

# MyCarDoesWhat Campaign and Public Discourse on Car Safety Features

## Goals

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1. Investigate ways to evaluate changes in the public's attitudes and behaviors toward car safety features as a result of a national education campaign on new car crash avoidance technologies.
2. Develop a framework to evaluate changes in public perception toward car safety features over time in relation to campaign milestones.

## Background

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### The National Driver Safety Education Campaign

*MyCarDoesWhat* is a national campaign designed to educate drivers on crash avoidance technologies. These technologies warn drivers of imminent crashes (i.e., forward collision warnings); supplement driving behaviors (i.e., anti-lock brakes); or provide additional information about the road around the car (blind spot monitors). Some technologies, such as automatic emergency braking, can intervene if a crash is imminent to avoid the crash or reduce its severity.

The campaign was launched on Oct. 7, 2015 by the National Safety Council and University of Iowa at a Washington, D.C. press conference. The press conference featured the U.S. Secretary of Transportation, among others, and contributed to an estimated billion campaign impressions during the month.

Prior to the launch event, key campaign elements including a website and social media campaigns on Twitter and Facebook launched during the summer. The weeks after the campaign launch also saw the release of a nationwide traditional media campaign, including spots on radio and TV as well as advertisements in newspapers, on websites and in smartphone apps.

## Goals and Evaluation

As first and foremost an education campaign, *MyCarDoesWhat* has these three primary goals – all related to behavior change:

- Increase U.S. drivers' knowledge of active safety features in their vehicles with a campaign focused on how to interact with them appropriately.
- Reduce crashes, injuries and fatalities with this knowledge and increased use of defensive driving skills.
- Encourage drivers to be more active and engaged.

To help determine the campaign's effectiveness, its architects identified a variety of evidence sources that would be tapped throughout the campaign. These included basic impression and reach metrics for the media campaign; traffic and engagement at the website and on social media; and other traditional evaluation metrics.

## Linking campaign to attitude and behavior change

More ambitiously, the campaign's architects also sought a way to help determine whether the campaign has an effect on behavior change. In general, it is very difficult to link public health interventions with behavior change as the public is exposed to thousands of messages (including from other campaigns) every day.

Accordingly, the campaign producers and evaluators found it difficult to determine how they could attribute actual behavior changes to the campaign. They explored a variety of potential indicators of behavior change, but found that it would be challenging to claim a direct connection between them and the campaign's launch.

### **A reduction in car crashes, injuries or fatalities as a result of car safety features.**

While this would be a very strong indicator that *MyCarDoesWhat* achieved its primary mission of reducing car crashes, injuries and fatalities, it would be very difficult to prove that increased and appropriate use of car safety features occurred because of the campaign. The government, auto manufacturers and safety feature designers could also be responsible for a decrease in crashes due to safety features.

### **Increase in purchases of car safety features.**

Just as it would be difficult to prove that the campaign led to reduced crashes on the road, it would be challenging to claim that *MyCarDoesWhat* was responsible if there were to be a sudden increase of car safety feature purchases after the campaign launch. Other factors such as an increase in advertising from car manufacturers or government mandates that make features standard could also influence safety feature purchases.

### Decrease in police-reported abuse of car safety features.

A major goal of the campaign is to help drivers understand the differences between appropriate and inappropriate uses of car safety features. One way considered to track this would be to track whether there is a decline in instances of unsafe use of safety features. A common example is using features with automation – such as lane keeping assists and adaptive cruise control – to drive “hands-free.”

Unfortunately, police reporting of such incidents is sporadic and unreliable as it is difficult for police officers to determine whether car safety features are involved in an incident. Additionally, event data recorders – which track driver inputs up to a crash – do not consistently track sensor data from car safety features.

## Social media listening to track perception and behavior change

However, the architects identified new techniques – leveraging social media – to help track changes in how the public feels about car safety features. One of these techniques is social media listening.

### Social media listening defined

Social media listening is a research method that uses raw social media data to identify patterns, themes and insights among the social media-using public. With hundreds of millions of users – in the United States alone – social media provides researchers access to a large, unprompted and unfiltered stream-of-consciousness of the public’s everyday thoughts.

For marketers and salespersons, social media listening can be used to track perception toward a brand, product or company. For those in the public space – including government agencies, public universities, the military, non-profits and the volunteer sector – social media listening can also provide insights that can help them better serve the public and meet organizational mission statements.

The National Safety Council’s *MyCarDoesWhat* team and the University of Iowa’s Public Policy Center are two such organizations that seek insights into the driving public’s attitudes toward automotive technology. They also seek to find out whether their public-facing efforts are impacting these attitudes; and if so, how they are changing and who are the major influencers on car safety technologies.

## Choosing a social media listening platform

The campaign evaluators decided to investigate social media listening as a tool to help track changes in attitudes over time as a result of *MyCarDoesWhat*. Their decision came from these major factors:

- Compared with traditional surveys, social media listening platforms better allow their users to get an unfiltered and unprompted stream of organic dialogue from the public.
- For a topic as new and technical as car crash avoidance technologies – a topic as potentially dry as safety – social media provides a much greater opportunity to isolate rare conversations about car safety features as there is so much social media conversation every day.
- The social media listening tool selected allowed the campaign evaluators to track changes in sentiment over time among large quantities of social media posts.

To accomplish the goals they were seeking, the campaign evaluators selected ForSight by Crimson Hexagon. This platform allows users to search among millions of social media posts based on the keywords they input.

ForSight can search for social media posts in the present, in real-time, as well as years into the past. Specifically, because of an agreement with Twitter, ForSight can access Twitter posts as far back as 2008 to provide access to more than a half-trillion posts. This was appealing to the evaluators as it could allow them to track the earliest perceptions of car safety features when autonomous features were first beginning to enter the consumer vehicle market in the late-2000s and early 2010s.

Beyond allowing the evaluators to find and download the resulting posts, ForSight can apply sentiment values to the post – negative, positive and neutral. This allows the evaluators a snap-shot idea of how the public feels about car safety features as they comb through posts. It also allows them to see trends in positivity and negativity toward car safety features over time.

After the platform was selected, the evaluators set out to develop a framework for using ForSight to track changes in attitudes toward car safety features over time – with the focal point of the analysis being the months before and after the campaign's launch.

## Methods

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The researchers on the *MyCarDoesWhat.org* campaign sought to determine a way to use social media listening tools to evaluate changes in discussion and sentiment toward car safety features on social media as a result of the campaign. To accomplish this, the researchers needed to create a monitor in Crimson Hexagon's ForSight that narrowly captured discussion around these features. This section describes the development of this monitor.

### Search parameters

To best elucidate the goal of the monitor, it was set to the following parameters.

#### Start and end dates

- Start date: Jan. 1, 2014
- End date: Oct. 1, 2015

This 21 month period allowed the researchers to generate a baseline number of conversations about car safety features that could be used as a comparison point for future years of the campaign. Additionally, this time period captures when the campaign's website and social media officially launched (in June 2015), but does not include the beginning of the campaign's full public launch. The full public launch began on Oct. 7, 2015, and included a national televised press conference, a nation-wide traditional advertising campaign combining radio, print and TV; a Google AdWords; and other advertising efforts.

#### Social media channel

- Channels: Twitter

While the Crimson Hexagon monitor is capable of simultaneously tracking Facebook and Twitter streams for posts containing keywords, Facebook was omitted from the monitor as user privacy settings made it difficult for the monitor to find posts. However, due to agreement between Twitter and Crimson Hexagon, Crimson Hexagon is allowed access to every public Tweet from the time in which their agreement began (2008).

#### Other settings

- Language: English
- Country: United States of America

These settings were chosen because the *MyCarDoesWhat* campaign was established specifically for United States drivers, and all campaign materials are specifically in English.

## Keywords

The keywords used to construct the ForSight monitor include various names and permutations of the following in-vehicle safety systems: tire pressure monitoring system, back-up camera, push button ignition, and electronic stability control. In addition to these four systems, general technology terms such as “car alert” or “vehicle features” were also used as keywords. This section describes how these keywords were chosen, and which keywords were purposely left out. See [Appendix A](#) for final Boolean string and search parameter settings.

### Choosing the car safety feature terms

Google Trends was used to help determine which car safety features have the highest amount of consumer interest. This tool allows researchers to investigate the relative popularity of topics in Google Search over time. The “Interest Over Time” tool also allows researchers to compare one or more topics or search terms to determine which topic or term has had more search volume.

All 27 of the car safety features in the campaign were entered into Google Trends to determine which features had proportionally the highest search traffic. The Google Trends parameters were isolated to the United States – which is the exclusive target of the *MyCarDoesWhat.org* campaign. The parameters were also set for the years 2004 to 2015, as 2004 is the earliest year available for Google Trends data and 2015 is when this analysis occurred.

The comparison tool revealed that a grouping of five safety features were searched more frequently than the rest of the safety features in the *MyCarDoesWhat* campaign: push button start, back-up camera, electronic stability control, tire pressure monitoring system and anti-lock braking system. To account for the abbreviations and alternate names used by consumers in social media, the researchers used Google Trends to identify the top related searches for each car safety feature.

An issue discovered with a popular safety system, anti-lock brakes, is that the most common reference point for this feature – ABS – is also a popular acronym for abdominal muscles. Therefore, this system was dropped from the Boolean string due to an inability to control for other uses of the acronym.

## Choosing the other keywords

In addition to the search terms for the four car safety features, general technology terms such as “car alert” or “vehicle features” were also used as keywords. These terms were similarly determined using Google Trends search term analyses.

*MyCarDoesWhat* and other permutations of the campaign name were purposely excluded from the ForSight monitor. Since one of the campaign’s goals is to make drivers more comfortable with car safety features – and thus safer, better drivers as a result – the hope would be that regular everyday drivers will have more discussions about car safety features and a more positive sentiment toward them over time. To determine if this goal was met, there would be an increase in organic, unprompted conversations about car safety technology regardless of the campaign.

## Capturing changes in sentiment

Crimson Hexagon’s social media listening platform, ForSight, also uses an opinion analysis tool called BrightView that allows researchers to identify and train tweets into various categories. Once the monitor has trained the keyword-containing Tweets, the data can be viewed and exported in several different ways to aid analyses. But first, the researchers needed to define and train the key categories for the analysis.

### BrightView Opinion Monitor categories

In order to train the opinion monitor to detect sarcasm and exclude off-topic conversations, some of the tweets identified were then sorted into one of two main groups: relevant vs. irrelevant. Then, within the two categories, sub-categories were identified.

In the below definitions, examples of actual Tweets that were trained in the BrightView analysis are included.

#### Relevant versus irrelevant

A **relevant** Tweet is one that specifically discusses a car safety feature. For example, someone Tweeting “I don’t know what I would do without my rearview camera for my car” is discussing their rearview camera (which is another industry name for back-up camera).

An **irrelevant** Tweet is one that contains one or more of the keywords in the Boolean string but is clearly not about car safety features. For example, someone Tweeting “Think I might pick the camera back up...” is not Tweeting about car safety features despite using the terms “back up camera” in the post. This person instead is discussing photography.

## Sentiment

The tweets sorted into the relevant group were then additionally sorted into one of three categories: positive, neutral, or negative, based on the sentiment of the post.

A **positive sentiment** Tweet is one that indicates a positive opinion or comfort level toward car safety features. For example, a Tweet such as “Push to start in my car is so handy” is expressing a positive sentiment toward a car safety feature.

A **negative sentiment** Tweet is one that indicates a negative or dismissive attitude toward car safety features. For example, someone Tweeting “I hate push to start cars!!!!!!! [sic]” is demonstrating they harbor negative feelings toward a car safety feature. This can be determined through the use of the word “hate” as well as the use of a string of exclamation points.

A **neutral sentiment** Tweet is one in which a car safety feature is specifically mentioned, but it could not be determined whether the poster has a positive or negative sentiment toward it or car safety features in general. A lot of these Tweets are non sequiturs or a sentence fragment. For example, the Tweet “Even with a backup camera and all” cannot be analyzed for sentiment because it is not a fully complete thought. Another example is the Tweet “That’s that push to start.”

Because a large portion of the irrelevant tweets were referencing two popular songs which mention push-start ignition, the group was subdivided into off-topic and song categories. BrightView requires a minimum of 10 posts per category to run the analysis; however, training additional posts can further refine the search algorithm. Within the relevant group, 62 posts were trained into the positive category, 120 posts were trained into the neutral category, and 29 posts were trained into the negative category. For the irrelevant group, 89 posts were trained into the off-topic category, and 25 were trained into the song category.

## Initial Findings

### Frequency of discussions

The monitor resulted in 171,468 total posts that contained the keywords based on the search parameters. This means that between Jan. 1, 2014 and Oct. 5, 2015, there were 170,613 Tweets that contained language related to the main topics of the *MyCarDoesWhat* campaign.

Of these posts, about 19 percent were classified as “Relevant” using the BrightView training. This means that 33,157 posts captured contained information that was relevant to the researchers. (See **Figure 1.**)

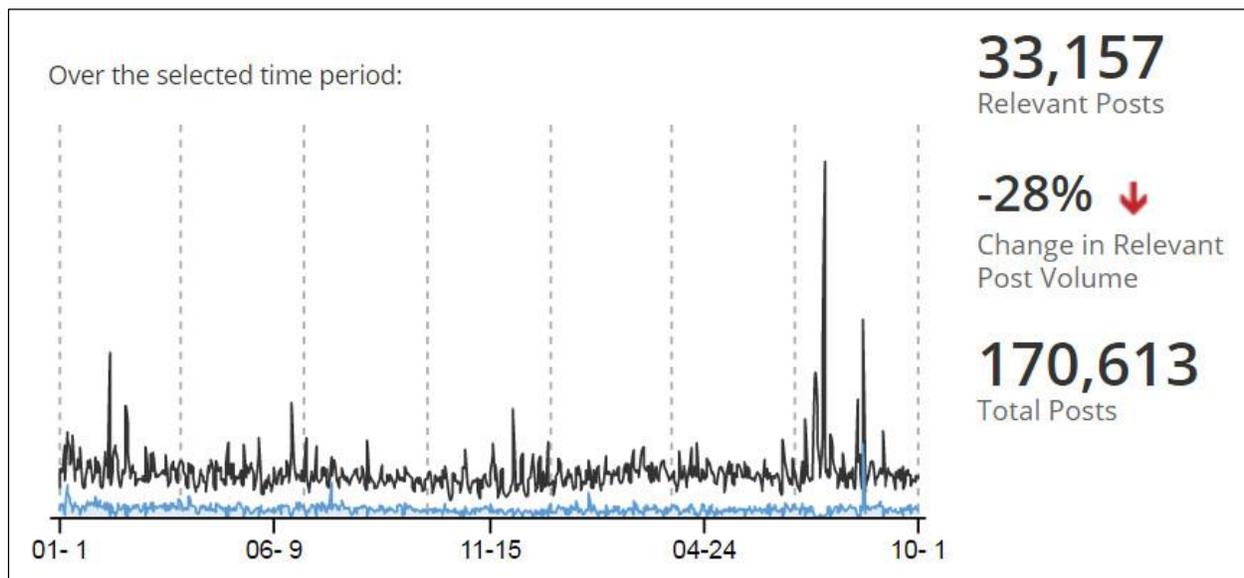


Figure 1 – Number of captured posts during monitor timeframe; and which posts were relevant

These relevant posts can be used for a variety of analyses for the campaign, some of which will be discussed in the Conclusion section. One of the analyses – sentiment – was completed using the relevant post sample, which will be described next.

## BrightView Analysis

Of the relevant posts – totally 33,157 – sentiment also was assigned by the researchers using BrightView training. As BrightView was also used to determine relevance of the posts, the initial BrightView output shows the sentiment analysis in relation to the relevance analysis (see Figure 2.)

Table 1 shows examples of posts in all categories – relevant positive sentiment posts; relevant neutral sentiment posts; relevant negative sentiment posts; irrelevant posts that were simply off-topic; and irrelevant posts that were about a song that references the push button start feature.

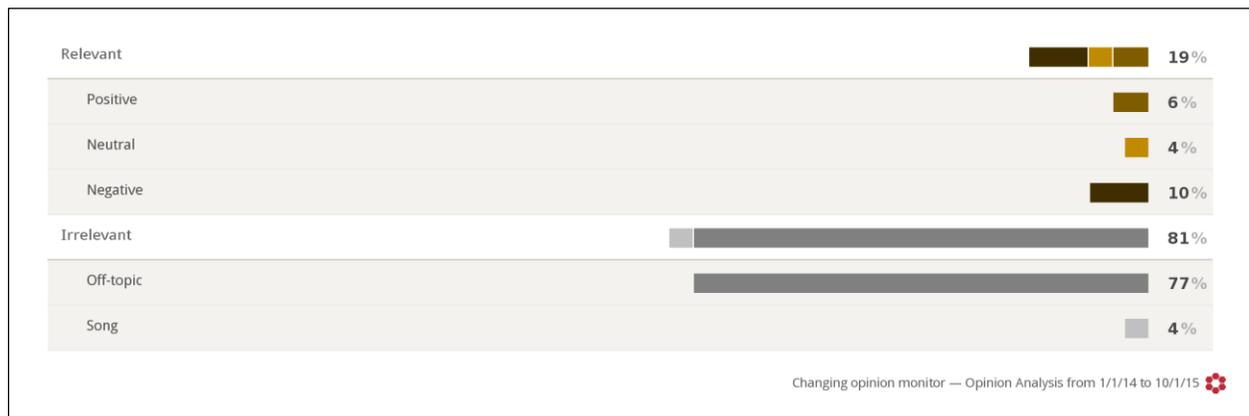


Figure 2. Full BrightView analysis of posts found in the monitor

Table 1 – Examples of posts in each BrightView category

Group Name	Category Name	Example Tweet
Relevant	Positive	

	Neutral	<p>A Twitter post from a user with a blurred profile picture. The text reads: "Your kids are gonna learn how to park with a back up camera". It has 1 retweet and was posted at 2:12 PM on May 20, 2015. The interface includes a gear icon, a "Follow" button, and interaction icons for reply, retweet, like, and more options.</p>
	Negative	<p>A Twitter post from a user with a blurred profile picture. The text reads: "I hate push to start cars!!!!!!!!!!". It has 2 likes and was posted at 10:49 AM on August 15, 2014. The interface includes a gear icon, a "Follow" button, and interaction icons for reply, retweet, like, and more options.</p>
Irrelevant	Off-topic	<p>A Twitter post from a user with a blurred profile picture. The text reads: "About to sell my car for camera stuff" followed by a purple devil emoji. It was posted at 10:44 AM on September 5, 2015, from Nicoma Park, OK. The interface includes a gear icon, a "Follow" button, and interaction icons for reply, retweet, like, and more options.</p>
	Off-topic Song	<p>A Twitter post from a user with a blurred profile picture. The text reads: "push start tha whippppp brought it straight to life". It has 1 like and was posted at 12:06 PM on January 21, 2015. The interface includes a gear icon, a "Follow" button, and interaction icons for reply, retweet, like, and more options.</p>

## Changes in sentiment

When looking only at the sentiment in the relevant posts, 31 percent of the relevant posts had positive sentiment; 20 percent were neutral; and 49 percent had negative sentiment. (See Figure 3.)

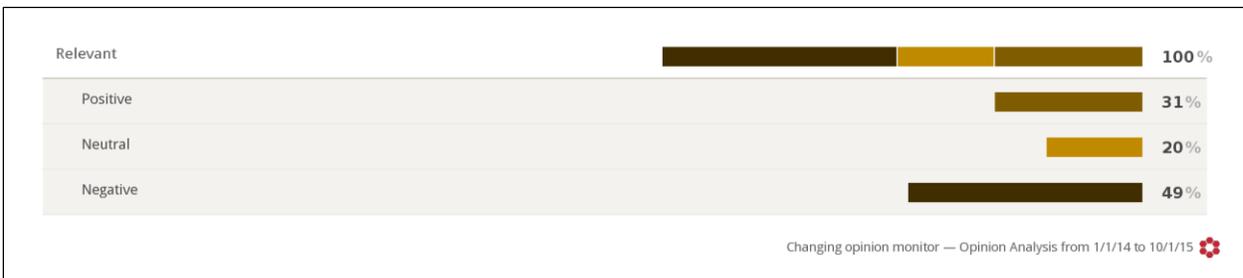


Figure 3. Sentiment contained in relevant posts in monitor

This analysis also shows that between the start of the monitor (Jan. 1, 2014) and the end (Oct. 1, 2015), positive sentiment grew 16 percent; neutral sentiment decreased 7 percent; and negative sentiment decreased 9 percent. Knowing the general trend of the sentiments prior to the launch of the campaign will help the researchers in future analyses.

## Conclusion

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The 33,157 relevant posts found can be used for a variety of analyses for the campaign. For example, they can be analyzed to determine shared phrases and vocabulary used by the public when they discuss car safety features. This will help content creators with future campaign messaging.

Among other further analyses that can be conducted with this data set:

- The reasons for attitudes toward car safety features
- Situations that prompt Twitter users to discuss car safety features
- Top influencers who discuss car safety features
- What types of discussions about car safety features result in the highest engagement

Since the monitor captured information about the time period directly before the campaign's full national launch in October, this analysis can act as a "baseline" for future analyses. This will help determine whether some of the goals of the campaign are being met as time goes on – such as increasing the conversation about car safety features and changing the public's attitudes toward them.

The campaign launch is just the beginning of what is hoped to be an important campaign that will influence the public's opinion of car safety features. Using social media listening monitors, this study shows that it will be possible track these shifts over time, and hopefully facilitate the public in feeling more positive and comfortable about inevitable changes in the way they drive.

## Strengths and limitations

### Strengths

Conversations about safety are rare events. Therefore, using a social media listening platform such as Crimson Hexagon's ForSight allowed the *MyCarDoesWhat* team to easily identify a large volume of relevant conversations and potential conversation influencers.

The BrightView platform also allowed the researchers to assign custom-built categories to a very large amount of textual data – more than 170,000 Tweets – and allow the software to take care of the categorization. After initially training the BrightView software with about 325 posts, the researchers were able to ask the platform to use the training to further categorize the remaining posts. This saved the researchers many hours of time manually coding the posts.

### Limitations

As with any research method that involves the coding of qualitative data, this analysis relies on a certain level of subjectivity in how the coder assigned sentiment to posts during the BrightView training.

Luckily, Crimson Hexagon's ForSight platform requires that the coder assign a sufficient number of posts to every pre-defined category before it allows for a full analysis. To further control for subjectivity, the coders assigned many more posts than needed for each category, such as assigning 62 posts to the "positive" category and 120 posts for the "neutral" category.

## Next steps

Now that the baseline has been captured of public opinion before the campaign's full national launch, this analysis will be repeated at set intervals during the remaining years of the campaign.

The researchers will pay close attention to shifts in the proportion of sentiment among discussions on social media and the frequency of discussions in comparison to this baseline set of data.

The researchers also will look to ways to further improve the Boolean string behind the monitor to get even more relevant posts for analyses.

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**Presented by the National Safety Council and the University of Iowa**

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**About the University of Iowa**

The Transportation & Vehicle Safety Research Program at the [University of Iowa](http://University of Iowa) works to improve technology design through a better understanding of how drivers perform and behave in crash situations. Their research-driven program works at the intersection of safety technology and public policy. The program's areas of research include: human factors and human behavior, advanced in-vehicle safety technologies, driver distraction, teen driving, crash analysis and automated vehicle policy.

**About the National Safety Council**

Founded in 1913 and chartered by Congress, the National Safety Council, [nsc.org](http://nsc.org), is a nonprofit organization whose mission is to save lives by preventing injuries and deaths at work, in homes and communities, and on the road through leadership, research, education and advocacy. NSC advances this mission by partnering with businesses, government agencies, elected officials and the public in areas where we can make the most impact – distracted driving, teen driving, workplace safety, prescription drug overdoses and Safe Communities.

## Appendix A

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**ADDITIONAL INFORMATION FOR:**

### Changing opinion monitor

<b>Type</b>	Opinion
<b>Status</b>	Results Available Content Until Sep 30, 2015
<b>Date Range</b>	Jan 1, 2014 to Indefinite
<b>Sources</b>	Twitter, Facebook
<b>Created by</b>	Kayla Smith
<b>Creation Date</b>	Sep 28, 2015
<b>Keywords</b>	(((technology OR alert OR warning OR features OR beeping OR signal) AND (car OR vehicle)) OR (((("Tire Pressure sensor" OR "tire pressure moniotr" OR "tire pressure sensors" OR "tire pressure monitoring system") OR ("tire pressure" AND (monitor OR sensor OR sensors OR "monitoring system"))~1) OR (((("backup camera" OR "wireless camera" OR "rear backup camera" OR "back up camera" OR "rear view camera" OR "rearview backup camera" OR "rearview camera" OR "reverse camera" OR "license plate camera" ) OR ((backup OR back-up OR "back up" OR wireless OR "rear backup" OR "rear view" OR rearview OR reverse OR "license plate" OR Car OR Auto) AND (camera OR "camera system"))~1) OR (((("push button start" OR "Push to start" OR "push start kit" OR "Push button ignition" OR "push start ignition" OR "push button switch" OR "keyless start" OR "push button starter" OR "keyless ignition") OR (((("push to" OR "push button" OR "push start" OR keyless) AND (start OR ignition OR switch OR starter))~1) OR ("electronic stability control" OR "stability control" OR "vsc light" OR "esp light" OR "bas esp" OR "check vsc" OR "electronic stability" OR "vsc off" OR "vsc light on" OR "esp bas light" OR "vsc trac" OR "esc light" OR "esc off" OR "vsc trac light" OR "esp car" OR "vsc off light" OR "vsc trac off" OR "esp off" OR "vehicle stability control" OR "esp button" OR "vsc warning light" OR "vsc system")) AND -(http OR https OR Verizon OR @AndyVJeffers OR smartphone OR phone OR "esp." OR #vwcares OR "traffic alert"))
<b>Analysis Version</b>	BrightView 1.0
<b>Categories:</b>	IRRELEVANT: Off-topic NEGATIVE: Negative POSITIVE: Positive NOT GROUPED: Neutral
<b>Tags</b>	