single motivator would be representative of a candidate. This expectation was confirmed by the SalesMax development sample where data showed maximum scale scores ranging from 29 (Recognition) to 55 (Expertise).

Table 26
Sales Motivation Scales Development Sample

Scale	Range	Mean	s.d.
Recognition/Attention	0 - 29	9.11	6.12
Control	0 - 44	17.74	8.64
Money	0 - 50	20.15	12.58
Freedom	0 - 47	18.22	10.12
Developing Expertise	0 - 55	28.06	10.23
Affiliation	0 - 50	17.71	10.48
Security/Stability	0 - 52	20.42	10.41
Achievement	0 - 51	27.57	10.78

Table 27
Motivation Scale Reliabilities

Scale	Reliability Coefficient*
Recognition/Attention	.67
Control	.73
Money	.83
Freedom	.78
Developing Expertise	.72
Affiliation	.81
Security/Stability	.78
Achievement	.73

*Unequal-length Spearman-Brown reliability coefficients. Determined using a split-half approach.

Table 28
Motivation Scale Intercorrelations

Scales	Recognition/ Attention	Control	Money	Freedom	Developing Expertise	Affiliation	Security/ Stability	Ach.
Recognition/ Attention	1.00							
Control	0.07	1.00						
Money	0.02	-0.16	1.00					
Freedom	-0.05	-0.13	-0.03	1.00				
Developing Expertise	-0.08	0.10	-0.29*	-0.17	1.00			
Affiliation	0.05	-0.08	-0.25*	0.12	0.10	1.00		
Security/ Stability	-0.06	-0.06	0.03	-0.01	0.26*	-0.17*	1.00	
Achievement	0.04	0.24*	-0.10	-0.11	0.20*	0.02	-0.27*	1.00

*p < .05

Construct Validity

The Motivation scales were validated through construct validation. In construct validation, a test is evaluated to determine how well it measures the construct (an intangible characteristic or quality in which individuals differ) that it is intended to measure. In this case, we were interested in measuring personal motivations using the SalesMax motivation items. We wanted to know if these items accurately measured an individual's motivations.

As part of the SalesMax development study, participants were asked to self-rank the importance of a set of motivations. The ranked motivations corresponded to the set of eight (8) motivations measured by the survey items in the motivation section of SalesMax. Thus, by correlating each motivation scale score (e.g., Achievement, Money, etc.) with these self-ratings of motivations, a rough confirmation of the validity of the scales was obtained. The following table displays these correlations. With only one exception (Recognition/Attention), the scales were significantly correlated with self-ratings, suggesting that the scales accurately measure the intended motivations.

Table 29
Correlation of Motivation Scale Scores with Self-Report Ratings

Scale	Correlation with Self-Ratings
Recognition/Attention	.10
Control	.46**
Money	.50**
Freedom	.39**
Developing Expertise	.23**
Affiliation	.31**
Security/Stability	.47**
Achievement	.38**

*p < .05, **p < .01

Using Sales Motivation Results

SalesMax Motivation results provide insight into the relative strength or importance of each motivator to the candidate. This is indicated as the percentage of times the candidate selected this particular motivator over the other possible motivators presented (i.e., strength percentage). (Based on the results from the development sample, the base for each scale was set at 50 rather than the theoretical maximum of 63 to avoid the possibility of all scores falling at less than the 75 percent.) Table 24 presents percentile equivalencies used by SalesMax for the motivations dimensions.

The results of the Motivation section help the new hire's boss/supervisor in selecting motivational techniques that are appropriate for the individual. In some cases, the candidate will indicate a few, strong motivational needs. These should be used whenever possible, and appropriate, to recognize and reward the individual's work performance. Conversely, the candidate may indicate some areas of relatively lesser importance.

These may not be of importance given the candidate's current career stage, level of aspirations or life situation. Finally, some candidates will have scores which are all relatively the same. In this case it may be that the candidate is either not motivated strongly by any of the motivators, or he or she may be equally motivated by all of them. The interview should provide further opportunity to probe the candidate's motivational needs and their fit with the organization.

Table 30
SalesMax Motivation Scales

Raw Score	Strength Percentage	Raw Score	Strength Percentage
51-63	99	25	50
50	99	24	48
49	98	23	46
48	96	22	44
47	94	21	42
46	92	20	40
45	90	19	38
44	88	18	36
43	86	17	34
42	84	16	32
41	82	15	30
40	80	14	28
39	78	13	26
38	76	12	24
37	74	11	22
36	72	10	20
35	70	9	18
34	68	8	16
33	66	7	14
32	64	6	12
31	62	5	10
30	60	4	8
29	58	3	6
28	56	2	4
27	54	1	2
26	52	0	1