

## SPECIAL REPORT

# 8 Months: The Real Cost of Replacing Software Developers

Every company feels the effects of employee turnover amongst their workforce, however this has been particularly prevalent in 2022 with the ongoing effects of The Great Resignation. BlueOptima's recent special report, titled ['The Great Resignation': Exploring the Global Impact and Changing Behaviours](#), showed that the annual attrition rate of developers effectively doubled in the peak of the Great Resignation to 24%.

Across the UK, tech and IT-related job vacancies make up [12%](#) of all open UK job vacancies. In the US, a similar proportion is observed, as there were in excess of [13,000](#) new IT jobs posted on average each month in 2021. While it is positive to see the tech sector thriving across the globe after a difficult couple of years, the focus must now shift to

filling these positions with the best possible quality candidates. A feat that could prove difficult during a time when companies are facing the [highest skills shortage on record](#).

## How severe is the capacity loss?

Specifically, within the IT domain, skilled software engineers are [particularly difficult to employ](#) at present because of the incredibly competitive hiring market. BlueOptima's Global Benchmark consists of over 400,000 software developers across more than 30 countries. In this data set, the best-case scenario demonstrates that it takes a company on average eight months to fully replace a churned developer. That eight months starts from the time

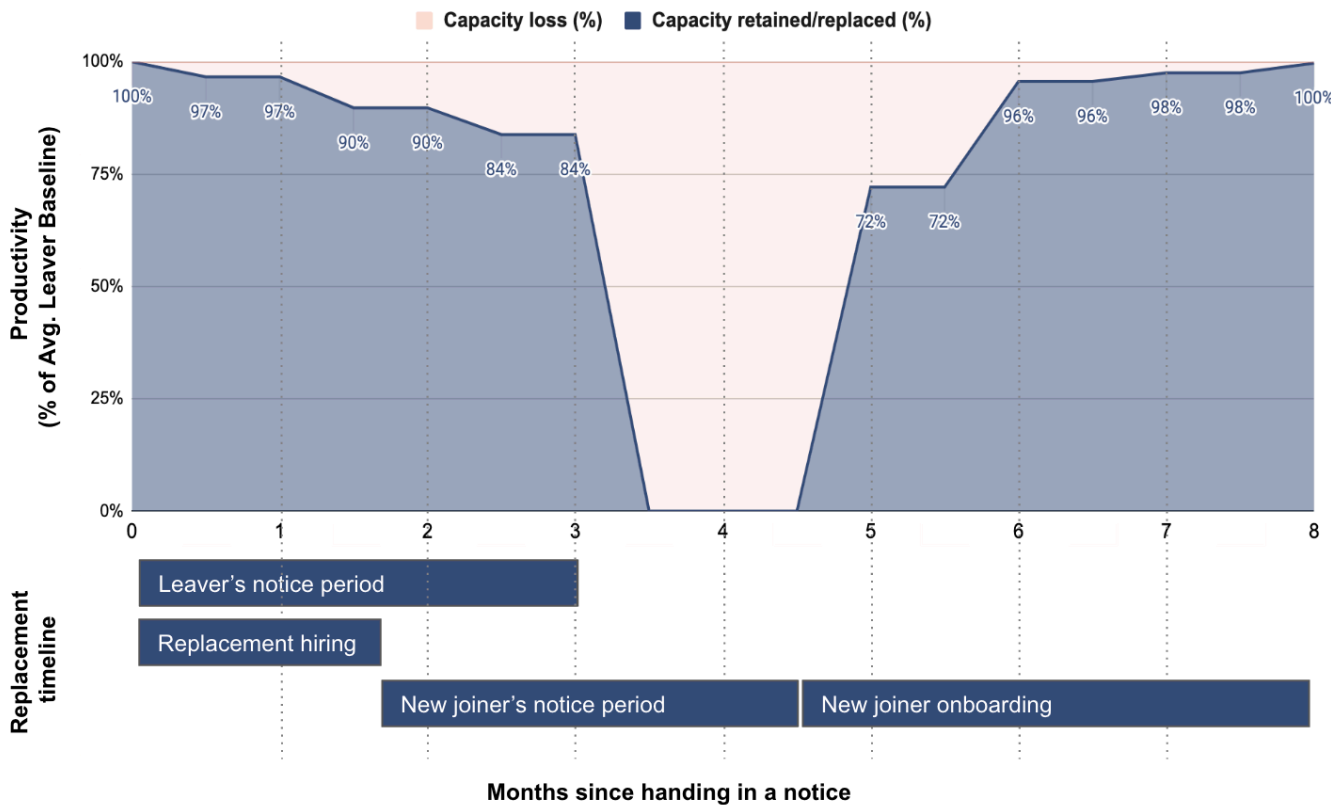


Figure 1 (above): Capacity loss across the timeline of replacing a churned developer. It takes on average eight months to fully replace a developer from the date they handed in their resignation and started their notice period. The first loss of capacity occurs in the first three months when the productivity of the departing employee begins to decline up to the point of their last commit. The average time to hire a software engineer is [49 days](#). Assuming that the new joiner has the same notice period as the person leaving, there is at least a 1.5 month gap between the leavers departure and the starting date of the new joiner. Afterwards, it takes a new employee on average four months to reach a consistent level of productivity.

the developers hands in their resignation, through to when their replacement is onboarded and meets enterprise standards for productivity as well as the quality of source code being delivered. Within this period of eight months, The BlueOptima Global Benchmark data shows that companies lose approximately 83 Billable Coding Effort (BCE) hours of capacity, thus irreversibly losing an equivalent of 2.7 months of an average developer's total output.

**Coding Effort sets an objective, global standard for measuring software developer productivity across an entire software estate. A metric which is derived from measuring a software developer's work outputs, specifically changes in static source code metrics, and the context within which that output was delivered then benchmarking that against all other developers.**

On average, this capacity loss costs companies between \$4,400 (USD) in India and \$13,400 (USD) in North America for every developer position churned as calculated using the BlueOptima Global Benchmark data. However, this is just the beginning of the expense incurred by a company. The total cost of losing and replacing a developer rises when other contributing costs are taken into account. For example, the costs associated with the team and hiring managers' involvement as well as the knowledge loss of an experienced employee. The longer it takes companies to hire a replacement, the greater the losses they incur.





## Are new joiners effectively replacing the leavers?

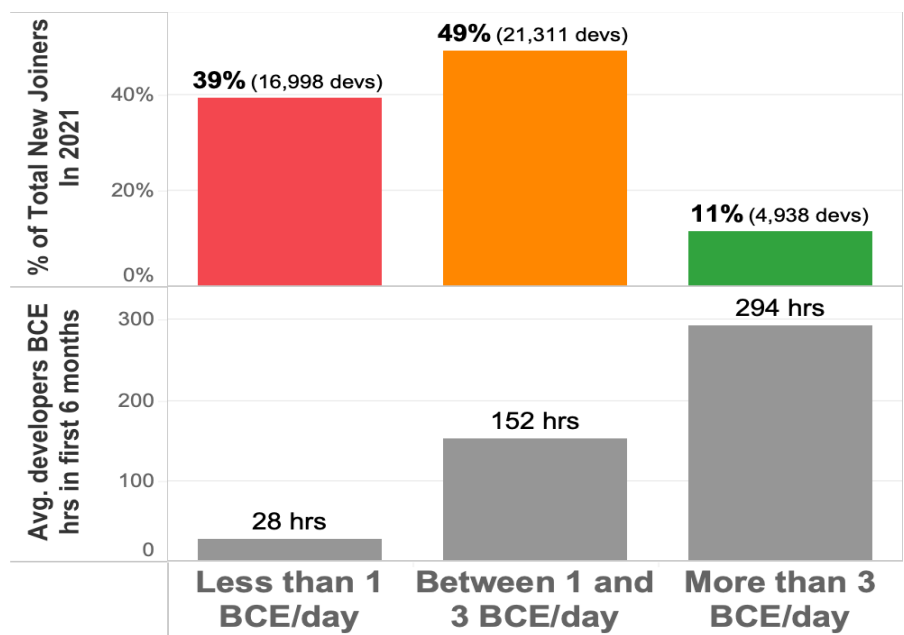
One of BlueOptima’s most recent global benchmark reports shows that an average developer in 2021 had a Coding Effort of 1.84 BCE per day. BCE, also known as Billable Coding Effort, provides an objective productivity measure for a developer’s coding outputs.

Whereas the maintainability of new joiners vs a departing developer is comparable to the leavers’ baseline and does not show any significant trend through the onboarding period of a developer. It is worth noting that **BlueOptima defines and measures code maintainability through the Analysis of Relative Thresholds (ART) by scanning code repositories and analysing 27 static metrics across more than 70 software development languages (eg Java, Cobol, C# etc.). Rather than applying an “industry standard”, ART uses benchmarks bespoke to every organisation.**

However, from 2020 to 2021, the productivity of new joiners decreased by 8% relative to the experienced developers that they replaced. Further widening the gap between the exiting developers and their replacement. One factor that could have driven this widening gap, might have been the fact that most new developers were remotely onboarded during that time (2020 to 2021). Another potential contributing factor to the decreasing performance of new joiners could be poor hiring processes. Processes which are



Figure 2 (right): New hires across a spectrum of performance. The proportion of new hires in 2021 who were low, mid and high-performers based on their average BCE/Day (top row). The second row of grey data displays a comparison of the average total productivity (Billable Coding Effort hours) delivered across the course of the hire’s first six months by each level of performer (bottom row).



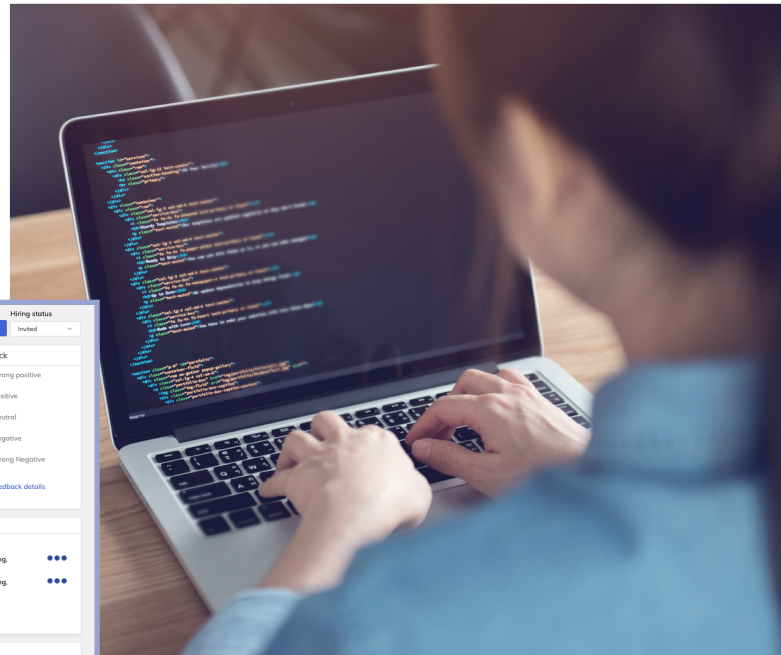
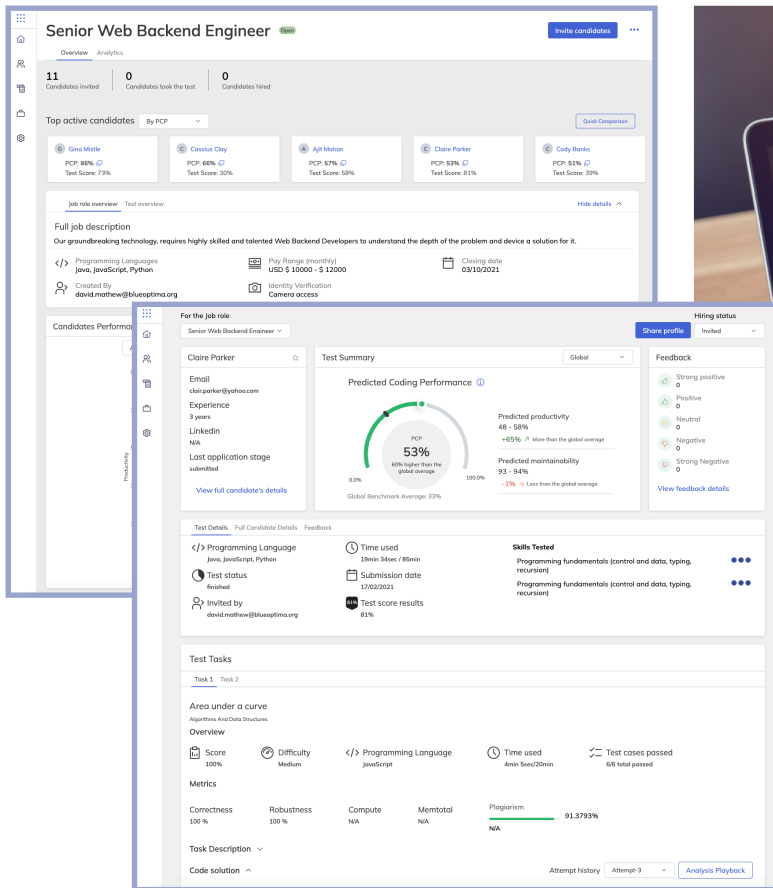


Figure 3 (left): Predictive Assessment user interface

failing to correctly match developers with both the company's culture and the position/project's technology, inhibiting the developer's ability to thrive as a long-term employee. Combined with the record high attrition rate of 24% (which was seen at the peak of the Great Resignation), companies will continue to face ever-increasing capacity losses unless they become radically better at replacing talent.

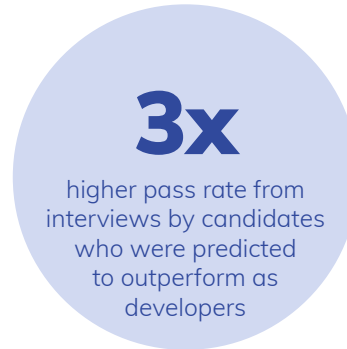
## Can companies effectively replace leavers?

Traditionally, companies hire developers across the spectrum of performance levels, whether they provide low, medium or high outputs. The BlueOptima Global Benchmark data shows that high-performing developers (whose daily productivity is over 3 BCE/Day), on average contribute 1.9 times more Billable Coding Effort (BCE) hours than the median developer over the span of their first six months of employment. Because of this difference, the BlueOptima Global Benchmark data demonstrated that every top-performing hire is set to save their company \$15,000 to \$46,200 over the course of a year.

## How to hire and onboard top-performing developers?

The BlueOptima Global Benchmark data shows that the decreasing performance of new joiners is a result of rushed and ineffective hiring processes as well as onboarding practices. The process to improve a newly joined developer's [time to productivity](#) as well as their long term performance, starts with assessing and identifying the right candidates to join your teams. Companies that deploy hiring processes with the intention of predicting if a candidate will perform well as an employee, are more likely to hire right the first time. Without a reliable indication of a candidate's future performance, a company's hiring process can pass through the [wrong candidates](#) and filter out potential outstanding performers.

Are you looking to optimise your hiring and onboarding processes for developers? Reduce your time to hire and ensure that the right candidates are accurately identified for a quick follow up action with [BlueOptima's Predictive Assessment tool](#). Predictive Assessment helps objectively assess the best performers for your business, [decreasing a company's costs](#) and set your business up for the future. Measure the success of your hiring approach



and improve the productivity of your developers during their onboarding by speaking to us today about our Developer Analytics tool. Developer Analytics provides object transparency across your software estate so that you can optimise processes and newly onboarded developers with accuracy.

Sign up for a [14-day free trial](#) or why not [speak to us](#) about what we can do for your business.

## Who are BlueOptima?

We provide a SaaS technology that objectively measures software development efficiency. Our core metrics for productivity and code maintainability allow executives to make data driven decisions related to talent optimization, vendor management, location strategy and more.

## Contact Us

To discover powerful insights and determine areas of improvement specific to your organisation, reach out to our team and explore our custom analytics solutions at:

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PREDICTIVE ASSESSMENT

## Go beyond standard coding assessments

Make faster and more reliable decisions about high performing developer talent with the world's first AI-powered coding predictive assessment tool that projects a candidate's future workplace performance.