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How to Attract, Develop and Retain Great Software Engineering Talent

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Initiatives: Software Engineering Practices; Build a World-Class Software Engineering Organization; Software Engineering Leadership

> Attracting, developing and retaining talent is the top challenge facing software engineering leaders today. To succeed, you must offer a compelling Employee Value Proposition to attract talent and retain employees, while creating an agile learning environment to develop the needed skills.

Additional Perspectives

- Summary Translation + Localization: How to Attract, Develop and Retain Great Software Engineering Talent
  (28 September2022)

Overview

Key Findings

- Many organizations lack a well-defined employee value proposition (EVP) for software engineering roles, which limits their ability to attract candidates and retain employees.

- Software engineering leaders indicate that they prefer recruiting to obtain new skills, however there are not enough fully qualified candidates to meet this demand. Competing to attract talent with all the required skills is too slow and expensive for most openings, today.

Recommendations

Software engineering leaders building teams to deliver digital products and services should:

- Attract and retain great software engineering talent by offering a compelling EVP. Actively market your EVP to reach more candidates.

- Create an agile learning environment to develop the skills you require by implementing a training and skills development program for both existing staff and new hires.

Strategic Planning Assumptions

Through 2023, 90% of companies who do not have a clearly defined and compelling employee value proposition will be unable to hire and retain enough staff for their software engineering needs.

By 2024, 60% of companies will provide radical flexibility as a key differentiating factor in their employee value proposition.

Introduction

Hiring, developing, and retaining talent ranks first among the top three challenges software engineering leaders face today. [1]

Great software engineering team members are hard to find and there are not enough of them to deliver on your digital ambitions. There's an average of fewer than 10 job applicants for software engineering roles, compared to 76 for all other roles. [2]

Talent scarcity has been exacerbated by digital initiatives that were accelerated by the effects of the pandemic. The increased need for up-to-date software engineering skills is adding to the fierce competition for great talent.

Flexibility has become a deciding factor for employment. During the pandemic, people found that remote work is a viable and productive approach. Forcing a full return to the office brings a risk of high attrition as people prioritize life over work. If an organization were to go back to a fully on-site arrangement, it would risk losing up to 39% of its workforce. [3] The Great Resignation is front-page news.

How can software engineering leaders attract, develop and retain great engineering talent?

- Offer a compelling EVP.

- Actively market your EVP to get the message you want to more candidates.

- Create an agile learning environment to develop the needed skills by implementing a training and skills development program for both existing staff and new hires.

See Figure 1 for the three complementary parts to this solution:

Figure 1. Attract, Retain, Develop, Great Engineering Talent

Attract, Retain, Develop, Great Engineering Talent

Source: Gartner
a4Ps of marketing: Product, Place, Price, Promotion
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Analysis

Offer a Compelling Employee Value Proposition

An EVP is the set of attributes that the labor market and current employees perceive as the value they gain through employment with the organization. A compelling EVP for software engineering talent has five aspects, as shown in Figure 2.

Figure 2: Compelling EVP for Software Engineering Roles

Compelling EVP for Software Engineering Roles

Rewards	Opportunity	Organization	People	Work
Competitive Compensation	Exciting Development Opportunities	Great Employer Brand	Respectful and Trusting Management	Work-Life Harmony
Great Benefits	Clear Career Paths	Diverse, Equitable and Inclusive Teams	Psychologically Safe Environment	Hybrid Work
	Stability	Autonomy	Great Colleagues	Modern Technologies
				Frictionless Software Engineering Experience
				Purpose (Pride In Product)

Source: Gartner
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A compelling EVP is a significant advantage in the fierce competition for talent. Use the advice below to guide you as you create your action plan for building your EVP.

Rewards

■ **Compensation and benefits:** You cannot escape the fact that the compensation and benefits packages your organization offers must be competitive. Benchmark frequently against relevant competition by using Gartner's TalentNeuron global talent analytics tool and Global Labor Market surveys to inform decisions on pay ranges for software engineering roles. Work with your partners in HR to ensure that compensation and benefits are part of a "total rewards" strategy, including paying for performance and comprehensive well-being offerings. Establish a skills premium program to differentiate pay for skills in shortage, yet critical to digital business success (see Changing IT compensation practices for a remote/hybrid workforce).

Opportunity

- **Exciting development opportunities:** Software engineers are looking for opportunities to develop by enhancing their existing skills and learning new skills. Provide training and learning opportunities, both as a separate activity and as continuous activity embedded in the daily work. Set aside individual and team time for learning, and protect it even under work pressures. Pair less-experienced staff with subject matter experts to increase coverage of the subject and facilitate knowledge sharing. Establish job rotation programs and encourage people to take the lead in new subject areas outside of their comfort zone.

- **Clear career paths:** People are looking for jobs with greater transparency into job paths and career progression. Many engineers dread becoming line managers. Management needs a different skill set than software engineering. Create technical career paths as part of a competency-based career lattice in order to provide meaningful options for professional growth (see Create Career Lattices to Boost Talent Development and Drive Agile Transformation at Scale).

- **Stability:** In a volatile, uncertain, complex and ambiguous world, job stability provides a constant rhythm, reduces daily stress and allows people to focus on the job at hand. Work with business stakeholders to ensure that product teams are funded for a longer term, and that their goals and objectives are fully aligned with the organization's.

-

Organization

Great employer brand: Even though the employer brand is strongly influenced by that of the enterprise, you should cultivate a reputation of innovative culture, modern architecture and technical excellence within your engineering teams. Encourage engineers to attend and present at conferences and peer forums. Share the tools your teams build for internal use with the open-source community. Sponsor people to produce thought-leading content by sharing good practices and lessons learned from product work via forums like communities of practice and "lunch and learns."

- **Diverse, equitable and inclusive teams:** Build a team culture that is inclusive across geographies, ethnicities, first languages, religions and diverse demographic groups. This will allow you to widen the search for viable candidates — hiring for outcomes rather than specific expertise (see Overcome Talent Shortages by Building Diverse, Equitable and Inclusive Software Engineering Teams).

- **Autonomy:** Move decision making to where people have the most information. Empower your engineers and help them develop the skills and capabilities they need to practice autonomy. Get out of the way and let the teams figure out the best way to get the job done. Help as needed to remove roadblocks and other impediments to their progress.

People

- **Respectful and trusting management:** Treat people with respect regardless of how much you agree or disagree with them. Establish ground rules to help team members disagree respectfully. Build trust by being transparent and sharing information openly as much as possible.

- **Psychologically safe environment:** Enable people to bring their true self to work by continuously striving to increase the level of team psychological safety. Encourage team members to speak up and share their viewpoints. Increase participation and engagement by modeling the respectful behaviors you want to embed in your teams. Deploy surveys frequently to measure psychological safety and the extent to which engineers feel comfortable with collaborating, learning and innovating as a team. When employees work in a psychologically safe environment, discretionary effort can improve by up to 24% (see Quick Answer: How Do We Build Psychological Safety in Our Software Engineering Teams?).

- **Great colleagues:** Select people for your teams based on their behaviors. Team players, good communicators and life-long learners, will create an intellectually stimulating environment, have intelligent conversations, and grow and gain skills together. The engineers in your teams will be your best recruiters, and other engineers will want to be in your teams. Use Employee Net Promoter Score surveys as an indicative employee engagement metric and devise an action plan to improve it.

Work

- **Work-life harmony:** Go beyond work-life balance (where balancing work and life implies that we either work or live) and create the environment for work-life harmony (where work is seen as a fun thing to do). Promote sustainable development and pace of delivery to avoid burnout. Respect people's personal and family circumstances and needs. Offer generous time off from work for people to recuperate and tend to other activities and interests.

- **Hybrid work:** The success of remote working practices is proof that long daily commutes and relocations are not necessary. A recent Gartner survey found that six in ten workers will consider a new job or role only if it allows them to work from a location of their choice. [4] There is no physical or location constraint in designing, building and delivering digital products and services, so make location-independent work a competitive advantage by implementing hybrid working practices. Include asynchronous modes of collaboration in working agreements to facilitate a hybrid way of working.

- **Modern technologies:** Engineers love, dread or want to work on various technology stacks, architectures and tools. Preference impacts availability of skilled engineers. Use industry data, such as the Stack Overflow Annual Developer Survey, to inform decisions on what technologies to use for your products, in order to access a larger talent pool. [5] Lead modernization initiatives to update or replace legacy systems.

- **Frictionless software engineering experience:** Optimize flow by creating an environment with minimal distractions and impediments so people are in-flow more often. Sponsor agile ways of working and break down siloed thinking. Establish continuous integration and continuous delivery practices and tools to minimize delays. People will have more time to spend on value-add work and not on wrestling with the tools, the infrastructure, excessive bureaucracy and outdated management practices.

- **Purpose:** Encourage technical excellence, as working on well-architected and well-engineered products and services is not only satisfying, but a source of pride and motivation for engineers. When an employee is proud of their product, they talk about it with friends and family, they refer others for open jobs, they promote it on social media, and they develop a stronger sense of dedication to their jobs.

In the most recent Gartner Global Labor Market Survey [6] people in software engineering roles told us that the top five characteristics they consider as the most important when considering a potential employer are:

1. Compensation

2. Work-life balance

3. Stability

4. Location

5. Development opportunity

These five attraction drivers should be your top priorities and the best starting point for improving your EVP.

Make Your Employee Value Proposition Stand Out

In order to differentiate your EVP so you can attract and retain the great talent you need, work with business and HR leaders to implement the following practices:

- **Improve people management:** It is still true that "people leave managers, not companies." "Manager quality" and "people management" were consistently cited in the top 10 of attrition drivers in a recent Gartner Global Labor Market Survey. [6] Start from yourself, and evaluate how you manage people. Implement 360-degree assessments or other tools to give employees an opportunity to voice their concerns and take necessary steps to remediate such concerns. Provide development opportunities to your managers to grow their management skills and adapt their management styles, with a new focus on managing people in the hybrid environment. Recognize individual and team accomplishments and abilities by demonstrating awareness of people's talents and showing that you value their contributions. Use the "connector manager" approach to build connections at the individual, team and organizational levels (see Quick Answer: How Do Connector Managers Develop Exceptional Software Engineering Talent?).

- **Implement radical flexibility:** Give people flexibility beyond "when" and "where" they work to include flexibility for "with whom," "on 'what" and "how much" they work. When organizations deliver radical flexibility, compared with delivering flexibility only in when and where employees work, the percentage of employees who are defined as high performers increases by 40%. [7]

- **Reduce cognitive load:** Decrease the total amount of mental effort being used in the working memory, by: [8]

  - Limiting the size of the software system with which any given team is expected to work.

  - Allowing time for the team to learn, practice and automate.

  - Increasing the quality of the developer experience for all teams through good documentation, consistency and good user experience. Gartner has found that employees with high-quality employee user experience on average have higher levels of engagement, with 1.8 times higher "intent to stay" and 1.5 times higher discretionary effort. [9]

- **Use Gartner's Pride in Product metric:** This can be used as a measure of purpose, to gauge engineers' sentiment toward the product they are working on, and to devise an action plan to enhance it. Increased engagement reduces the attrition risk.

> **All anyone asks for is a chance to work with pride.**
>
> — *W. Edwards Deming*

Market Your Strong Employee Value Proposition

Job candidates have various ways to find information about your organization's culture, environment and employment characteristics, such as online review sites (LinkedIn and Glassdoor, for example), online forums (including Stack Overflow, Hacker News, GitHub and Slashdot), social networks and word of mouth. Actively market your strong EVP in order to get the message that you want across to them, by using the 4Ps of marketing:

- **Product:** Market the "product" your company has to offer as the potential of a satisfying and rewarding career, not just a job.

- **Place:** Extend your reach to different talent pools using tools and techniques such as social recruiting, video and multichannel messaging.

- **Price:** Develop a pay strategy to meet your business goals, and benchmark your pay practices against relevant competition.

- **Promotion:** Package your competitive differentiators to attract people who align with your organization's values. Invest in a strong employee referral program to increase your chance of hiring people who are a good cultural fit.

See Attract and Recruit Top Talent With a Compelling Employment Value Proposition for further details.

## Develop the Skills You Require in an Agile Learning Environment

Hiring people with all the skills you need will be expensive, time-consuming, and probably impossible. Such people may also not know your company or even your industry. Part of your plan needs to focus on developing the new skills you require within your existing staff and in less-skilled, early-career new hires that will be easier to find in today's tight labor market.

This requires most companies to change the way they think about learning and training. Learning is not a side activity to be done when absolutely necessary or on the employee's own time and initiative. Instead of just formal education reimbursement, or off-site classroom courses, learning has to be integrated into the work day. You have to become a learning organization, where everyone — including managers — is expected to be constantly expanding their skills and competencies. Performance management expands from "What did you do this year?" to include "What did you learn this year?" Indeed, with the move to more autonomous, self-organizing teams, creating an agile learning environment will become the major piece of a manager's job (see Agile Learning Manifesto).

The elements of an agile learning and skills development program are shown in Figure 3:

Figure 3: Agile Learning and Skills Development Program
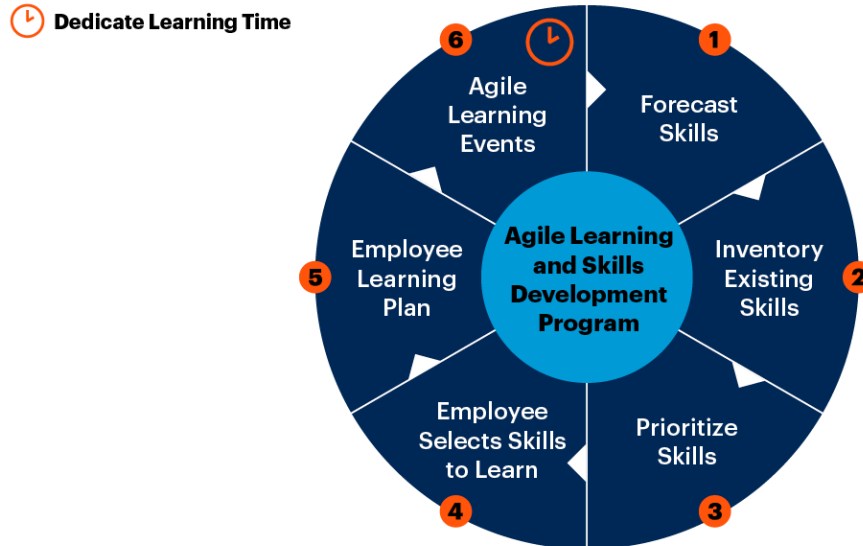
Source: Gartner
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The steps are as follows:

- Figure out what skills you will need to deliver your technology roadmap. It's especially important to understand the changes to your software portfolio. For example, will there be more cloud-native applications and less focus on traditional architecture?

- Inventory and classify the skills you have and identify the level of proficiency of each engineer in each skill. This needs to be done carefully to avoid creating the impression this will be used to "compare" engineers for performance measurement. The clear message should be: "We are doing this to identify the learning opportunities to offer people to improve everyone's skills, as part of dynamic skills management" (see Building a Dynamic Skills Organization).

- Observe the gap between the forecast and the inventory to build a prioritized list of what to focus on. Use skills adjacency to improve the likelihood of people quickly gaining productivity with the new skills.

- Encourage line managers to transparently discuss with engineers the skills needed and where each person would like to take their career. The employee needs to own their career, but understand the company expects them to keep expanding their skills and competencies by working on an agreed learning plan.

- Equip line managers to curate learning experiences to execute the plan. In line with agile learning principles, the more these experiences are built into the workday (where the employee learns something in a "microburst" and applies it immediately) the more effective they are — and learning becomes productive work! Apprenticeships, pair programming, agile coaching, communities of practice, corporate training programs, and many other techniques are very effective here.

- Empower engineers to dedicate common time for learning activities each week. It shows management commitment to learning and willingness to invest productive capacity to improve engineering skills and competencies.

For further details see How to Establish a Reskilling/Upskilling Talent Development Program for Software Engineering and How to Build an Agile Coaching Team That Drives Your Agile Transformation.

Reskilling and upskilling current employees is the No. 1 approach by far to closing skill gaps — there is a 27% more likelihood to fulfill talent gaps using this option than hiring (the No. 2 approach). [10]

Learning and development does not have to happen solely in the employee's current job area. Exceptionally valuable employees often have career paths with horizontal or "diagonal" moves into adjacent roles, where the organization has needs. For example, a developer may move to become a product owner or agile coach.

Learning should be a core part of your EVP. People are motivated by mastering new skills and being recognized for this not just by managers, but by peers. Getting to learn new skills can help to attract high potential early career people and (as long as you get the rest of the EVP right) to retain them.

Evidence

[1] **Gartner's 2021 Software Engineering Leaders Survey** was conducted to understand the challenges and responsibilities of software engineering leaders. The research was conducted online from April to June 2021 among 314 respondents from North America (49%), Western Europe (33%) and APAC (18%). Respondents were screened to be responsible for at least one team of software engineers at organizations of over $20 million in worldwide revenue across organizations from all industries except construction, natural resources, energy, some manufacturing subindustries, local or regional government and wholesale. The survey was developed collaboratively by a team of Gartner analysts and was reviewed, tested and administered by Gartner's Research Data and Analytics (RDA) team. Results of this study reflect the sentiments of the respondents and companies participating in this survey, not the market as a whole.

[2] Gartner TalentNeuron Global Supply and Demand for Software Engineering Positions as of 27 July 2021.

[3] **The 2021 Gartner Hybrid Work Employee Survey** was fielded in November and December 2020 to over 4,000 employees in APAC (Australia, China, India, New Zealand and Singapore), EMEA (Germany, France, Spain, South Africa and the U.K.), Latin America (Brazil and Mexico), and North America (the U.S. and Canada). Respondents predominantly worked for organizations employing more than 1,000 people. All industries were eligible for participation. The survey was administered as a web-based questionnaire.

[4] **Gartner's 2021 Digital Worker Experience Survey** was conducted online during November and December 2020 among 10,080 respondents from the U.S., Europe and Asia/Pacific. Participants were screened for full-time employment in organizations with 100 or more employees and required to use digital technology for work purposes. Ages ranged from 18 through 74 years. Quotas and weightings were applied (for age, gender, region and income) so that results were representative of countries' working populations.

[5] Stack Overflow Annual Developer Survey

[6] **Gartner's 3Q21 Global Labor Market Survey** was based on responses from 18,001 employees globally, including 1,905 employees in IT function, 352 of which were software engineering employees. Responses were collected monthly across 40 different countries in 15 languages and were then aggregated to generate quarterly findings. There are no statistically significant differences in the sample composition across the three months.

[7] **Gartner 2021 EVP Employee Survey:** This survey polled 5,000 employees globally on their experiences and expectations of their organizations' employment value proposition and employee experience.

[8] Matthew Skelton, Manuel Pais. "Team Topologies: Organizing Business and Technology Teams for Fast Flow," IT Revolution Press, 2019

[9] **The 2020 Gartner Digital Friction Survey** was conducted via an online survey platform from January through March 2020, with a total of approximately 4,500 employees who used technology in their daily work. The survey was developed collaboratively by a team of Gartner researchers, and was reviewed, tested and administered by Gartner's Quantitative Analytics and Data Science team.

[10] **Gartner's Agile Learning Survey** was conducted online September through November 2020. There were 306 respondents in roughly equal proportions from Asia/Pacific, Europe and North America. The respondents are at the director level and above and almost all are actively involved in learning and training. The enterprises they represent generate $250 million to over $10 billion in revenue annually.

Note 1: Software Engineering Roles

The software engineering roles analyzed in Gartner surveys include:

- Software engineer

- Product manager

- Product owner

- Scrum master

- Agile coach

- Testing engineer

- Solution architect

- User interface engineer

- Business analyst

- DevOps engineer

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