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SOSS VOLUME 10 INDUSTRY SNAPSHOT

Manufacturing

Veracode's State of Software Security (SOSS) Volume 10 focused on the topic of security debt, defined as the amount of unaddressed flaws that accumulate in software over time. The report revealed about half of application teams added to their security debt, a little over a quarter paid it down, and a quarter maintained a steady balance. As you might suspect, our analysis showed that debt profiles differed substantially among industries. This infosheet provides a summary of factors that shape the debt profile exhibited in the chart below for the Manufacturing sector.

Figure 1: Comparison of fix capacity and security debt by industry

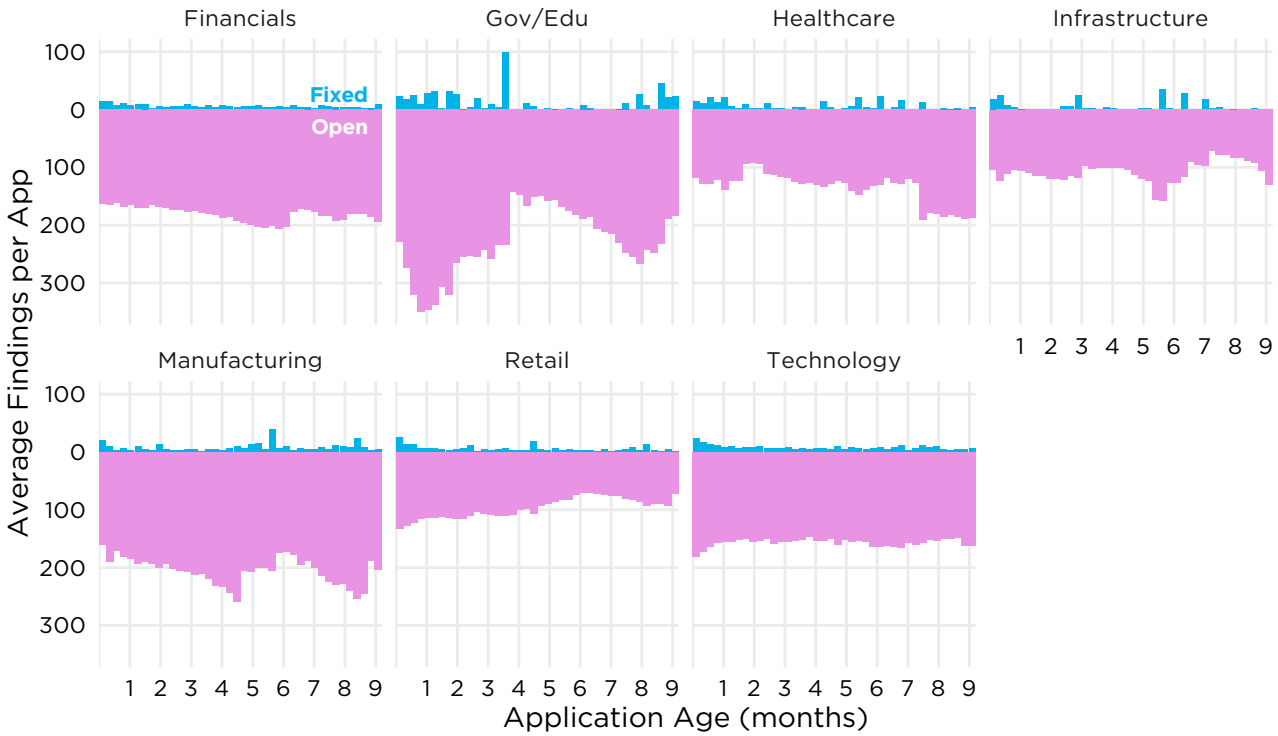
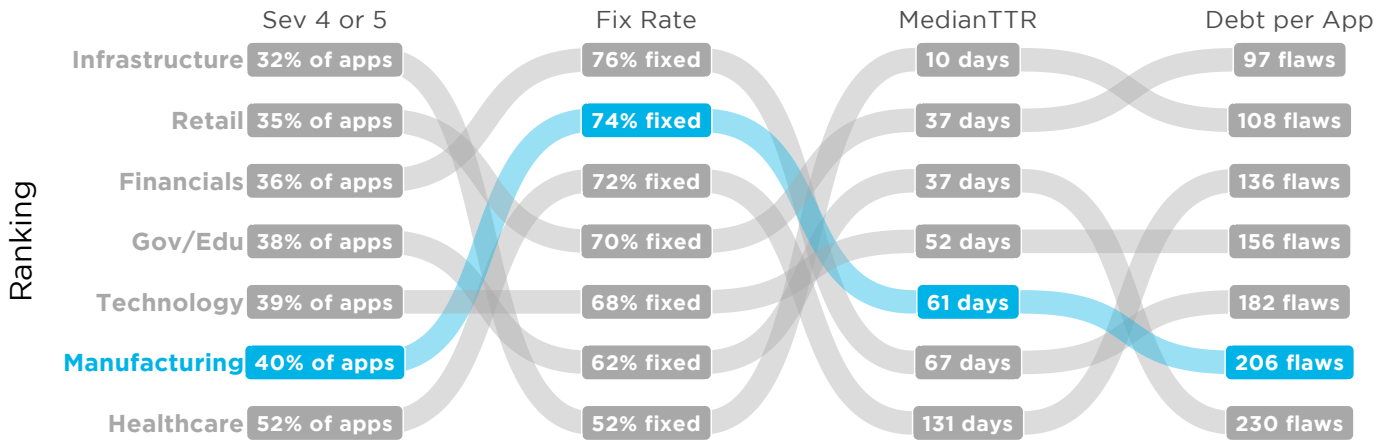


Figure 1 models the mechanics of security debt in a typical application. The dark blue bars on top correspond to weekly flaw closures. The pink area tallies the average number of unresolved flaws carried over each week. Per the figure, the Manufacturing industry carries a comparatively large amount of debt that does not appear to be shrinking over time.

Figure 2 ranks the Manufacturing sector according to several key measures from our software security testing over the last year. Proceeding from left to right, the columns shed light on debt creation, starting with the proportion of applications with higher-severity (level 4 or 5) flaws, the percentage of those flaws that are fixed, the median speed at which those flaws are fixed, and the average amount of unfixed flaws (debt) per application.

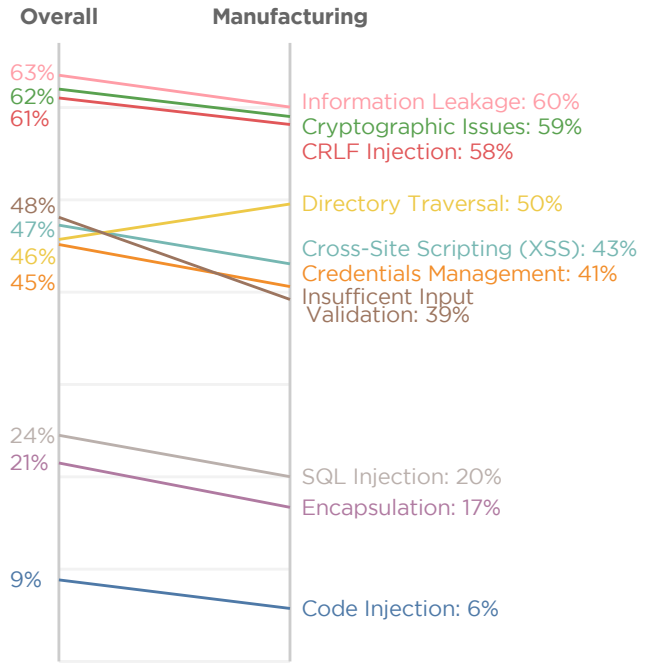
Figure 2: Values and rankings for key software security testing metrics by industry



Source: Veracode SOSS Volume 10

Manufacturing firms rank near the bottom in three of the four columns in Figure 2, which sheds some light on that high balance of security debt witnessed in Figure 1 (and echoed in the last column here). The bright spot for this sector is relatively high fix rate, where we see that nearly three of four severe flaws are eventually addressed.

Figure 3: Prevalence of flaw categories in the Manufacturing sector



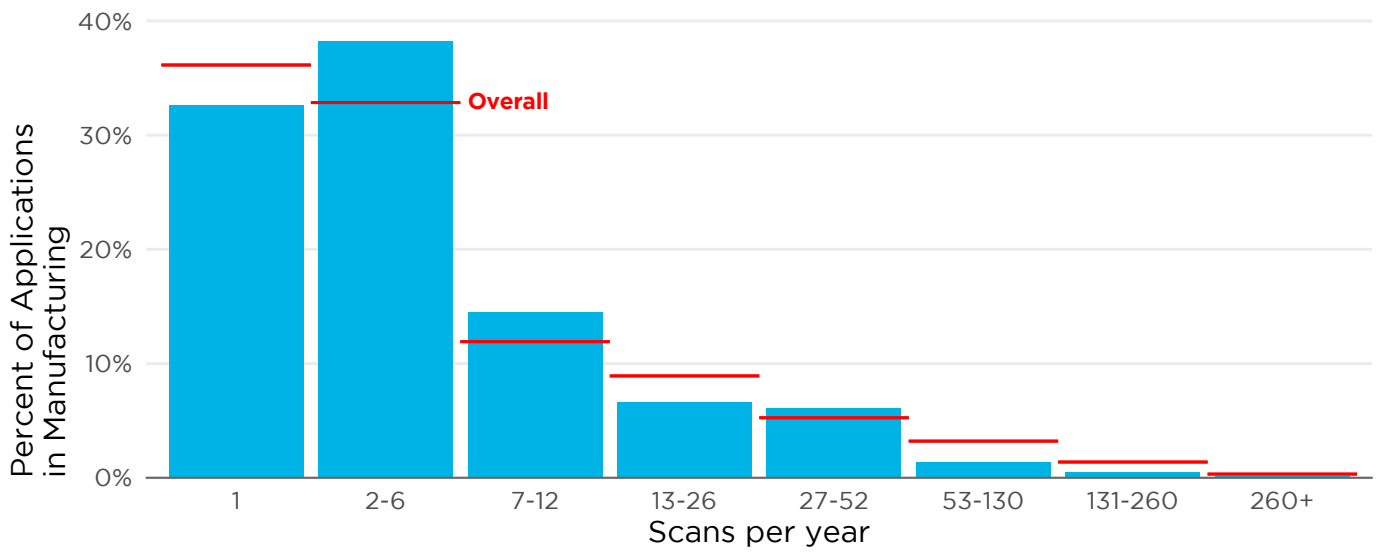
Source: Veracode SOSS Volume 10

A more detailed view of flaws discovered in applications can be found in Figure 3. The left column marks the overall prevalence of each category across all sectors, and the right traces the comparable statistic for Manufacturing.

Overall, nine of the top 10 flaw categories show a lower prevalence for Manufacturing, which is perhaps counterintuitive given Figure 2. Directory traversal is the notable exception to that rule, giving firms something specific to address with development teams. Along with that opportunity to improve, however, give them a pat on the back for staying on top of insufficient input validation flaws.

The preceding figures give us an informative snapshot of how Manufacturing performs in key software security measures, but they don't tell us much about what's driving those outcomes. Over the last two years, our research in the SOSS has uncovered strong evidence that practices in keeping with a DevSecOps approach yield substantial benefits to development teams that employ them. In Vol. 9, we discovered that the most active DevSecOps programs fix flaws more than 11.5x faster than the typical organization. The most recent SOSS found that teams scanning applications most frequently carry about 5X less security debt than infrequent scanners. So, how does Manufacturing compare? Figure 4 has the answer.

Figure 4: Frequency of application security scanning in the Manufacturing sector



Source: Veracode SOSS Volume 10

All industries show a skewed distribution for scanning frequency, with about 80 percent of applications scanned 12 times per year or less. That ratio applies to the Manufacturing sector as well, but does vary somewhat among the frequency bins. Comparatively fewer applications are scanned just once (that's good), but that excess seems to just shift over to the "few times a year" bin rather than way out to the right, where we'd like to see it to chop fix timelines.

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