



Reimagining Application Delivery with Enterprise Crowd-development

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Redefining operating model of application services

Disruption in the application landscape

The application services industry has rapidly evolved in last three decades and grown despite disruptions caused by new technologies and delivery models. The technology ecosystem has expanded and comprises companies delivering applications across SaaS, traditional license, and open source models. With digitalization as a strategic enterprise priority the application services industry is at the cusp of another disruption - one that is governed by three core issues:

- **Need for speed:** As digitalization initiatives gather momentum, the arms-length separation between IT and business functions is increasingly blurred. Digital operations require rapid and continuous development and continuous release programs that cannot wait for time-consuming contracting mechanisms and set-up protocols
- **Technology proliferation:** The speed issue is further aggravated by the demand-supply gap for niche technology talent. As the development ecosystem spawns a plethora of programming languages, platforms, frameworks, and tools, traditional one-on-one supplier models fail to support the demand for niche talent with speed and at scale
- **Need for real-time innovation:** Most digital programs follow an iterative MVP approach to development, as opposed to linear approaches with pre-defined end states. Traditional sourced models of development often preclude real-time iterations and fail to offer multiple solutions within an environment of evolving requirements

We believe that the age of the traditional one-on-one supplier-customer relationships can be complemented with a “crowd of developers” to address these needs. Crowd-based solutions can provide on-demand access to a large and diverse talent pool, and offer consistent platform-based delivery and engagement. However, enterprises have struggled to scale crowd-sourced programs.

This report :

- Describes the key attributes of a winning enterprise-grade crowd-development model
- Establishes a checklist for enterprises to evaluate crowd-based development solutions
- Shares insights on key value drivers for an enterprise crowd-dev model along with observed benefits that can be used to develop a business case

The traditional model and why it doesn't work

*The average enterprise takes **3 weeks' lead time** to kickstart a new development project*

Everest Group take:

Application development for a digital world requires a fundamental reappraisal of traditional outsourced value drivers. Traditional models, built for scale on a narrow set of technologies, fail to address the need for rapid delivery and continuous innovation within self-contained iterations. Lack of access to talent, long lead times, and absence of multi-stage iterations can critically slow down digital initiatives during the development phase.

A fundamental shift in value perceptions

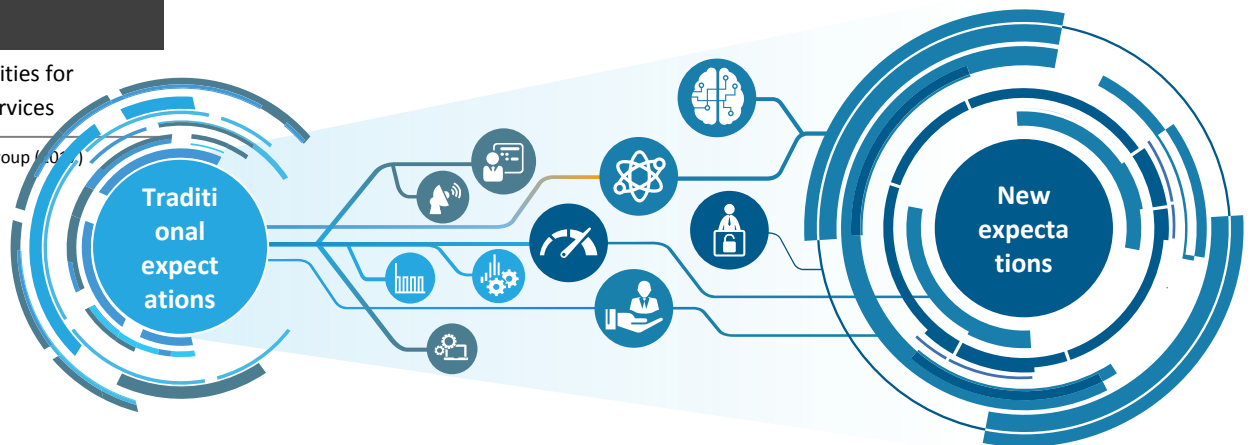
The traditional application development model has been built on the fundamentals of labor arbitrage and unit cost reduction through economies of scale. Consequently, we witnessed dramatic industrialization of methodologies, standardization of tools and technologies, and process control mechanisms to drive stable IT outcomes.

With enterprises seeking to fulfil the digitalization mandate, the fundamental expectations from the application delivery estate has undergone a sea change.

EXHIBIT 1

Strategic priorities for Application services

Source: Everest Group (2017)



Deliver at...	Scale with ramp times	Scale with speed
based on...	Arbitrage-based model	Automation (productivity increase)
to achieve...	SDLC excellence	Business innovation
using...	Industry standard technologies	Open innovation ecosystem
to drive...	Stable performance	Customer experience

Only 30% of the enterprises consider their application services landscape to be innovative

However, the traditional models of enterprise application delivery fail to meet the new set of expectations on a number of criteria:

- **Speed:** Traditional models are governed by multiple layers of standard operating procedures, are often siloed by organizational structures, and difficult to set up without navigating cumbersome contracting processes
- **Innovation:** Further, the traditional application development model typically has a rigid “definition of done”, and does not consider the fluid and iterative nature of digital development. There are few options to course-correct or drive mid-stream idea generation within traditional application development models
- **Capabilities:** With an explosion in programming languages and development tools (often open source), it has become increasingly hard for enterprises to source development skills at speed. Few enterprises command the ability to leverage best-of-breed ecosystems for individual projects. As such, enterprise-defined ecosystems comprising various service providers and technology partners often prove to be self-limiting for sustained innovation

The hierarchy of needs for enterprise crowd-dev solutions

42% of the enterprises consider lack of access to talent as a critical barrier to digital success

Everest Group take:

Crowd-based solutions can offer significant benefits to enterprises by way of on-demand access to niche skills and speed of delivery. However, enterprises typically struggle to integrate crowd-based development programs within their larger development organization seamlessly, and at scale.

To do so, enterprises must evaluate the crowd-ability of projects, as well as specific features of the crowd-dev solution. Solutions that offer tightly-coupled program management, system integration, and managed development services can offer differentiated value by assuming end-to-end responsibility of application delivery including fulfilment, integration, governance, and compliance at scale.

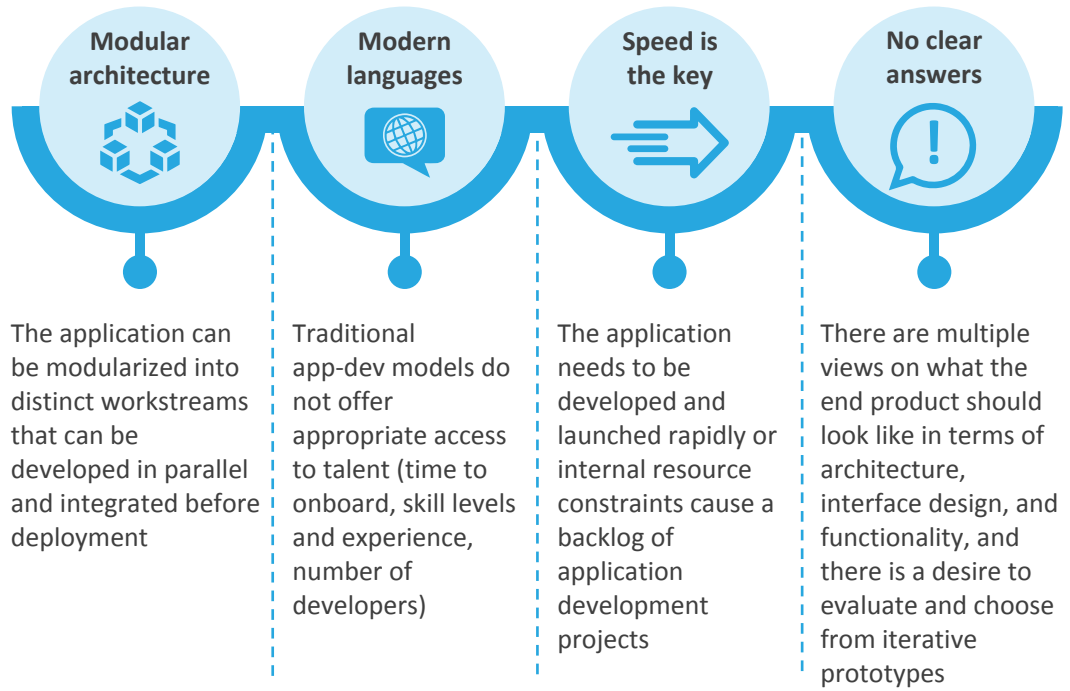
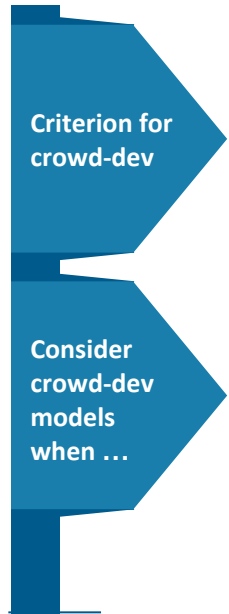
Crowd-sourced models of development bring the advantages of speed and flexible access to niche talent to the table. While there are countless examples of crowd-based development projects, enterprise adoption has remained sporadic due to lack of integration between the developer community and enterprise systems, teams, culture, and performance expectations.

Enterprises need to carefully evaluate when to access crowd-dev mechanisms as well as assess winning crowd-dev solutions.

EXHIBIT 2

Considerations for crowd-dev

Source: Everest Group (2017)

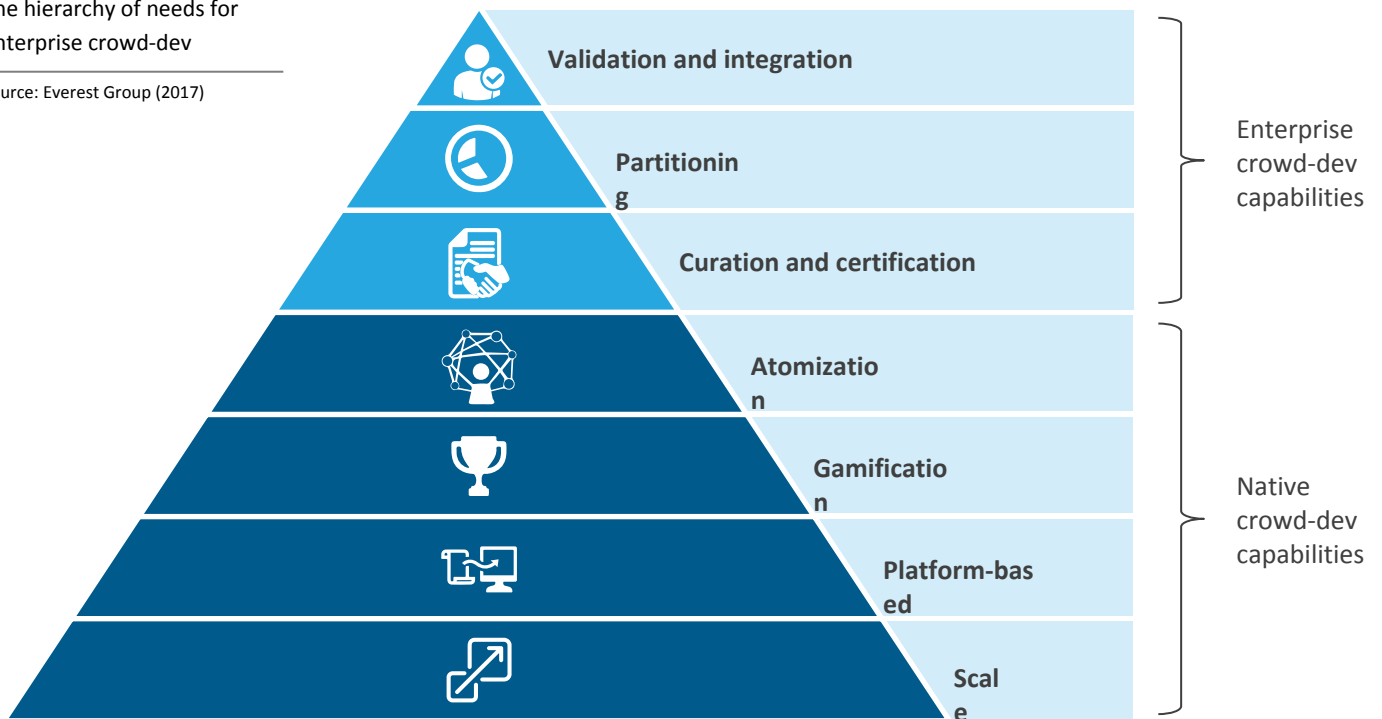


For crowd-dev mechanisms to deliver value to enterprises on an ongoing basis, they must address seven critical needs. While the first four are often addressed through crowd-native capabilities, it is the higher levels of enterprise needs that tend to remain unaddressed and hinder enterprise adoption. These functions are often not native to crowd providers and consequently raise the adoption risks and governance costs for enterprises.

EXHIBIT 3

The hierarchy of needs for enterprise crowd-dev

Source: Everest Group (2017)

**Scale:**

Crowd-sourcing lends itself to network economics and the ability to deliver at scale is critical for enterprise-grade consumption. The crowd-sourcing provider needs to continually invest in community engagement and expansion, with a focus on creating expertise across diverse skills and domain competencies.

Platform-based:

The crowd-sourced model should be made accessible through an enterprise grade platform that allows for delivery, management, and interfacing capabilities.

- **Delivery** features allow developers to build application modules using their own and platform-provided toolkits in a seamless manner
- **Management** features allow enterprises to submit specifications, monitor progress, and address billing and compliance needs
- **Interfacing** features allow the enterprise to answer queries, review prototypes, and engage with developers in two-way ideation. The interface module also allows the platform owner to engage with the crowd and offer aggregation, curation, and certification needs

Gamification:

By constructing development projects as gamified competitions, the crowd-dev engine can generate multiple prototypes. This is in stark contrast to the traditional outsourced application development mechanism. The latter offers a single team creating a single solution, without the benefits of iteration and multiple choices for the customer. In a gamified crowd environment, the customer can choose between multiple solutions and pay only for the best solution.

16% of the enterprises claim to have conducted crowd-dev pilots. Another **40%** are planning to evaluate crowd-dev models.

However, more than **50%** claim to have concerns about certification and curation of crowd-dev work products

Atomization:

The crowd-dev engine must offer a way to deconstruct a set of consolidated requirements into micro services. Atomization of requirements, and the ability to subsequently integrate into unified work products is critical to harnessing the collective power of the crowd and, thereby, achieving the core objectives of speed and agility.

Curation and certification:

Enterprise crowd-dev must address the following needs:

- **Onboarding validation:** Initial verification of developer credentials at the time of onboarding
- **Solution curation:** The crowd-dev engine needs to be able to continuously curate solution submissions. A gamified engagement project may receive hundreds of solutions. The crowd-dev engine should be able to select and offer a limited set of curated solutions for enterprise evaluation
- **Performance curation:** Over successive iterations, crowd-dev engines should have the ability to tier individuals based on their performance, identify spikes of expertise, and reward high performing developers appropriately
- **Compliance:** Ensure compliance with licensing and Intellectual Property (IP) norms and verify ongoing skill development and developer certifications

Partitioning:

The enterprise crowd-dev engine should be able to create ring-fenced or quasi-dedicated developers and industry experts for customers. These communities can be physically co-located with client and managed service provider teams, with access to client systems. Partitioned communities, or “private crowds” are compliant with enterprise governance frameworks, and over time build up extended knowledge of the specific technologies, customer industries, systems, and processes.

Validation and integration:

The validation and integration capability creates final ownership over enterprise crowd-dev projects and performs three key functions:

- **Validate** requirements against technical specifications, suitability for crowd-development, and define independent workstreams
- **Bridge** the gap between the enterprise and the coder community. The bridge role is performed by a project mentor who maintains requirements, ensures course correction, and mentors developers
- **Integrate** workstreams into complete work products, and ensure downstream integration with client systems and processes

A checklist for enterprise crowd-dev

Depending on the nature of the project or program, enterprises may need to lay greater emphasis on certain capabilities than others. However, to generate sustained value at scale, most enterprises will have to evaluate crowd-dev solutions across the entire hierarchy of needs.

EXHIBIT 4

Sourcing checklist for enterprise crowd-dev solutions

Source: Everest Group (2017)



Enterprise crowd-dev: making it work

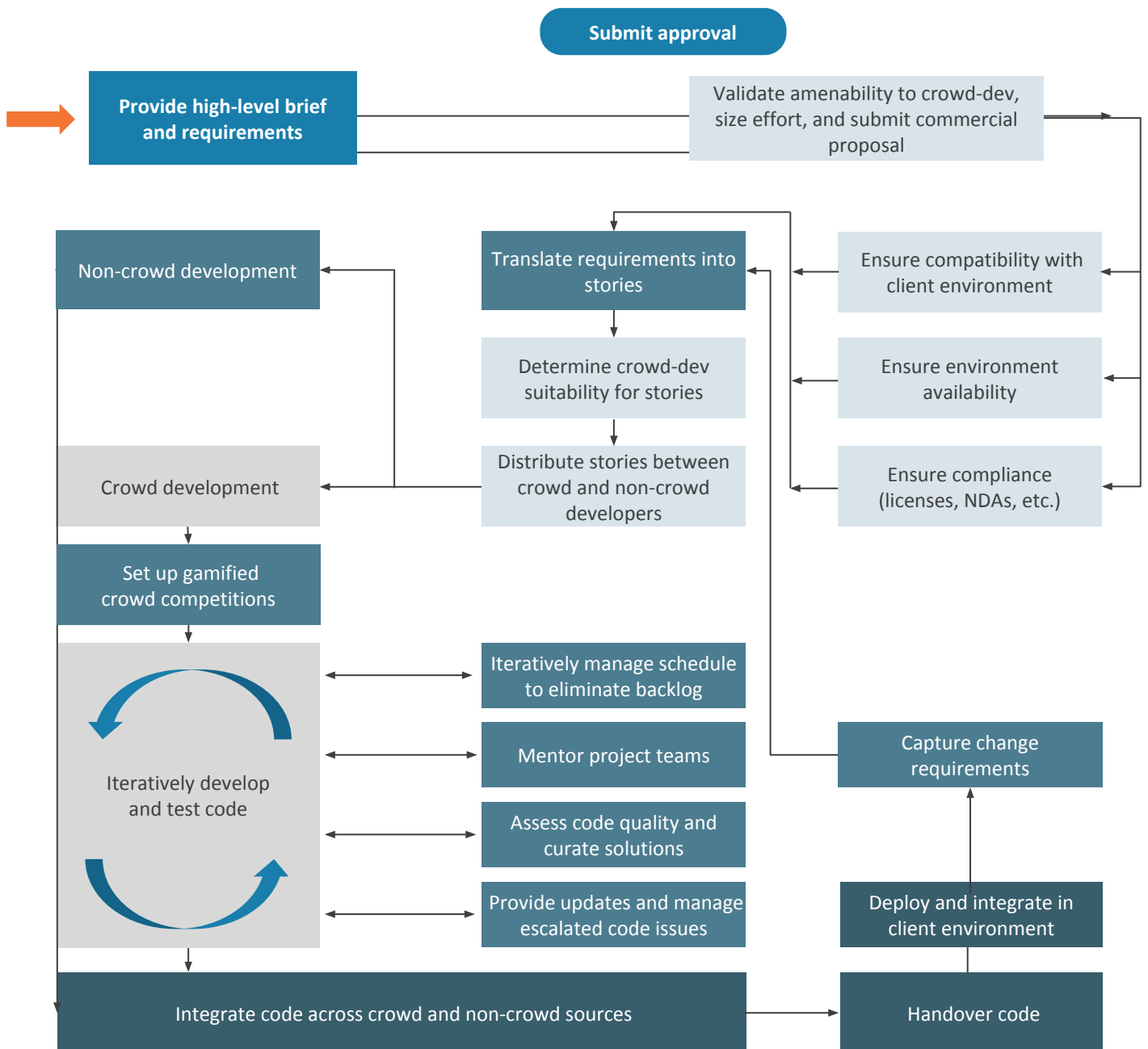
For crowd-dev initiatives to scale across the enterprise, they clearly need to be bolstered by a strong layer of managed services and system integration cutting across the SDLC. To derive maximum value from crowd-dev initiatives, enterprises need to be able to combine these capabilities in a seamlessly iterative manner.

EXHIBIT 5

Example of enterprise crowd-dev with integrated managed services

Source: Everest Group (2017)

- Client project leader
- Crowd-dev
- Managed Agile services
- Program management services
- Managed services/ system integration services




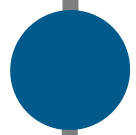
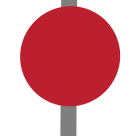
Conclusion: value impact of the enterprise crowd-dev model

Enterprise crowd-dev models can lead to significant improvements in application delivery outcomes in environments that have exhausted traditional arbitrage value drivers of industrialization, rate card reductions, and hyper-arbitrage.

EXHIBIT 6

Value impact of the enterprise crowd-dev model

Source: Everest Group (2017)

	Value drivers	Impact on an enterprise application output model	Observed value creation due to enterprise crowd-dev
Business agility		<ul style="list-style-type: none"> • Time to onboard niche skills • Time to kickstart development project • Speed per iteration • Less time spent in requirement definition 	<ul style="list-style-type: none"> • From weeks to 1-2 days • From industry average of 3 weeks to 1 day • Typically fortnightly iterations • Requirements defined in 1-3 days
Quality		<ul style="list-style-type: none"> • Higher release stability • Elimination of technical debt 	<ul style="list-style-type: none"> • Identified bugs closed in hours • Average 2.6 submissions per code challenge • Defects found in production reduced by 6x • Average time to fix a bug reduced by 8x
Efficiency		<ul style="list-style-type: none"> • Increase in developer productivity 	<ul style="list-style-type: none"> • Up to 3X improvement in average developer productivity • 4x increase in number of product releases • Increased developer focus on strategic goals

The business case for enterprise crowd-dev is built over three primary value drivers of developer productivity, improved quality outcomes, and business agility.

Across each dimension, observable benefits accrue to enterprises, and often signify improvements by an order of multiples. Further as programs scale, cumulative quality and agility benefits can yield to meaningful reductions in the multi-year TCO of a growing application portfolio.


In an era where speed of iterations, and continuous development leveraging niche skills are required to fulfil the digital mandate, these benefits can have transformational implications for the enterprise application development function.

About Everest Group

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