

# Years to End of Life: How Reliable is EOL Forecasting?

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A SiliconExpert White Paper

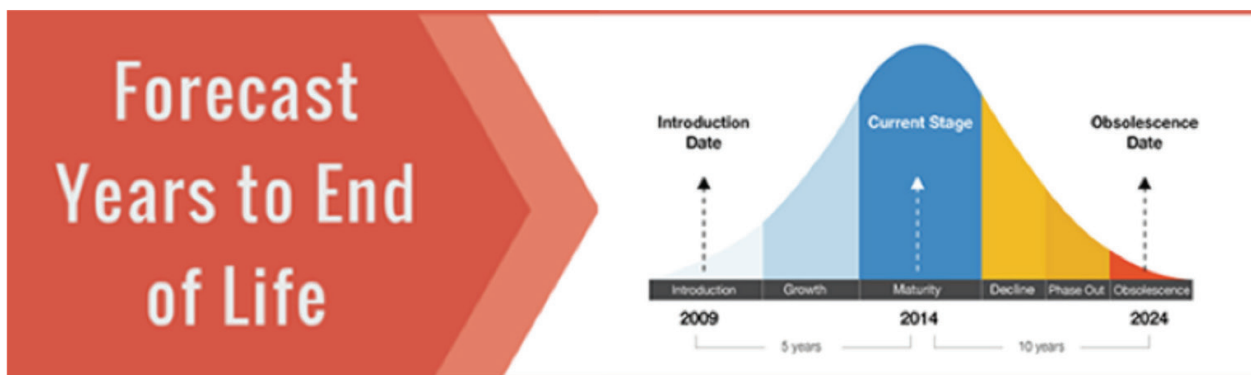


# The Need for Proactive Obsolescence Management

Electronic component obsolescence presents challenges to product design that are often costly. Managing the risk associated with component lifecycles and weighing whether or not Part numbers will last the whole lifecycle of a product is no easy task. As an engineer, you must balance product quality and functionality with specifications, regulation requirements AND an obsolescence plan that factors both immediate and long-term component end of life.

In the event of part obsolescence, companies typically fall victim to a high demand and limited market availability situations. Our 2018 PCN report found that 28% of product change notices (PCNs) were for Part numbers with last time buy dates of “immediately”; meaning that waiting for a PCN may result in a costly re-design.

End of life forecasting data provides companies with the insight necessary to manage risk during the initial component selection process. This gives engineers the ability to match their component lifecycles with that of their projected product lifecycle and plan ahead with alternate Part numbers that have similar form fit and function.



## Forecast Years to End of Life

SiliconExpert provides estimated Years to End of Life (Y-to-EOL) as a data point in our electronic component database. The algorithm was developed as a joint partnership between SiliconExpert and The Center for Advanced Lifecycle Engineering (CALCE) at the University of Maryland to help customers plan for and mitigate part obsolescence. The algorithm looks at historical patterns to determine the procurement life of an obsolete part and estimate the Y-to-EOL for active components.

Regularly, SiliconExpert measures the accuracy and reliability of our End of life algorithm.

# Test Methodology

These part numbers that SiliconExpert registered as EOL (LTB or Obsolete) in 2018 are researched under this test.

SiliconExpert's Estimated Years to EOL algorithm designate these part numbers that has lived longer than expected, adding this algorithm to be part from SiliconExpert lifecycle Risk, enable SiliconExpert from providing a warning regarding these products that are near from Obsolescence or subject to a sudden obsolescence because they already lived longer than expected by SiliconExpert's years to EOL algorithm.

These part numbers flagged with "Medium Risk" under Lifecycle Risk category, Where Medium Risk here designate these components that our algorithm detect that they reported as Active by manufacturer which means that they exist in the maturity phase of standard lifecycle curve but our calculations say that they should leave maturity phase and enter to either decline or phase out phase. But as you know the marketing conditions like sales volume are the main player in the component availability story, we consider them as Medium risk components to give a warning to our customers that the future availability of these products should be checked with manufacturer especially if intend to use these component in new designs.

To measure the Y-to-EOL reliability, Part numbers classified under SiliconExpert's Obsolescence Part numbers in 2018 are classified into two groups, part numbers that had warning flag prior the Obsolescence notification versus other part numbers which had not a warning flag.

Accordingly, our Prediction classified to (Accurate prediction) and (Inaccurate prediction)

1. Components accurately predicted: The current lifecycle of the part is Obsolete, and the algorithm provide a warning "Lifecycle Risk was Medium" prior the Obsolete notification.
2. Components inaccurately predicted: The current lifecycle of the part is Obsolete, and the algorithm did not provide a warning "Lifecycle Risk was Low" prior the Obsolete notification.

# Reliability Results

The overall accuracy of the SiliconExpert Y-to-EOL algorithm for 2019 is 92.59% an increase from the 2017 rate of 91% as highlighted in Figure 1. The overall inaccuracy percentage dropped from 15% in 2013 to 11% in 2015 to 9% in 2017 to 7.41% in 2019.

Between 2013 and 2019 the overall accuracy improved for both accurate and inaccurate predictions. These changes are due to additional Part numbers being added to the SiliconExpert database and a modification to the Y-to-EOL algorithm. SiliconExpert is constantly adding additional Part numbers to the database. The more Part numbers in the database the better the algorithm becomes in determining historical trends, especially if the Part numbers being added are obsolete.

Over the past two years SiliconExpert has monitored the reliability of the algorithms and made tweaks and changes as necessary to ensure the Y-to-EOL algorithm provides our customers with confidence as they mitigate risk associated with reactive obsolescence management.

Figure 1

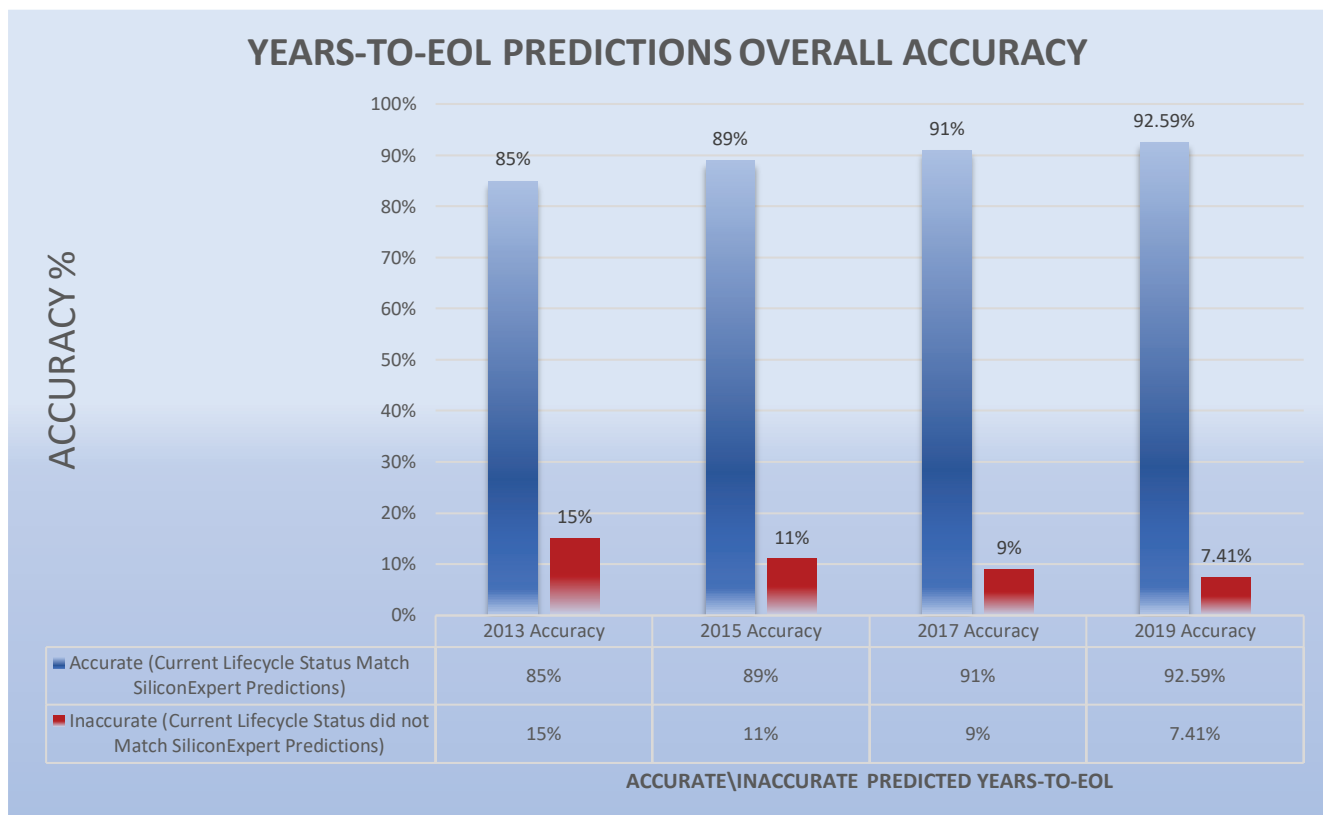


Figure 1 shows the accuracy percentages for Part numbers classified as Obsolete in 2018. A higher percentage is good for accurate predictions (warning flag added to part number prior Obsolescence notice), a lower percentage is better for inaccurate predictions (warning flag was not added to part number prior Obsolescence notice).

The accuracy of prediction increased in 2019 to +1.59% over the 2017 value to 91%. The inaccuracy prediction dropped to 7.41 % in 2019 compared to 9% in 2017.

Figure 2

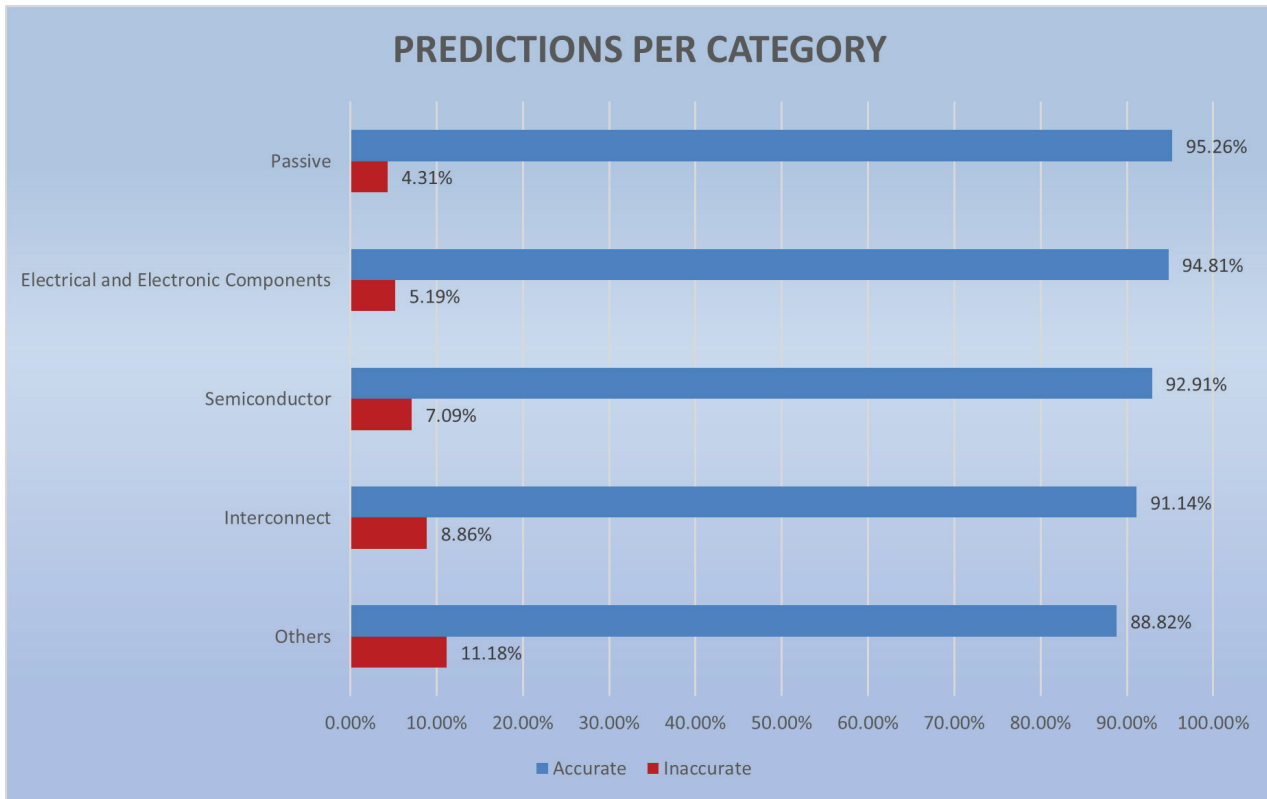


Figure 2 shows the distribution of accuracy percentages per category.

## Accurately Forecast End of Life

You don't want to design a new product only to find out that a critical component becomes obsolete a week after launch. Long product lifecycles mean high sensitivity to lifecycle changes and a real need for a proactive approach to obsolescence management. End of Life forecasting data provides companies with the insight necessary to manage risk during the initial component selection process. However, a predictive model that is inaccurate can potentially add risk. This paper provides transparency into the Y-to-EOL algorithm used by SiliconExpert enabling customers to have increased confidence in their obsolescence management forecasting.

# About SiliconExpert

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*SiliconExpert provides the relevant data and insight needed to remove risk from the supply chain.*

Founded in 2000, SiliconExpert helps you make better decisions, faster. Over 400 electrical, software and data engineers handcraft our component database to deliver the most comprehensive and current tools in the industry. Customers globally use our solutions to manage risk, avoid redesigns, and mitigate obsolescence in innovative industries such as consumer electronics, telecommunications, automotive, medical and aerospace. SiliconExpert's customers include: leading commercial and government OEMs, top-tier authorized distributors, contract manufacturers and component suppliers.



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