Vendor Profile

Topcoder — Leveraging a Crowdsourcing Model to Mitigate the Engineering Talent Challenge

Mukesh Dialani Megan Buttita, MLIS

IDC OPINION

As enterprises focus on realigning their product or services portfolios in view of threats from existing or new competitors and considering changing customer needs and other business priorities, they have to take a serious look at their IT and engineering talent that will be tasked to work on various initiatives including digital. With the added aspiration to contain costs and understand dramatically changing dynamics (especially in the current COVID-19 context), they need to examine their current IT and engineering talent acquisition and retention strategy to include new talent sources that will enable them to accelerate their transformation efforts. Further:

- As end customers, our daily aspiration and experience of consuming products and services leveraging a gig model (ride sharing, home services, and hotels) will continue to influence and impact the way we (within the enterprises we operate in) consume IT and engineering services and build and deploy new business/operating models.
- If not already doing so, enterprises should explore how they should modify certain internal business functions and leverage the gig economy that will enable them to access scalable world-class talent model at a short notice.

IN THIS VENDOR PROFILE

This IDC Vendor Profile explores Topcoder's (a Wipro company) genesis, evolution, and current strategy and vision. It also examines how Topcoder has revised the rules of a traditional engineering talent sourcing model and the benefits and challenges to customers and engineers that are part of this ecosystem.

SITUATION OVERVIEW

Customers have reached an elevated level of mature relationships with IT and engineering services partners that act as their extended workforce to support their day-to-day operations and innovation initiatives. A significant part of the services partners teams includes software engineers who focus on varying areas such as application outsourcing, software product development, UI/UX, custom application development, hardware design, and Industry 4.0.

A little over two decades ago, the initial drivers for engaging with these services providers included cost and time zone advantages (or follow the sun model), which ensured that development and integration activities continued when the client's workday ended. Subsequently, as this business model matured, enterprises moved on (from this lift and shift model) to stronger collaborative partnerships as

they saw additional benefits that included the ability to scale, domain knowledge, and technology partnership benefits that these service providers (SPs) offered.

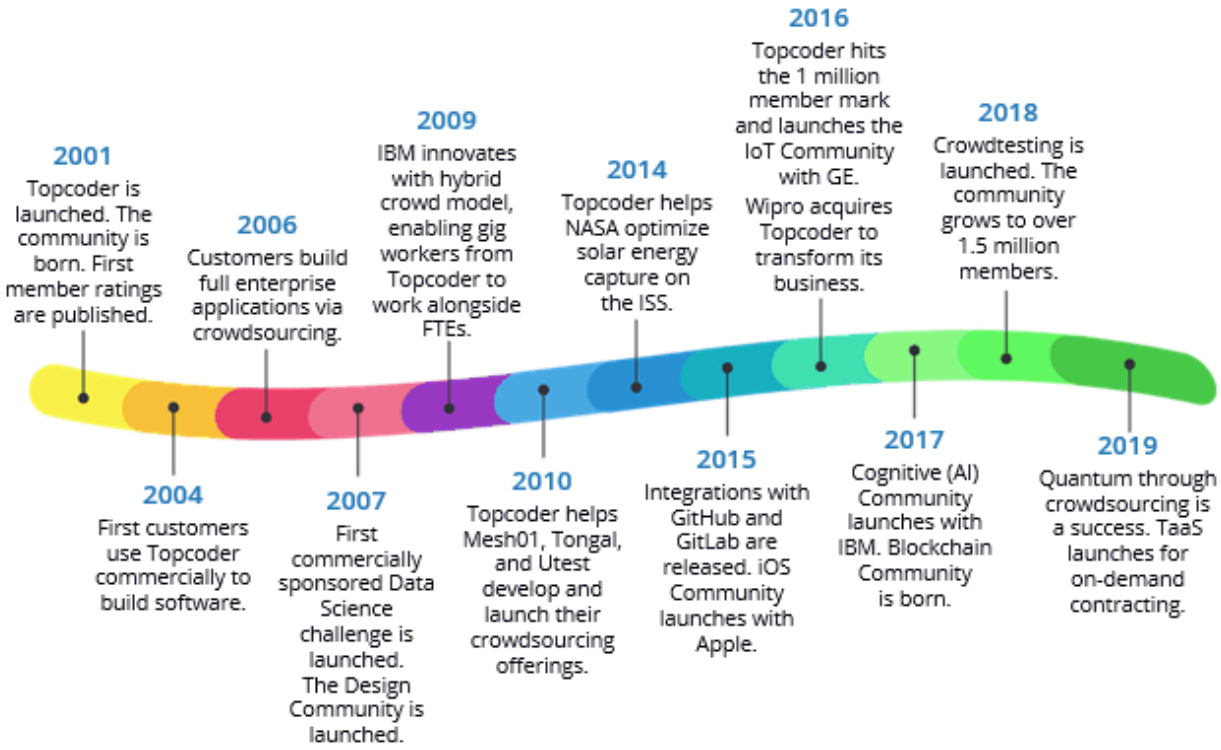
In addition, as enterprises continue to invest in digital technologies to improve their operations and transition to an always-aware efficient enterprise that is at the forefront of ensuring very superior CX, they realize that either their internal engineering talent needs to be reskilled or they need to hire talent that can harness the power of their digital technology investments. As they embark on training and hiring activities for this niche talent, they realize that the reskilling or hiring activities often take longer than anticipated and have a higher price tag attached for specific digital skill sets such as robotics, edge, and AR/VR.

Company Overview

Topcoder (see Figure 1) was founded in 2001 with a goal of identifying highly talented developers globally through a competitive talent evaluation process. The company's strategy was built upon leveraging a crowdsourced model to promote software coding by organizing competitions where programmers designed algorithms for specific projects and winners were awarded prize money. This competitive activity continues to date and draws top-notch topcoders who compete for any customer project. The sole criteria for selecting topcoders is based on their skills and not background. When topcoders register, they highlight their skills, platform, and other technical details and participate in a challenge, and their skills are verified during this process. The aim was to create a transparent rating system for developers like the ranking used for chess players globally. In addition, the founders wondered if enterprises would be willing to leverage such a model that provided on-demand and scalable engineering talent skills for their software development and maintenance needs.

FIGURE 1

Topcoder: History and Evolution



Source: IDC, 2020

Topcoder has since then evolved into a platform that gives enterprises on-demand access to a global community of technology talent. Today, the breadth and depth of skills available through Topcoder's platform let businesses of all sizes tap into an on-demand large pool of talent that is ready to be deployed at a short notice.

Topcoder is currently home to about 1.5 million designers, developers, data scientists, and quality assurance (QA) engineers. On an average, the team grows by more than 10,000 engineers every month. This talent is distributed across North America (36%), EMEA (30%), and Asia/Pacific (34%).

Company Strategy

Topcoder's vision is to be an "operating system for talent" and the company's vision is "to simplify the way its customers access and execute its IT and engineering functions with digital talent."

This philosophy is based on the following beliefs:

- Individuals are incredibly powerful.
- Open communities shape our world and create the future.
- With access to resources, one can achieve their goals and expand their vision.
- Nearly everything can be simplified and improved.

- It provides an opportunity for all.

Topcoder: Talent as a Service

Talent as a service (TaaS) from Topcoder provides customers with prequalified talent on demand. This offering includes access to highly qualified, accomplished, and experienced freelancers that offer AI to Angular, Java to ReactJS, computer vision to data visualization, and other skills. Key benefits include:

- **On-demand skills.** It enables access to global talent with a wide range of skills.
- **Prevetted talent.** Every engineer on the project team is prescreened and qualified.
- **Platform.** It provides seamless interaction – submission of project RFI and Topcoder teamwork submissions.
- **Easy to use and secure.** Platform includes tools to ensure client IP and data are secure.
- **Speed and scale.** It provides functionality to scale teams up or down based on need.

Whereas traditional project work on Topcoder is accomplished via open challenges that draw multiple high-quality submissions for each phase of work, TaaS focuses on bringing the right-skilled individuals to program-level work. As an example, if an enterprise customer defines six months' worth of work where a specific technology or design skill is required, Topcoder will provide that customer with a TaaS "pool" of qualified talent for the needed skill sets. Often this might be 3, or 5, or 10+ quality developers provided to a customer for – in the example – a six-month period of engagement. For ongoing, program-level work, TaaS is a more flexible, a more efficient way for Topcoder's customers to achieve consistently good outcomes. Importantly, as program needs evolve, individuals can be swapped out of the "pool" for new right-skilled talent. As work progresses, if the need to add QA engineers to a TaaS "pool" emerges, the customer can easily wind down work with API and integration specialists and ramp up work with QA-focused talent.

Why Topcoder?

When engineers join Topcoder, they become a part of an extended family of developers. Although, it is a competitive arena, it is easy to get started. Engineers meet other engineers and learn new skills from top technical talent across the globe. This organic method of learning, development, and career pathing perpetuates greater knowledge among engineers and is a fertile ground for companies to find the latest skills and talent throughout the world.

Topcoder provides customers with the following key benefits:

- **Hard to find skills.** Topcoder provides access to a large talent pool with in-demand skills who work 24 x 7, including holidays.
- **Delivery speed.** It runs multiple simultaneous work streams on Topcoder to deliver a customer's technical pipeline up to 3x faster.
- **Quality.** Competition gives you multiple deliverables to choose from, and you pay only for results – not hours.
- **Productivity gains.** Topcoder's model requires one-third the number of traditional full-time employees (FTEs) to deliver the same volume of output.
- **Lower attrition costs.** Losing full-time employees costs companies billions of dollars (USD) globally, resulting in not only the loss of productivity, but also top talent. According to the Society of Human Resource Management (SHRM), it can cost 50–60% of an individual's salary to backfill a role, with total turnover costs reaching up to 200% in overall losses to the company.

- **Diverse talent.** Companies have discovered that diverse teams are more innovative and achieve overall better financial performance than companies that lack diversity and inclusion (D&I) strategies. Topcoder looks at the competencies and tangible outcomes of talent without the noise of education, location, or prior experience, giving companies a highly diverse and productive talent pool to source talent from.

The Human Resources Dimension

Topcoder likes to call this a "passion economy," which according to the company is powered by self-selection and self-determination. If talents can carve their own path and truly own their growth by participating in communities of passion, such as Topcoder, then the talents will be happy, engaged and, most importantly, passionate about what they get to do day in, day out. A social and great manifestation of this at Topcoder is the creation of the Facebook group Topcoder Nation. This is a social group that is entirely created, supported, and sustained by passionate members of the community. They share their passion for life, travel, education, and beyond, and Topcoder's leadership had nothing to do with this group being formed.

Tech stack, product, and salary are top priorities for software engineers. With Topcoder, transparency is front and center for engineers and for the companies looking to engage their services. There is no showing up to work on the first day and working on something completely different than what the recruiter relayed during the interview process. Both parties also know exactly how much time will be spent on a project and how much the transaction will cost — a win-win situation for all involved.

How Is This Platform Different from Any Traditional Outsourcing Relationships with Another Service Provider?

With the shortage of software engineers growing exponentially and a new world of new technology work emerging, talent strategy demands a new mindset. Unlike managed service providers such as Randstad or traditional job boards such as Dice.com, Topcoder's model is flexible and provides several value-adds that a conventional platform cannot. With Topcoder's competitions, engineers are ranked by color code as to how well they have performed on projects as well as other data points that allow the organization a view into open talent capabilities. This is a stark contrast compared with a stagnant resume database, a job board with role descriptions that do not realistically portray the job, or third-party managed SPs that are not as agile or cost effective. Some of Topcoder's competitors such as Upwork and HackerRank provide more traditional talent services such as screening and assessment without the project-level competitive angle that makes Topcoder different.

Topcoder is not just about cost — it is primarily about talent. Finding scalable talent at the right time and bridging the skills and location gaps are two of the biggest challenges facing organizations today. With Topcoder, location does not confine companies from getting the best talent for their needs. Topcoder talent can be configured in many ways to jump-start a project or see it out to production and get the results that take traditional engineering teams more time and mindshare to complete. Some of the 1.5 million engineers that are a part of the community are living on the platform 24 x 7 as their full-time job, while others might tap into Topcoder as a second source of income. The reconfigurable workforce, which places FTEs alongside part-time employees, as well as remote and other project-based workers, is the solution to many top hurdles facing organizations today and for the foreseeable future.

Topcoder Customers and Collaboration Process

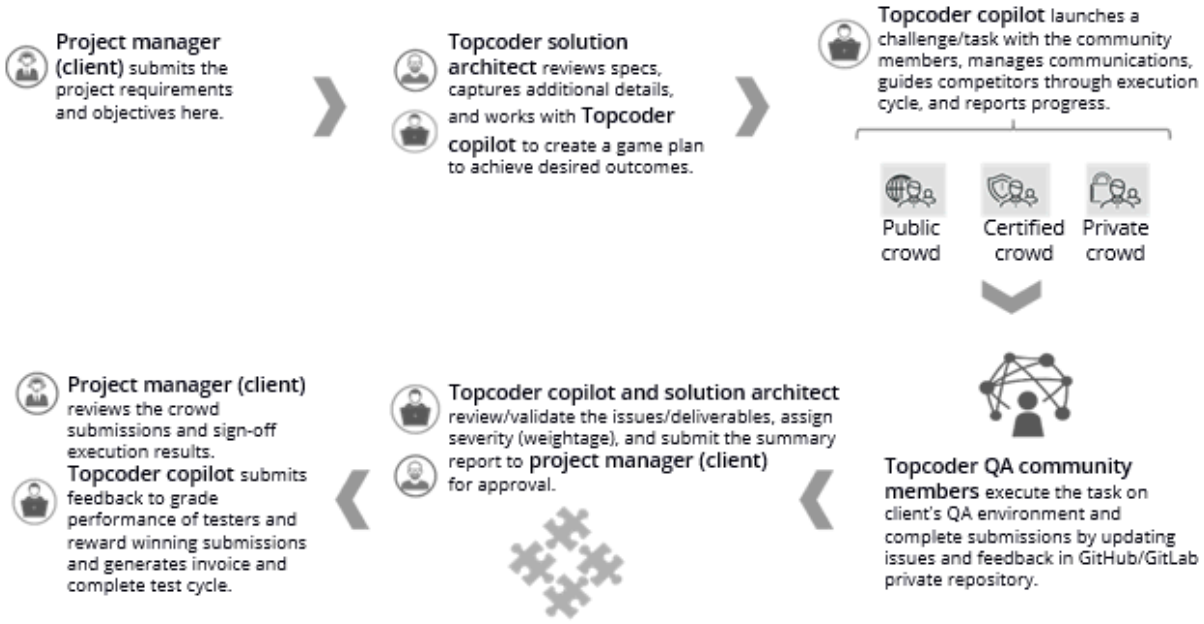
Customers leverage Topcoder's digital platform to execute their projects with speed and agility. Examples include building custom applications, APIs, quality assurance/testing, and analytics/data

science projects. Topcoder and Wipro share many large enterprise clients across many industries. These customers benefit from the breadth and depth of Wipro's delivery expertise combined with Topcoder's scalable talent model.

Wipro's delivery teams use the Topcoder platform to initiate crowdsourcing projects, collaborate with copilots from the Topcoder community, and receive final deliverables, which are integrated through normal customer delivery channels. Figure 2 provides a view of the execution workflow.

FIGURE 2

Topcoder Execution Workflow



Source: IDC, 2020

Besides Topcoders, the following entities play an important role in ensuring collaboration and project delivery:

- **Client project leads.** The project lead has the final say on project requirement and acceptance of deliverables.
- **Program manager.** The program manager owns the client relationship and coordinates delivery.
- **Systems integration (SI) leads.** The SI lead manages non-Topcoder deliverables that require colocation or physical access to systems.
- **Delivery leads.** They act as an interface between Wipro/Topcoder and client teams and ensure fulfillment of project objectives.

Table 1 provides a look into a few Topcoder case studies.

TABLE 1

Topcoder: Case Studies

Customer	Business/Technology Problem	Solution	Value
T-Mobile	T-Mobile's product and technology organization faced the normal talent constraints of large enterprises. It struggled to staff the right people at the right time and, as a result, was losing opportunities to accelerate core initiatives, innovate at scale, and enable its key employees.	▪ 317 challenges completed in first 12 months (more than 75% of these challenges involved skills not available in-house) ▪ 1,179 unique crowd members engaged ▪ T-Mobile now ramped dozens of teams to achieve DevOps improvements and build mobile; web applications members engaged	It is a more through and highly efficient and scalable engagement model.
ConsenSys	ConsenSys and Topcoder partnered to grow and nurture a global developer community focused on blockchain skills — particularly focused on Ethereum, a decentralized platform that allows for the deployment of smart contracts.	▪ Increased developer awareness of Ethereum ▪ Thousands of developers with blockchain expertise ▪ Global network of blockchain developers available 24 x 7	Within a year of partnering with ConsenSys, the Topcoder Blockchain Community grew to over 14,000 members — all focused on building the next great decentralized application (DApp) on the Ethereum platform.

Harvard Catalyst	Radiation therapy is a critical lung tumor treatment, but the workforce cannot meet the growing global demand. Can crowd innovation rapidly produce AI solutions that replicate the accuracy of an expert radiation oncologist in segmenting lung tumors for radiation therapy targeting?	▪ A combined crowd innovation and AI approach that rapidly produced automated algorithms that replicated the skills of a highly trained physician for a critical task in radiation therapy
		▪ Gamified the problem: 564 contestants from 62 countries (32 unique)
		  ▪ Challenge 1 – Locate the tumor and trace it
		  ▪ Challenge 2 – Improve therapeutic trace
		  ▪ Challenge 3 – Series champs invited to collaboratively build an ensemble model of top 5 scoring algorithms
			The Phase 3 collaborative crowd ensemble model yielded 9-12% boost in accuracy.

Source: IDC, 2020

Ensuring Secure Operations and Protecting Customers Intellectual Property

The Topcoder crowdsourced engineering community has been delivering enterprise applications for a long time, and its clients span all verticals – including highly regulated industries such as financial services, government, and healthcare. Topcoder has developed processes and methodologies to ensure security and protect intellectual property (IP) on every transaction.

Security processes are initiated when members join the Topcoder Community and agree to Topcoder's terms and conditions. When members register for a challenge, they must agree to additional challenge-specific terms, which can include custom terms and NDAs.

Customer projects are atomized into small units of work, which prevents Topcoder members from gaining visibility into the complete solution and requirements. If a customer requires, its brand identity can be masked on challenges to further protect brand security. Challenges that involve code development include independent code review and scoring against a technology-specific scorecard. Each submission is scanned for viruses, and Topcoder can also employ third-party scanning tools such as BlackDuck and Checkmarx to ensure secure processes.

FUTURE OUTLOOK

As the shelf life of many technologies reduces and digital technologies get pervasive, customers are finding it difficult to access and retain the engineering talent required to deploy and maintain digital and other product/technology solutions and infrastructure that enable them to differentiate in the market and optimize internal operations. In addition, few customers can afford the high cost of owning all of the required engineering talent. This situation coupled with an uncertain economic outlook across most industries and geographies appears to have created a perfect platform for the rise of the talent gig economy.

Topcoder's crowdsourcing model provides customers with access to on-demand and scalable engineering talent. In addition, it promotes collaboration, innovation, and speedy cocreation of solutions. This model benefits engineers to work at their own pace and helps them maintain a work-life balance.

ESSENTIAL GUIDANCE

Advice for Topcoder

- Entrepreneurial (crowdsourced talent) expectations are different from say, your parent company (Wipro). Ensure you meet their needs of working on challenging and innovative projects and being recognized and rewarded appropriately.
- If you do not keep differentiating, another competitor could emulate your business model. In addition, ensure that you promote skills beyond traditional software development capabilities.
- Scale the current scope of your digital engineering services such as IoT, AR/VR, Industry 4.0, and video/computer vision for your customer's needs.

Advice for Customers

- Crowdsourcing talent is a disruptive model. Explore a pilot project to get familiar with the model, put a team in place, understand pros and cons, and figure out a strategy that works for

your engineering talent needs. Do not spend too much time on pilot projects. Scale quickly if you realize benefits and are convinced the model works.

- In context of the current COVID-19 situation, now is the time to change the perception of on-demand work so that this feels like a natural progression or extension of traditional full-time work.
- Among others, key aspects to consider include:
  - Financial benefits of leveraging this talent crowdsourcing model
  - Access and quality of engineering talent
  - Risks associated with too much dependency on this model

LEARN MORE

Related Research

- *IDC PlanScape: Digital Transformation for Human Resources and a Strategically Aligned Workforce* (IDC #US46250920, May 2020)
- *Future of Operations: Building the House of Resiliency* (IDC #US46188320, April 2020)
- *Digital Engineering and the Future of Operations* (IDC #US46217020, April 2020)
- *Talent Acquisition Buyers and Spending Priorities* (IDC #US45865820, January 2020)
- *Importance and Effectiveness of Key Talent Acquisition Technologies* (IDC #US45842020, January 2020)
- *Market Analysis Perspective: Worldwide Product Engineering and Operational Technology Services, 2019* (IDC #US45551918, September 2019)

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com