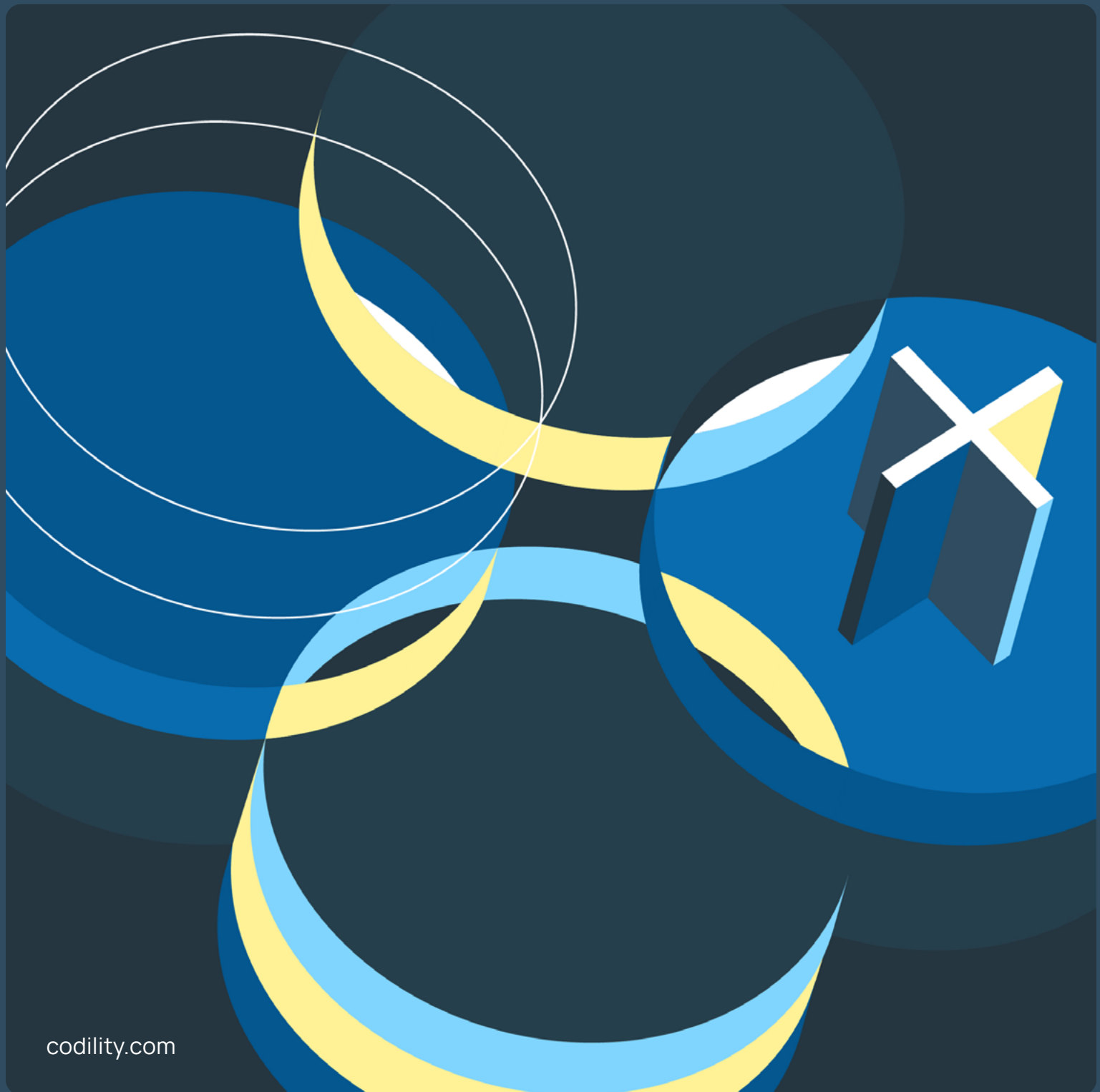


# The Skills Intelligence Revolution

How to solve the assessment problem that's costing you millions



# The Skills Intelligence Revolution:

## How Advanced Assessment Science Transforms Engineering Talent

### The Assessment Problem That's Costing You Millions

Two engineers take the same coding assessment. Both score 75%. Your current system treats them identically.

But here's what really happened: Engineer A aced all the basic data structure challenges and failed the advanced algorithm ones. Engineer B barely passed the basic data structures but solved complex API integration and system design challenges. Same score. Completely different skill profiles. Completely different development needs.

This is the current limitation in technical assessment: all test cases within coding tasks are treated equally, even though each individual test case evaluates different engineering skills at different proficiency levels. Passing a beginner-level data structure test case tells you something completely different than solving an expert-level error handling test case, even within the same coding task.

### The Codility Breakthrough: Skills Intelligence Scoring

Codility has solved this fundamental problem with Skills Intelligence Scoring: a revolutionary assessment method that understands what different coding achievements actually reveal about engineer capability.

**The core insight:** Not all test cases are created equal. Passing multiple expert-level test cases provides overwhelming evidence of high skill. Failing a basic test case reveals critical gaps. And each test case is providing unique information about one or more specific engineering skills. Each outcome tells a different story about a person's skills profile.

## Limitations of Traditional Scoring

Current approach: Count correct answers

- 7 out of 10 test cases passed = 70% score
- Treats basic and advanced challenges identically
- Provides no insight into specific skill capabilities

Skills Intelligence Scoring approach: Understand what each result means for specific skills

- Passed expert algorithms + failed beginner UI implementation = precise skill profile
- Weighted scoring based on both test case difficulty and skill type
- Multiple data points and advanced scoring system provide highly accurate scores for each specific engineering skill

## What This Looks Like in Practice

Traditional Assessment Results:

- Engineer A: 75% overall score
- Engineer B: 75% overall score
- Recommendation: Both need general Python improvement

Skills Intelligence Scoring Results:

- Engineer A: 95% score on data structures, 20% score on leveraging APIs
- Engineer B: 60% score on data structures, 90% score on leveraging APIs
- Recommendation: Engineer A needs development in leveraging APIs, Engineer B needs development in data structure fundamentals

# The Science That Changes Everything

Skills Intelligence Scoring applies proven psychometric testing techniques to technical assessment for the first time. The method recognizes that different test case outcomes provide vastly different amounts of information about true skill.

## A Weighted Intelligence System

- High-difficulty test cases: Passing provides strong evidence of capability (high weight). Failing tells us little as many people fail harder test cases (low weight).
- Low-difficulty test cases: Failing reveals significant skill gaps (high weight). Passing is expected, as most people pass easy test cases (low weight).

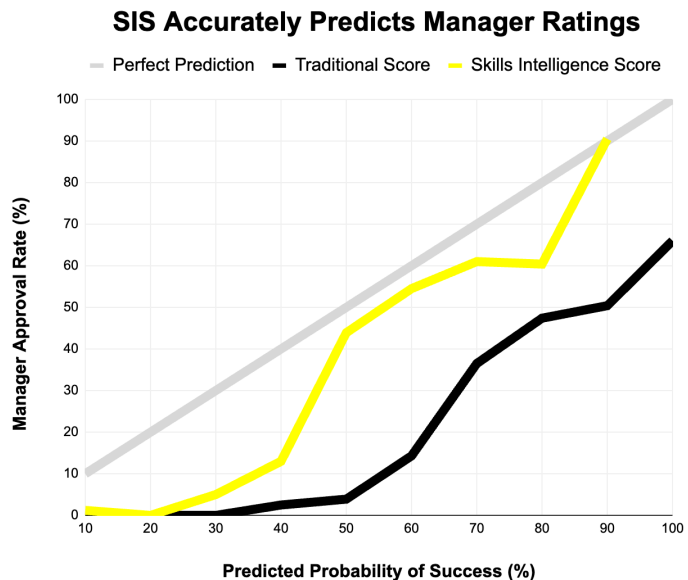
This creates highly informative probability-based skill profiles instead of simple test score percentages.

## Real-World Validation

Testing across 1,700+ real-world engineering skills evaluations demonstrates Skills Intelligence Scoring's transformational accuracy: **90%+ accuracy with manager ratings of code quality.**

This graph demonstrates how the Skills Intelligence Scoring method (yellow line) shows close to perfect prediction of manager ratings of code quality.

Managers evaluated code from over 1,700 completed engineering tasks for alignment with company skills standards. In our study we compared the traditional scoring approach (i.e., percentage of test cases passed; black line) with the Skills Intelligence Scoring approach, to see which had better prediction of manager ratings.



In the graph, the grey line represents *perfect prediction*. For example, if a group of engineers has a predicted 50% probability of success on the grey line (x-axis), exactly 50% of them would actually meet the skills standards and receive a positive manager rating (y-axis). This makes the grey line the baseline for evaluating accuracy, the closer a scoring method's curve is to the grey line, the better it predicts manager skill approval ratings.

The results show that the Skills Intelligence Scoring method is consistently closer to this perfect prediction line than the traditional scoring method. The advantage is most pronounced in the middle-to-high score range, where accurate identification of top engineering talent matters most. For instance, engineers who scored 90% on the Skills Intelligence Scoring method (x-axis) were also 90% likely to pass the manager skills review (y-axis).

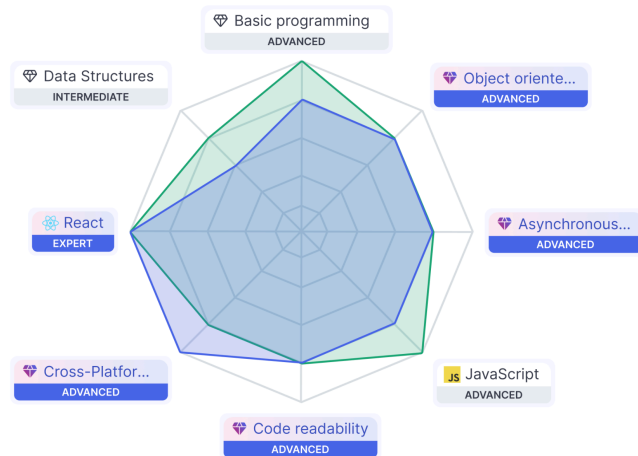
This study provides robust validation evidence for the accuracy and real-world value of Codility's Skills Intelligence Scoring system.

## What Skills Intelligence Scoring Delivers

### For Engineering Development

- **Precision gap analysis:** Know exactly which skills need development for each engineer
- **Targeted learning paths:** Focus development efforts where they'll have maximum impact
- **Progress measurement:** Track granular improvements in engineering skills with precision
- **ROI optimization:** Confidently invest training resources based on highly accurate skills intelligence

The image to the right shows an example of a skills gap analysis using Skills Intelligence Scoring. A person's skill profile (blue shape) is shown against the requirements for a role (green shape). Where the person's proficiency level for a skill meets or exceeds the required level, the skills are highlighted. Where the person's skill proficiency level does not match the role requirements, the skills are grey. This provides a quick identification of crucial skill gaps, enabling precise identification of development needs and role readiness.



## For Team Optimization

- **Smart project assignments:** Match engineers to tasks based on proven capabilities
- **Balanced team building:** Compose teams with complementary skill strengths
- **Capability planning:** Understand your organization's true technical capabilities
- **Strategic hiring:** Identify exactly which skills to recruit for

## For Skills-Based Organizations

- **Evidence-based promotion:** Advance engineers based on demonstrated skill growth
- **Competency mapping:** Visualize organizational capabilities across all technical domains
- **Development ROI tracking:** Measure actual skill improvement, not course completion
- **Competitive intelligence:** Benchmark your team's capabilities against industry standards

## The Immediate Impact

Organizations implementing SIS will see dramatic improvements:

- **Better Development Targeting:** Instead of generic "improve Python" recommendations, engineers receive specific guidance like "achieve intermediate proficiency in dubbing and error handling" or "reach advanced proficiency in asynchronous operations"
- **Smarter Resource Allocation:** Training budgets focus on the actual, precise skill gaps rather than perceived gaps or overly broad skill categories.
- **Enhanced Project Success:** Teams get matched to projects based on demonstrated capabilities, not resume keywords or self-assessments.
- **Accelerated Growth:** Engineers develop faster when they work on challenges precisely calibrated to their current skill level.

## Why This Matters Now

The future belongs to organizations that can precisely measure and develop engineering skills. Codility's Skills Intelligence Scoring system provides the industry's most accurate and trustworthy signal of real engineering skills, unlocking the door to exceptional skills-based talent management.

This distinction transforms how you develop engineers, compose teams, and build organizational capability. The companies implementing Skills Intelligence Scoring today establish the competitive advantages that will define tomorrow's engineering excellence.

## Ready to See What Your Engineers Can Actually Do?

Skills Intelligence Scoring is an evolution in technical assessment. **Highest precision. Actionable insights. Lasting competitive advantage.**

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👉 **Discover Skills Intelligence Scoring:** [codility.com/skills-intelligence](https://codility.com/skills-intelligence)

👉 **Or schedule a demo** to see how Skills Intelligence Scoring provides the skills insights you've been missing: [codility.com/request-a-demo](https://codility.com/request-a-demo)

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