



Customer Carewords  
Top Task Management for Websites

# Statistical Confidence analysis of the Top Tasks method

Second edition: February 1, 2012  
(First edition: December 4, 2009)  
Customer Carewords  
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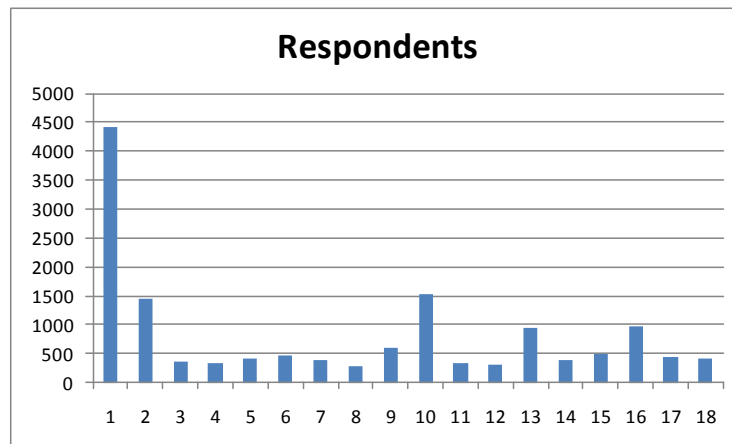


## 1. Top 5% gets as much as bottom 50%

By getting 400 customers to vote using the Top Tasks method you can identify your top three tasks and a reasonably stable list of your top 10 tasks. Your top task will have emerged by about 100 customers; sometimes as early as the 50<sup>th</sup>.

Typically, in getting customers to vote on 100 tasks, the top 5 tasks will get an average of 25% of the vote, with the bottom 50 tasks also getting 25%. In other words, the top 5 tasks get as much of the vote as the bottom 50. After 400 customers have voted, the chances of a task from the bottom 50 of the vote becoming a top task are infinitesimal as are the chances of a top task dropping into the bottom 50 tasks.

This results stem from our analysis of 18 Customer Carewords top task identification surveys, in several languages and countries, with 14,524 customers. There was an average of 807 customers per survey. However if the largest survey, which had 4,407 participants, is excluded the average drops to 595. Small surveys with less than 100 customers were excluded from this study.



This particular piece of analysis was carried out in 2009. By January 2012, we had conducted over 400 similar surveys with over 100,000 customers in 10 different languages. The trends this analysis identified have remained very consistent. Here is a summary of the trends:

- After about 50 customers, we have reasonable confidence that the task that has emerged as first in the vote will remain there. At the very least it is highly unlikely that it will drop below the first three tasks.
- After about 80 customers, the top two tasks are known within two rank positions.
- After about 200 customers, the top two tasks are known and ranked in order.



- After about 300 customers, the top four tasks are known within two rank positions.
- After about 400 customers, the top three tasks are known and ranked in order. For most situations, 400 voters is enough to identify the top tasks.
- In a typical voting environment, the top task will get about 500 votes, while the task at the bottom of the list will get close to 0 votes. (Each voter has 15 voters to allocate.) Thus you get a league table of task priority; what to focus on and what **not** to focus on.

## 2. How the voting survey works

We carefully assemble a list of customer tasks. Here is a sample of such tasks for a technology website:

- Accessories and parts
- Administering the product (user admin, application)
- Backup, recovery
- Business case for purchase
- Buy products / software online
- Calculate return on investment
- Check product or service availability
- Code samples
- Compare XXX products, services and solutions to each other
- Compare XXX with competitors
- Compatibility, interoperability

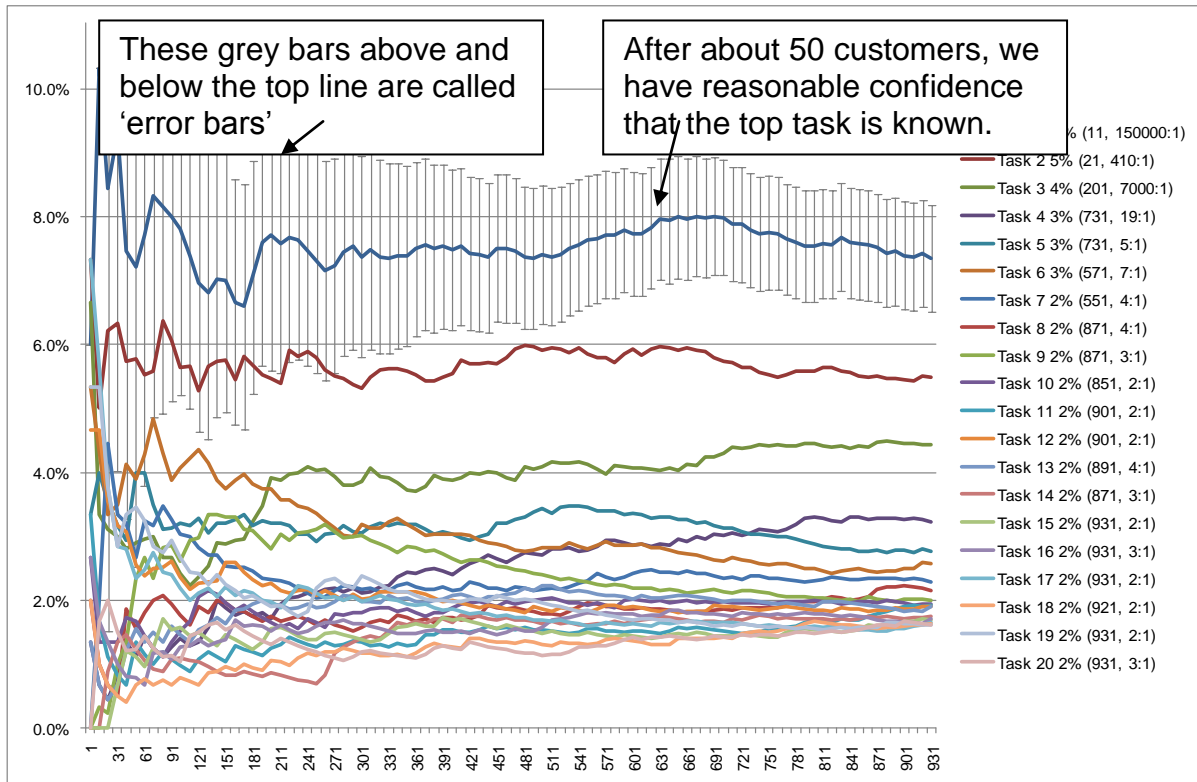
The list of tasks can be as long as 100. Using an online survey, this list is presented to customers in a random format. In other words nobody sees the same order of list twice. Customers are asked to vote on the top five tasks to them, giving 5 to the most important, 4 to the next most important and so on. This flies against all conventional wisdom and accepted theory of survey research.

Survey professionals tell us it can't work, won't work, is totally utterly impossible, absolute madness. 'You can't give people 100 tasks and expect that they will choose properly,' we are told again and again. But facts and evidence are stubborn beasts. This method does work. It has been working for almost 10 years now. Organizations such as Microsoft, Cisco, IBM, BBC, Tetra Pak, Schlumberger, IKEA, Wells Fargo, Rolls-Royce—to name just a few—have successfully used this method. It works.



### 3. 95% confidence

The following chart, from a representative anonymous survey, illustrates the percentage of the vote for each task to date. The voting trend shows initial random variations and then settles down to a reasonably stable pattern.



Initially, we have a large margin of error around the score, but that narrows as the number of customers increases. We call that band of error the '95% confidence band'. We pick 95% because it is the most common measure used for statistical significance. It means that we expect our data to be within the bands shown in 19 out of 20 surveys of a similar nature. The bands narrow in proportion to the square of the number of customers; for example, it takes 400 customers to obtain twice the precision of 100 customers.

Initially the error bars of the 95% confidence band cover the top three task lines. However, they gradually converge, leading to the third preference dropping out after about 60 votes and the second preference after about 260. It is also clear that the first three tasks are clearly preferred, and as you go down the chart the tasks bunch together into an undifferentiated tangle.

95% confidence means that the odds are 20:1 that the top score could be outside its error bars. That means 40:1 in either direction. So in this example the odds are 40:1 of the top score of 7.4% being as low as the band of 6.5%; and they are 150,000:1 of the top score being as low as the second preference; and the chances of it being any lower are infinitesimal. There is no chance of any of the items from fourth place and lower ever

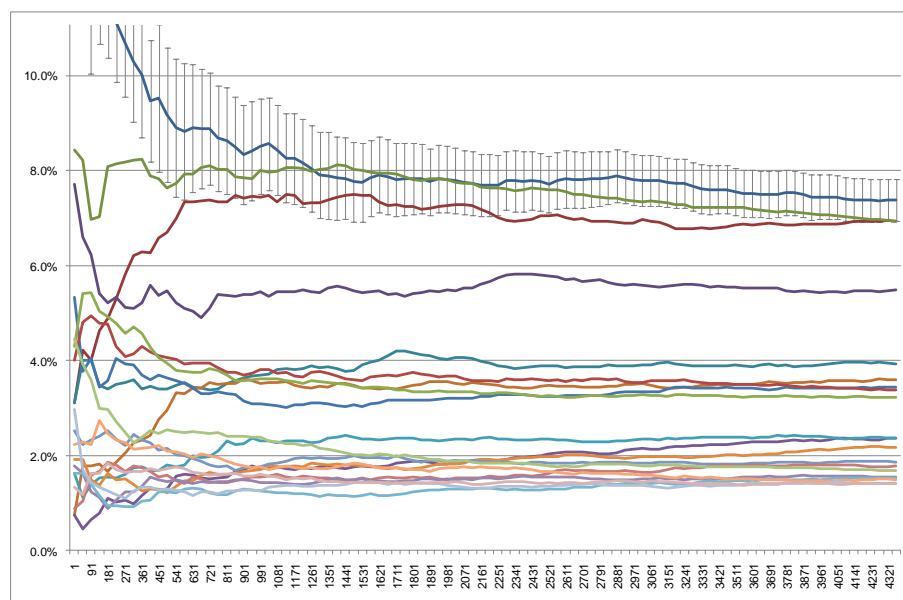


achieving the same score as the top task. Of course, all of this assumes that the nature of all participants in the survey is the same throughout.

## 4. Top tasks emerge

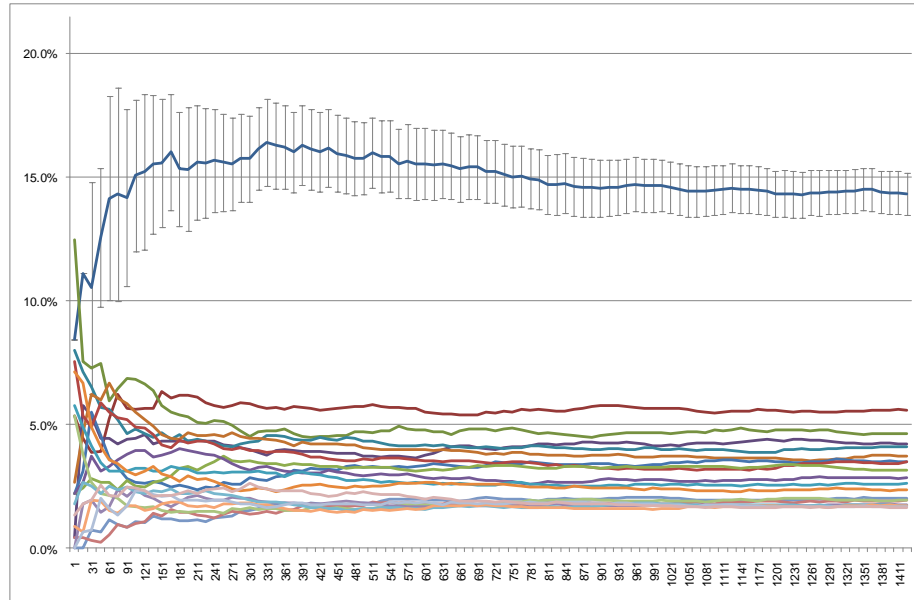
We can use the cumulative trend chart to show us how close the preferences are; how much uncertainty there is around the scores; and how many more participants we need to survey to provide more precise separation. Sometimes a clear leader emerges, sometimes not.

Here is the chart of vote trends for the largest survey. The 95% confidence error bars around the top task show that the differences between the scores for the top three tasks are not statistically significant.

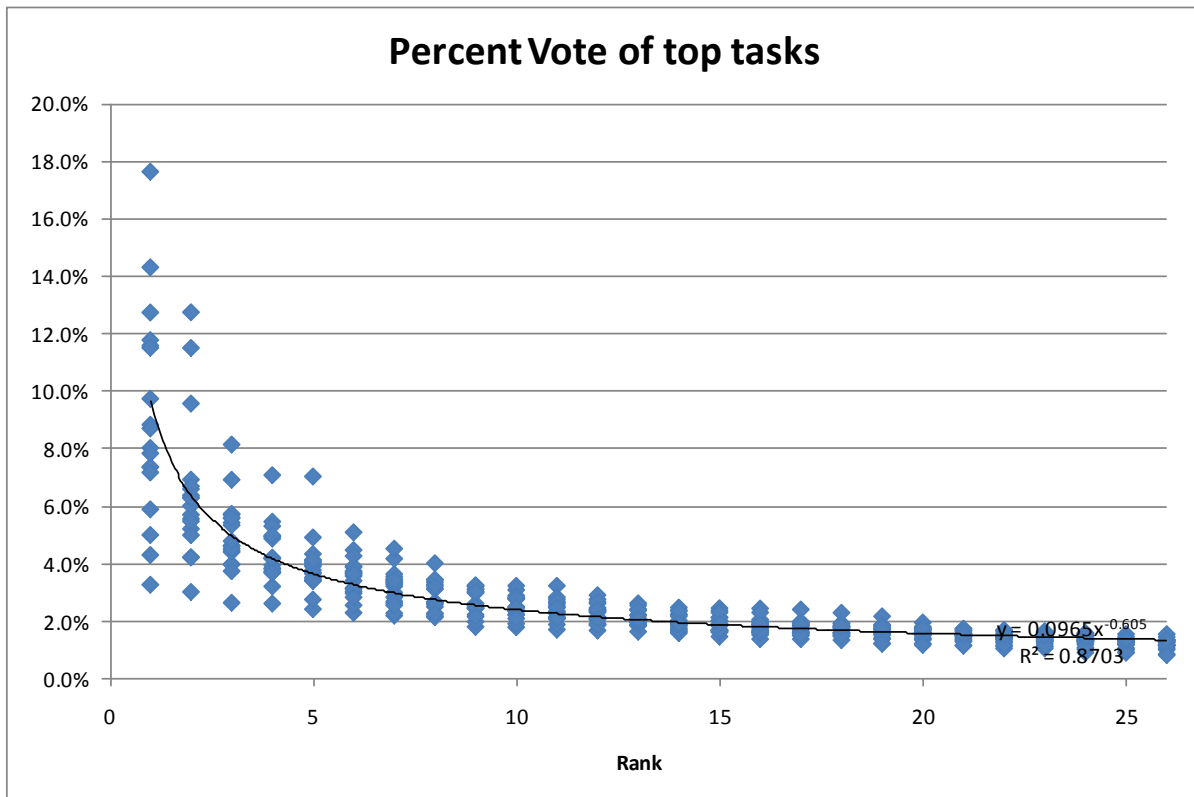


On the other hand, if you ask the question, “When were the top three tasks settled?”, or the top five or 10, you can see that #1 and #3 were always in the top three, and #2 distinguished itself after 226 customers.

In some surveys, a clear leader is established right from the start. Here is survey #2:



Each survey will have its own distribution of the percentage of task votes. This chart shows the spread of percentage votes for each rank position:



Nonetheless, from our experience of surveys so far, we can draw an average percentage of votes per task. The line shown in the chart above is a smoothed fit used in the table below. From our record of the variability of these votes, we can make some statements of how



many customers it takes to make the error bars around each task line smaller than the gap between the lines. Bear in mind that these are averages, and any one survey may well have two tasks in the top 10 that are so close together that the number of customers will not make any significant difference. And from a practical point of view, the fact that the preferences are so similar simply means that both tasks are of equal importance and there is no point in trying to differentiate between them.

The following table shows the number of customers (rounded to nearest 10 or 100) required to achieve given confidence in a tasks' percentage vote being above the next lower task (gap 1) or second next lower (gap 2). It illustrates:

- 1) The task rank number from 1 to 20.
- 2) The smoothed percentage of votes for each task.
- 3) The number of customers needed for 95% confidence in the gap between each task and the one immediately below it.
- 4) The number of customers needed for 99% confidence in the gap between each task and the one immediately below it.
- 5) The number of customers needed for 95% confidence in the gap between each task and the one two tasks below it.
- 6) The number of customers needed for 99% confidence in the gap between each task and the one two tasks below it.

Rank	Smoothed %	95% gap 1	99% gap 1	95% gap 2	99% gap 2
1	9.7%	50	100	20	50
2	6.3%	200	400	80	140
3	5.0%	400	1000	170	320
4	4.2%	900	1800	290	630
5	3.6%	1600	3200	500	1000
6	3.3%	2400	5000	700	1500
7	3.0%	3500	7200	1100	2100
8	2.7%	4800	9600	1400	2800
9	2.6%	6400	13000	1800	3700
10	2.4%	8300	16900	2400	4800

## 5. Chance that top 25% task could be in lower 50%

For each survey, we calculated the odds of the top task in the third quartile (50-75%) having as high a score as the bottom task in the first quartile (the top 25%). For half the surveys the odds were infinite, and the rest ranged from 5,500 : 1 down to 157 billion : 1. So, there is a 1 in 18 chance of getting a survey where the odds of the first item in the top 50% being as



high as the lowest item in the top 25% is 5,500:1. So we can say that the chances of a task that is in the bottom 50% becoming a top task are miniscule.

### 5.1. Chance a top 10 task might drop below a top 20 task

The table below shows the probability of a task in an average survey having as low a share of the vote as the task ten ranks below it (figures rounded to two significant digits).

No. voters: Odds: 1 of	100	200	300	400
#1 <= #11	5M	2.6 trillion	Inf	Inf
#5 <= #15	40	390	3200	540,000
#10 <= #20	8	18	40	84

Typically, for an average survey with 100 tasks: the top four or five tasks get 25% of the vote; the next 10-14 get the next 25%; the next 20-30 get the next 25%, and the remaining 50-60 get the bottom 25% of the vote. In other words, the top 5 tasks get as much of the vote as the bottom 50. The chances of a task that is in the bottom 50 becoming a top task are almost zero.

## 6. It may not work in theory but it does work in practice

There was once a politician (who formerly was an academic) who when presented with a plan to ease traffic in a big city, responded: “This is a crazy idea! It will never work!” The politician was told that it had worked very well in other cities of similar sizes, to which he responded: “It may work in practice, but does it work in theory!?”

The Top Tasks voting method breaks a lot of accepted rules. It shouldn’t work. It’s not a nice theory. But it does work.

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