

COST- EFFICIENT

HEALTHCARE SOFTWARE
DEVELOPMENT:

TO HIRE
OR TO OUTSOURCE



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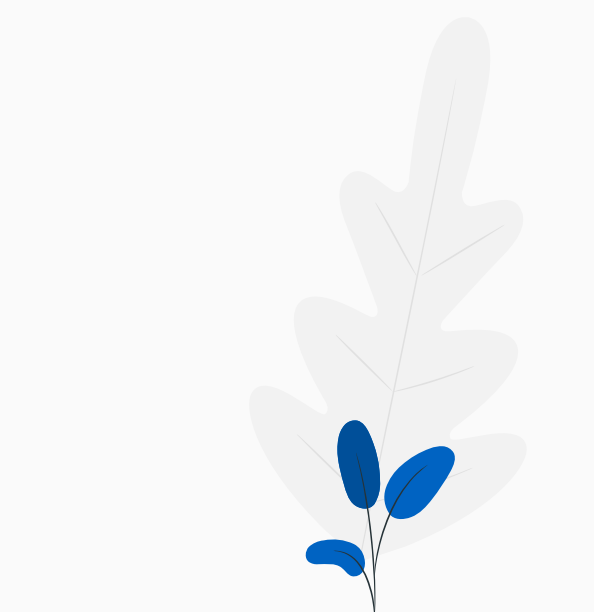
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Healthcare software development with Glorium Technologies



AN ULTIMATE GUIDE TO HEALTHCARE PRODUCT DEVELOPMENT PRICES AND COSTS AROUND THE WORLD

For any start-up and product development company, choosing between internal development and outsourcing is an eternal dilemma. While both aspects have their pros and cons, and the best option depends on the company’s need, outsourcing is a faster, more agile, and cost-effective way to develop a product.

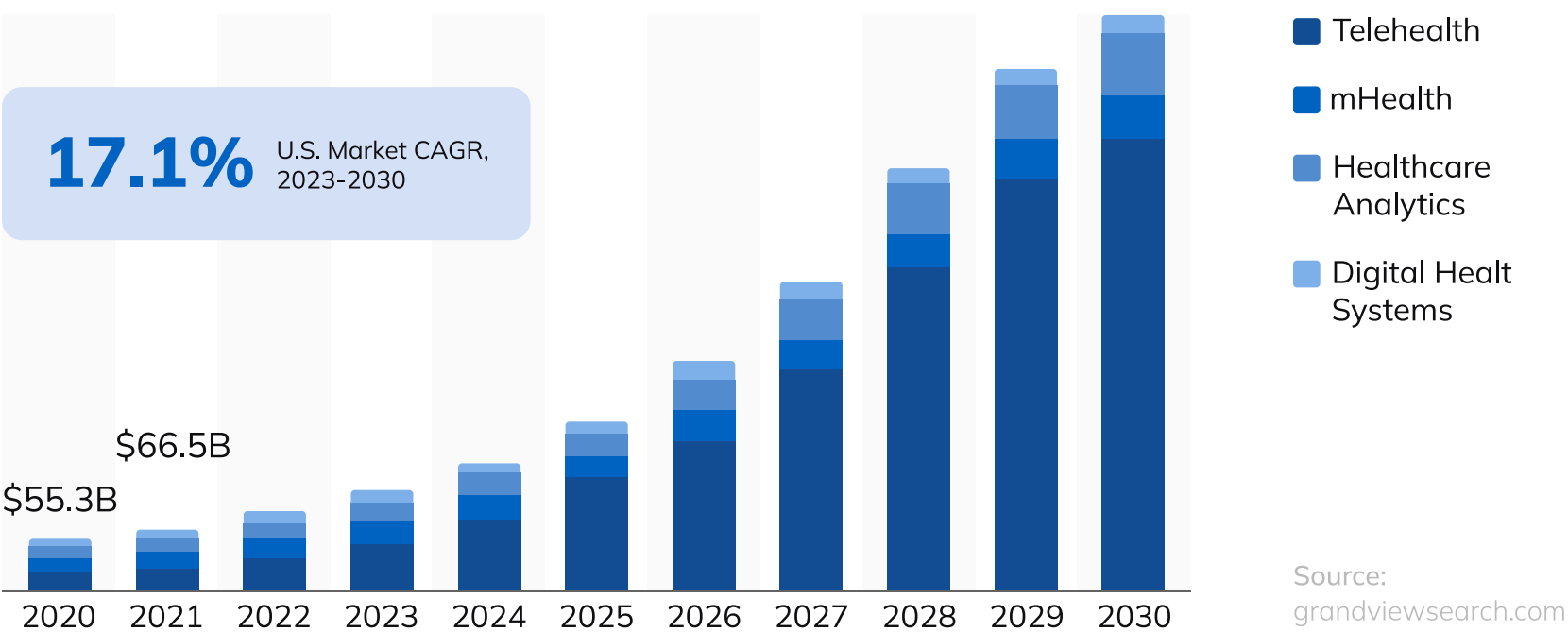
Healthtech market overview

As the world becomes increasingly digitalized, healthcare is no exception. Healthcare organizations undergo major internal transformations due to the increasing use of smartphones, ongoing internet penetration supported by 4G/5G, advancements in healthcare IT infrastructure, and greater access to virtual care. They need to meet the growing demand for new services and improve their diagnostics and treatment methods.

According to Grand View Research, the digital health industry worldwide was worth USD 211.0 billion in 2022 and is expected to grow at an annual rate of 18.6% from 2023 to 2030. Major players in the virtual healthcare market strive to give their users an even more immersive experience. To this end, Teladoc Health recently joined forces with Microsoft and unveiled Solo – a platform that integrates with Teams for improved clinicians’ and patients’ access. This collaboration is sure to make remote care easier than ever before!

U.S. Digital Health Market

size, by technology, 2020-2030 (USD Billion)



As the report mentions, the digitalization of healthcare systems is being accelerated worldwide by government initiatives, driving market growth. For example, India's Government introduced the Ayushman Bharat Digital Health Mission (ABDM) during the 2022 budget session called to establish a digital health ecosystem. Similarly, France's government announced a **USD 650 million** investment in October 2021 to expand its digital health infrastructure nationally.

Healthcare software development trends in 2023 and beyond

The telehealthcare sector is surging, driven by the need for accurate health monitoring and real-time population management. Companies are fueling this growth with innovative platforms that can monitor, diagnose and prevent disease while ensuring healthcare information is secure. Furthermore, hardware upgrades have allowed even more people to benefit from these life-saving services – accounting for a staggering **41.5%** of market revenue!

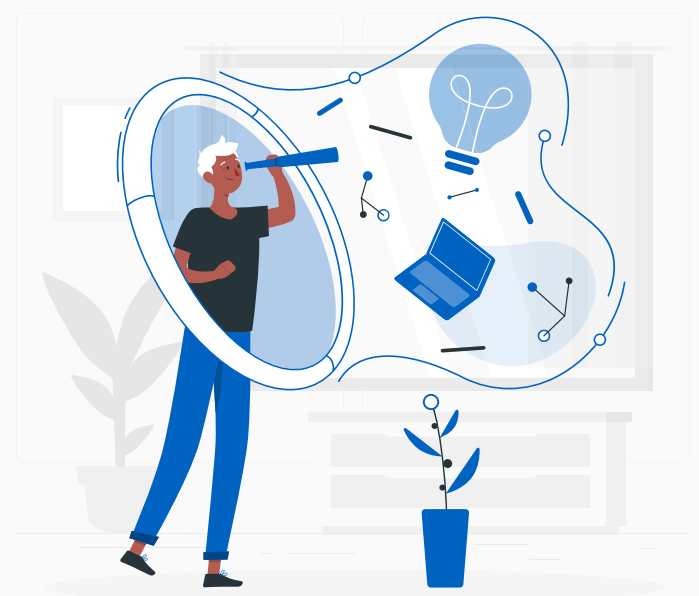
With a projected, 15 million healthcare worker shortage by 2030 and exponential aging population growth to 1.5 billion people over 65 by 2050, telehealth/telemedicine services have become increasingly important in providing access to quality healthcare.

IoT

With the rise of digital technologies, especially the Internet of Things (IoT), healthcare has seen a major transformation. IoT is increasing efficiency from tracking staff and patients to optimizing drug prescriptions, making sure critical medical equipment is available when needed, and even addressing chronic conditions. Big data applications have also enabled service providers with personalized experiences for better quality care without downtime.

Virtual Reality and Augmented Reality

Virtual and augmented reality technology is used for numerous purposes in the healthcare industry, from teaching medical students to creating simulations for a better experience when patients receive treatment. A new report from July 2022 indicates that the augmented reality and virtual reality market in healthcare is poised to reach nearly **USD 9.7 billion** in worth in the next five years. This specific niche is currently worth close to **USD 2.7 billion**, indicating that it will grow approximately **3.5 times by 2027**.



Artificial Intelligence

Despite the fact that we see a drop in investment (from **USD 69 billion in 2021 to USD 40 billion in 2022**), AI technologies are becoming a reality in healthcare. They help physicians interpret test results and diagnose diseases. So, the funding decrease is temporary, and we'll see this field booming soon.

According to Precedence Research, the global artificial intelligence in healthcare market size is expected to hit around **USD 187.95 billion by 2030** and expanding growth at a **CAGR of 37% from 2022 to 2030**.



Telehealth & Telemedicine

Telemedicine has been in the spotlight for some time, but now there is an accelerated need for digital healthcare. With such fierce market demand, it's no wonder that during the pandemic, investments in telehealth startups have tripled. Telemedicine is becoming an equal, if not better, counterpart to traditional medical services.

According to Fortune Business Insights, the global telemedicine market size is projected to reach **USD 396.76 billion by 2027**, exhibiting a **CAGR of 25.5%** during forecast period; real-time segment to exhibit the maximum growth stoked by rising number of e-visits.



Cloud computing

Now, having a robust and integrated cloud infrastructure is no longer optional for healthcare organizations. With more patient data being accumulated, medical facilities need a network to easily collect, share and distribute these piles of information.

In fact, the global healthcare cloud computing market size was valued at USD 30.5 billion in 2021 and predicted to surpass around USD 127.04 billion by 2030 with a registered **CAGR of around 17.2% during the forecast period 2022 to 2030**.

Blockchain

A growing number of innovative companies are exploring its potential for drastically improving HealthTech and securing online financial operations. By streamlining data-driven solutions that focus on patients first, these organizations could save billions in software development costs and reduce costly health data breaches – all within just two years! It's no wonder they're already looking ahead to what this year has in store – this game-changing technology appears here to stay.

Healthcare software development: key challenges

Despite the fact that investors are willing to pour resources into the development of new healthcare solutions for a hot market, few startups actually succeed.



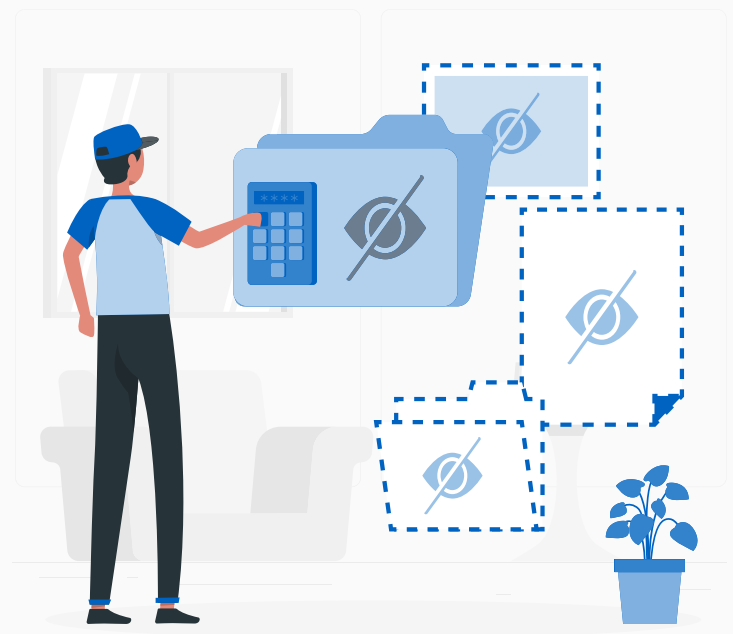
On average, large IT projects run 45% over budget and 7% over time, while delivering 56% less value than predicted. Software projects run the highest risk of cost and schedule overruns.

McKinsey ©

Data privacy

Given the sensitive nature of medical data, any violation or discrepancy can result in costly and frustrating consequences, not only for patients but also for healthcare software providers and medical institutions. Privacy regulations for most organizations, and this is no different for healthcare.

The accumulation of sensitive patient information along with medical institution records and smart data from healthcare wearables creates a target for devastating and expensive cyberattacks and data breaches.



Ensuring compliance

It's no secret that the entire healthcare industry is heavily tied to regulatory compliance, especially when it comes to tech innovations. Firstly, a non-compliant software or application won't even make it to market.

Also, having a consistent and reliable mechanism for keeping healthcare solutions in line with updated policies and governmental standards is the primary determinant of success in a saturated market. In this realm, stakes are high when it comes to sensitive patient information, and mistakes can be extremely costly for everyone involved.

Quality software development

Ultimately, it's the quality of the product that is the cornerstone of a company's success; however, finding skilled and reputable talents that can deliver high-quality solutions without breaking the budget is a challenge.

In healthcare, it is even more complicated due to the complex nature of the industry, where product development requires experience and deep niche knowledge. It is important to choose a vendor that can handle everything needed to build a successful software solution, from engineering and building architecture, to development and on-time delivery.



HOW TO CHOOSE THE DEVELOPMENT TEAM?

Many companies end up choosing software vendors that either lack expertise, or are under or overqualified for the project's budget. Another challenge is selecting the right employment model. Mainly, there are two options: an in-house team, with all the members hired full-time, and outsourcing, which is primarily priced by hourly rates. Let's take a closer look at the pros and cons of both options.

Hiring in-house teams is a common option for healthcare companies, which comes with some distinct advantages, but also some things to watch out for. For a long-term medical project, it may seem like hiring an in-house team is a more cost-efficient and reliable option. If you consistently need a team in close contact over a long period of time, this option can work. However, it is the tip of an iceberg.

Let's imagine that to develop a healthcare product, you need a team of 3 software developers, a product manager, a project manager, UI/UX designer, QA engineer, and DevOps specialist. While the programmers and product/project will likely be involved full time, other team members won't have the full-time workload. That's why when hiring in-house, you will drastically overpay for most of the team members.

With this set-up, a viable option is to hire essential team members in-house, and hire outsourced specialists for the rest of the positions. However, keep in mind that hiring employees in-house comes with many challenges and additional expenses. If you decide to hire a team outside of the US, it may seem cost-efficient, but requires even more effort, time, and expenses.

Eventually, it turns out to be too expensive, time-consuming, and troublesome for a healthcare startup to form an in-house team, whether locally or in other areas. Let's take a closer look at the pros and cons of in-house development teams.

Pros of an in-house team

Communication

One of the most prominent advantages of in-house teams is the close proximity and availability, making for easier communication. For businesses that want to be deeply involved in the development process, this is a distinct plus. As the in-house team will be locals, they will be available in the physical office, or if remotely, they will be in your time zone if a snap meeting is required.

Cultural compatibility

An in-house development team often comes with a shared mindset, language, and approach, which eliminates issues with cultural differences or misunderstandings that can occur in remote teams.

Visibility into the process

With an in-house development team, you have more control over the entire process. In addition to examining reports and analytics, you can communicate directly with participants or influence the modification of different stages of development. Additionally, the team is dedicated solely to your project, which increases overall involvement.

Cons of an in-house team

Higher costs

Hiring a team in-house is a longer and way more expensive process, so if your project is short on time and with a strict budget, consider outsourcing. An average software developer's salary in the US sits between **USD 90,000** and **USD 120,000** annually, but apart from the developers, you will also need designers, project managers, business analysts, quality assurance engineers and other specialists.

There are also large costs that can be found in the recruitment of these specialists. Additionally, there are a lot of other employee-related costs associated with in-house development, like taxes, software licenses, office equipment, rent, and training.

Limited talent pool

Choosing an in-house team means you will be searching throughout your country, but most likely your region and city. The global tech community is extremely versatile and vibrant, with many bright individuals located all over the world. Hiring employees in your area limits this talent pool, which also means you will have to navigate the market longer and more carefully.

Time and cost to recruit

Finding a great employee in-house is way more complicated than finding talent from a worldwide pool. What’s more, according to data from Statista, hiring a single team member is the second-biggest challenge companies face, and takes on average 42-43 days in the US. The average recruitment cost of hiring an in-house employee can reach around 15-20% from the candidate’s annual salary. This means that for a USD 100,000 annual salary, the employer pays nearly USD 20,000 for recruitment. Also, there are additional costs associated with taxes, office rent, software licensing and equipment.

Time to fill	US average	UK& Ireland	Rest of Europe	Rest of world
Overall	43	48	53	47
Customer service	33	34	42	36
Engineering	58	58	56	56
Healthcare	29	29	N/A	N/A
Human resources	45	42	44	45
Information technology	50	55	57	47
Marketing	43	51	52	47
Product Management	50	67	56	57
Sales	40	47		

Cost breakdown: how much does it cost to hire an in-house team?

In healthcare software development, the ultimate cost depends on the project specifications and type of product. To better understand the distribution of costs in an average healthcare development project, let’s take a closer look at an example of a project estimate. Here you can see and compare the lower and upper price estimate with a project’s timeline, team structure, salaries, and project duration.

Project background: CRM software solution for a medical organization that includes a web and mobile application.

Key features:

- Dashboard for registration, adding users, and authorizations
- Questionnaire to add and manage information
- Reports flow for analytics
- Mobile application

How much does it cost to structure an in-house team

US

Team members	Project duration	Monthly salary
Software Development	6 month	\$9,000x3
Quality Assurance		\$5,800
Project Management		\$7,900
Business Analysis		\$8,000
UI/UX Design		\$7,500
DevOps (optional)		\$8,500
Grand total cost		\$388,200

After seeing the cost breakdown in the table above, we come to the conclusion that at least half of your in-house team will not have the full workload to pay for. Instead of paying for the actual work time of the employee, you will pay the full-time salary for a 30% workload. And don't forget the taxes, recruitment costs, office rent, equipment, and software licensing. Doesn't sound like a great deal, right?

Here we come to the conclusion that for the healthcare product development case, outsourcing becomes the viable option one way or another. If you have in-house team members but want high-quality and cost-efficient development, you will need to combine your employment model with outsourcing. Another option, of course, is fully outsourcing product development.

Outsourcing is a more flexible and faster way to kick off your project, with little involvement and onboarding needed. In projects like healthcare, it might seem risky, but choosing a vendor with industry expertise is safer and more efficient than training an in-house team. Let's take a closer look at the pros and cons of outsourcing healthcare software development.

Pros of outsourcing development

Cost-efficiency

Since an outsourcing team works on an hourly-pay basis, it's more cost-efficient. You only pay for the time that was directly spent on the project. Additionally, there's no need to invest in recruiting, office supplies & equipment, and other onboarding processes. The wide talent pool also lets a company choose the expertise level and price range that fits its requirements best.

Outsourcing development to an offshore software development provider can typically save a company between 40% and 75% of overall costs. Depending on the region, software development rates vary widely, with North America and Central Europe being the most expensive destinations for outsourcing. Asia and India are the cheapest regions.

Software development outsourcing rates in 2022

Country/Region	Average rates (Outsourcing)
	hourly rate
North America	\$80-145
UK	\$70-120
Germany	\$55-95
Eastern Europe (Ukraine, Belarus)	\$40-70
Asia	\$30-40

Flexibility & speed

Healthcare startups usually want speed of development, with a requirement to get their products to the market quicker. Outsourcing teams can deliver software of superior quality faster than an in-house team as the onboarding process is very short. Outsourcing is a perfect way to launch development faster.

Superior talent pool

With outsourcing, you get access to an immense pool of worldwide specialists, with different experience and areas of expertise. This is a huge advantage in the healthcare industry, since businesses often need niche knowledge or narrow industry experience, which may be hard to find locally.

For regions where developers' wages are generally high, like in the USA and Western Europe, outsourcing is the perfect option, as it allows companies to find the required skills for a reasonable price. One of the most appealing destinations for outsourced software development is Eastern Europe, like Ukraine. There, vendors offer unmatched proficiency and skill for a better price than other regions.

Cons of outsourcing development

Risk of miscommunication

Working with remote teams comes with certain risks, one of which is miscommunication due to time zone discrepancies or language/cultural differences. Additionally, there is no possibility of face-to-face communication. While some time ago this might have been a valid concern, now, in the era of remote jobs and Zoom, this doesn't seem like such an obstacle. In the first stages of cooperation, clear communication is crucial to set up

Limited visibility

Outsourcing means limited project transparency, however this can be both a benefit and a disadvantage, depending on business objectives. As a company, you will be able to focus more on your business rather than being constantly distracted by IT issues. However, if control and high level of involvement is a priority for you, outsourcing might not be the best option for you.

Cost breakdown: how much does it cost to outsource healthcare software development to US & Eastern Europe?

In healthcare software development, the ultimate price depends on the project specifications and type of product. To better understand the distribution of costs in an average healthcare development project, let's take a closer look at an example of a project estimate. Here you can see and compare the lower and upper price estimate with a project's timeline, team structure, rates, and development hours.



Project background: CRM software solution for a medical organization that includes a web and mobile application.

Project duration: 6 months

Key features:

- Dashboard for registration, adding users, and authorizations
- Questionnaire to add and manage information
- Reports flow for analytics
- Mobile application

How much does it cost to structure an outsourced team in US?

Team members	Minimum hours on Project	Maximum hours on Project	Rate per hour
Software Development	930	1724	\$110
Quality Assurance	232	344	\$80
Project Management	140	216	\$120
Business Analysis	140	216	\$120
UI/UX Design	40	80	\$90
DevOps (optional)	30	40	\$130
Total hours spent on the project	1512	2620	
The total cost of the project	\$160 910	\$280 000	

How much does it cost to structure an outsourced team in Ukraine?

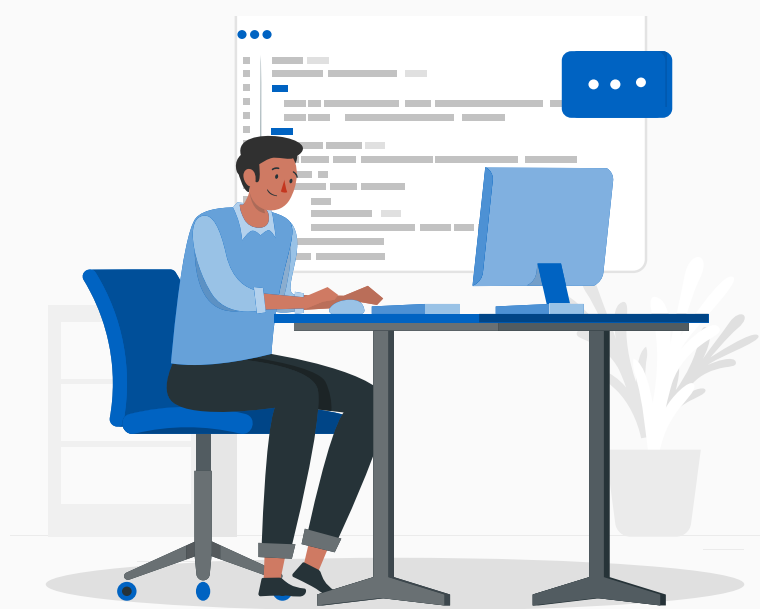
Team members	Minimum hours on Project	Maximum hours on Project	Rate per hour
Software Development	930	1724	\$49
Quality Assurance	232	344	\$29
Project Management	140	216	\$47
Business Analysis	140	216	\$47
UI/UX Design	40	80	\$39
DevOps (optional)	30	40	\$60
Total hours spent on the project	1512	2620	
The total cost of the project	\$69 966	\$120 276	

As you can see, outsourcing an average medical CRM with both web and mobile applications to Ukraine will cost you somewhere between USD 70 000 and USD 120 000, depending on the scope of features and the urgency of the project.

IN-HOUSE VS. OUTSOURCING: THE FINAL CHOICE

In the case above, it is evident how outsourcing is way more cost-efficient and flexible than hiring an in-house team. But there’s still a dilemma: which option to choose? To make it easier for you, let’s take a look at the total cost of hiring one developer in-house in the US vs outsourced in Ukraine.

We compare salaries of developers with full workload for one month. It is important to note that hiring in-house means additional expenses like recruiting, office rent, equipment, taxes, insurance, etc. In the US, all of these expenses result in roughly 30% of an employee’s monthly salary. While outsourcing also has some extra costs, all of them are included in developer’s rate, so you won’t have to pay additional hidden costs. With that in mind, let’s compare the ultimate cost in the following table.



	Software developer (In-House, USA)	Software developer (Outsourced, Ukraine)
Salary	\$11,000	\$49 x 160 hours = \$7,840
Added costs (taxes, office overhead, recruiting, agency,etc)	\$3,300	
Total cost	\$14,300	\$7,840

Finally, hiring an in-house developer in the US will cost you around USD 14,300, while hiring an offshore developer in Ukraine for the same workload will cost you USD 7,840. With your Ukrainian team, there would be no recruitment costs, taxes, or office spending. Outsourcing healthcare software projects of the same scope to Ukrainian teams is almost twice as cheap as hiring a team in the US.

Typical mistakes when outsourcing healthcare software development

Outsourcing can be a complex process with some risks. Here are some of the most common mistakes made when outsourcing software development. Some of those mistakes are only noticeable in the long run, impacting the result down the road, so prevention is the most important thing.



Choosing a vendor that's either too big or too small for your company

The mistake: Companies with big and small teams might work in different tempos and use different approaches, so if your vendor is a huge corporation, and you are a niche startup, some friction is possible during the execution process.

How to prevent: Pick the vendor that is slightly larger than your business, this is accounting for a difference in the structure of the product and outsourcing companies. A software outsourcing company with about 100 people is still considered quite small and thus will match by a culture to 20-50 people product company.

Not specifying your needs and requirements

The mistake: You risk choosing a vendor that is not a great match for your strategic needs. The absence of early discussions around goals can result in a misunderstanding surrounding what is actually required on delivery.

How to prevent: You must know why exactly you decided to outsource, and need to ensure that this specific vendor can provide you with all the outsourcing benefits you need. Have a list of what you need and on every sales call, make sure your chosen team can deliver. Discuss your needs in-detail, which is not just important in terms of the project, but also in terms of producing an approximate cost estimate.

Selecting an unsuitable pricing model

The mistake: A wrong billing arrangement results in having surprise charges later on, or very unpleasant conversations about the in-scope functionality, potentially ruining your relationship with your outsourced team.

How to prevent: Choose a fixed cost approach only if you can provide a fixed scope definition to your vendor. As a rule of thumb, if the project takes more than 4 developer months to complete, it's almost a definitive candidate for T&M billing, unless of course, you have scrupulously prepared all the documentation, requirements, and technical specifications.

Failing to analyze what skills are required for the project

The mistake: You'll leave gaps in the knowledge and skills of your global team, or have an excess of a certain specialist and knowledge.

How to prevent: Have a clear understanding of your needs and what your outsourcing partner has to provide. Just like if you were looking for an in-house developer, you would have a clear idea of the skills needed to complete the project. The difficulty lies in the fact that you have to have a map for the entire team. Don't just focus on having developers — a successful project means that all roles are well covered. Identify those that are needed, take a look at what you already have and where the gaps are, working to properly fill those gaps.

Not providing objective and candid feedback

The mistake: Honest feedback is one of the strongest pillars of your relationship with a vendor, so being unclear complicates the entire project. Everyone understands that it's a necessity, but very few do it properly.

How to prevent: The feedback must be constructive and objective, backed with facts and examples. Avoid generic comments like "You're doing a bad job" or "Your code is horrible". Instead try something like "From the data we have, the quality of the product is below our standards, in the last release there were 20 critical defects, which is 25% more than the previous one". Critically, don't forget to seek feedback about yourself!

Being unprepared for deviations from the plan

The mistake: Software development is a risky enterprise, so setting your expectation for immediate success is not the best approach. If you embark on this path, get yourself ready to face unexpected events. Stats show that 17% of the IT projects go so badly that they threaten the existence of the entire company, with large software projects running on average 66% over budget and 33% over time while delivering 17% less value than predicted.

How to prevent: Try to accept the fact that things can go wrong at some point and prepare accordingly: analyze the problem, change your plan with new information in mind, regroup to ensure this won't happen again, and get back to normal execution. It will save you tons of time, money, and stem unnecessary stress if you follow this simple flow.

How to structure your outsourcing development team?

Whether your idea can be brought to market through an application or a web platform, here are some basic tips that will help you navigate through the process of team building. This way, it will be easier to screen and hire developers as well as other members of an outsourced team. Here you can set up a realistic budget, as you can see approximately how many specialists you will need. Another important factor is development duration, which solely depends on the specifics of your project and your business needs.

For example, here are approximate team numbers needed to create a small MVP of a healthcare application.

Healthcare app development

How many developers do I need?

There are different types of mobile application development, but on average you will need around 1-3 developers. Other essential team members include a DevOps, QA, and UI\UX designer, a business analyst, and a project manager.

Here are approximate team numbers needed to create a small MVP of a healthcare platform.

Healthcare web platform

How many developers are required?

You will need 2-4 software developers. The team can also include the same personnel as well (depending on the requirements): DevOps, QA specialists, designers, a business analyst, and a project manager.

Key points to consider when choosing an outsourcing partner

Knowledge of the industry vertical

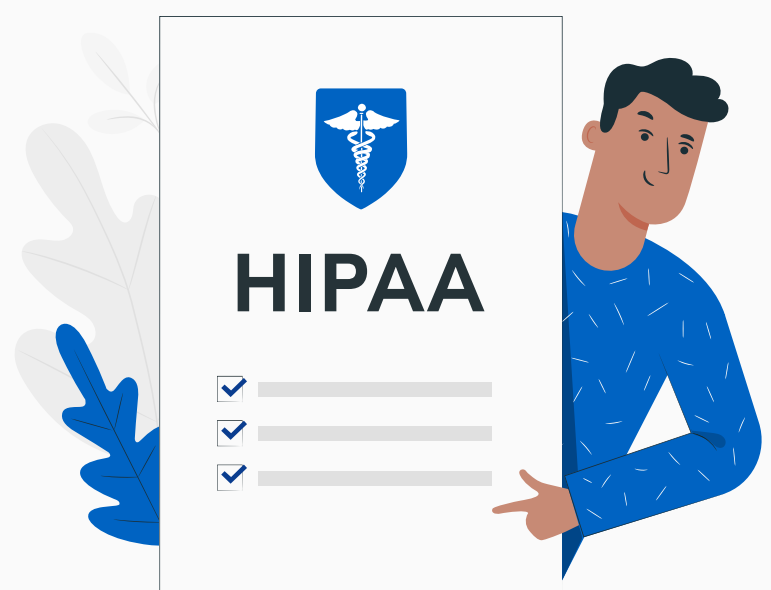
When it comes to software development in healthcare, a deep understanding of the vertical is crucial. This point is often dismissed by healthcare companies, but it can be a defining factor in the ultimate quality of the result, as well as the time and costs spent on your product. In fact, an organization can save up to 30% of development time due to the software vendor's industry knowledge.

Software companies who have expertise in the field have more insights into how to make the product better and are acquainted with common pitfalls of healthcare software development.

Compliance certifications

To make sure the product is going to successfully enter the market, it is imperative to pay attention to whether your software vendor is certified and compliant. Common industry certifications include the ISO 9001 quality management certification and ISO 13485 certification for medical device development. It is also critical to ensure compliance with major industry standards and protocols, like HIPAA/HITRUST in the US or GDPR in Europe.

One more important thing is the ISO 27001 certification (information security).





Thanks for reading!

Do you need an efficient IT team for realizations of your ideas?

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Glorium Technologies

Founded in 2010 and based in New Jersey, our company is an ISO-9001 and ISO-13485 certified software solutions supplier.

The company has also obtained ISO 27001 certification, which requires the implementation of a number of security controls that reduce the risk of cyberattacks, and human errors and prevent downtime.

Glorium Technologies professionals deliver projects in the shortest timelines without losing quality in the process as they utilize some of the techniques and strategies for effective team collaboration described in this book.