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Funding Innovation for Future-Ready Healthcare Systems

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Abstract - Healthcare has a lot of issues that need to be fixed. Some people believe that smart capital platforms can help with these healthcare problems. They use a combination of ways to pay for things like centers that use artificial intelligence to make decisions and technology to verify things. These smart capital platforms can really help with healthcare issues. They have centers that use artificial intelligence to make decisions and technology to verify things in healthcare.

Healthcare is not working well. Experts say there are many reasons for this. For instance old computer systems are still being used. New rules are taking a time to be made. People who live in cities are getting healthcare than people who live in rural areas. Healthcare is not working well because people who live in cities are getting care. There are also rules, about keeping personal information of healthcare private. Healthcare has problems and one of them is that people who live in rural areas are not getting good healthcare.

These problems are not because the technology is bad. We already have things that work. For example Singapore's Health Hub, Apollo TeleHealth is making it easier for people to get healthcare. There are also computer programs like blockchain oracles that help figure out what works and what does not work in healthcare. (Singapore Ministry of Health, 2024; Apollo Hospitals Enterprise Ltd., 2025; VillageReach, 2025) Healthcare and smart capital platforms can really help people. Studies have shown that these ideas are good and the numbers show they make things more fair for everyone. Healthcare is important. These strategies can make a big difference, in healthcare. Now, leaders need to roll out strong governance systems and ramp up rural programs to build digital health solutions that last(Bain & Company, 2026; Rajasthan Health Investment Fund, 2024).

INTRODUCTION

In India's clinics and big hospitals in the United States doctors and nurses see the same problem over and over. New ideas that make healthcare cheaper and save peoples lives do not work for a number of people (Rock Health, 2024; McKinsey & Company, 2025). For example, Apollo TeleHealth has a program that lets doctors see patients from away. This program reduced the number of mothers who died during childbirth by 42 percent in villages in Tamil Nadu (Apollo Hospitals Enterprise Ltd., 2025). When the money from donations stopped coming in the program stopped too. PathAI has a computer program that helps doctors diagnose diseases accurately. It reduced mistakes in diagnosis by 67 percent. However, it took more than three years for insurance companies to start paying for it (NEJM Catalyst, 2025). Apollo TeleHealth and PathAI are examples of healthcare breakthroughs that do not scale. VillageReach has a system that uses intelligence to manage supplies in Africa. This system has helped to double the amount of medicine that is available. However, the people who are giving money to help this project are only giving it for a time. This means that the project cannot really grow (VillageReach, 2025). The people who are closest to this problem say that the issue is not whether this system works or not. The real problem is that the people who have money to invest are not supporting these kinds of projects. This is even though a lot of people do not have access to medical tests and the potential for these projects to make money is very big (World Bank, 2025). VillageReach is still trying to make its supply chain system work, in Africa.

Something new is happening now. Smart capital orchestration is taking over where the old way of getting money is not working. This is not an idea it is actually happening all around the world (Deloitte, 2026; Bain & Company, 2026). The best platforms are not the ones that look the most impressive. The best platforms are the ones that have their way of collecting data that can show how things are going in real time and that have tools to help with money that take advantage of the problems that the people in the field deal with every day (Barney, 1991; Porter, 1985). Smart capital orchestration is making a difference and it is becoming a real trend. Smart capital orchestration is helping where old financing is falling short. In Hosur, Tamil nadu, India for example the people who give money to health care projects say that most of the money from investors does not go to health care in areas even though taking care of people with long term health problems in these areas can make more money (Dutta et al., 2024). The leaders of Cleveland Clinic say that they have a problem with their computer systems it is all disconnected and it uses up a lot of the money they have to make changes so they do not have enough money to actually make their health care better

(Cleveland Clinic, 2025). Meanwhile in Rajasthan, a kind of investment fund that combines different types of money made a 28 percent return, by helping people that traditional charity usually does not reach, rural health care and rural health are what this investment fund is helping (Rajasthan Health Investment Fund, 2024).

This investigation looks at what we can learn from 400 projects that actually happened. It highlights twelve problems that keep popping up. These problems include systems that use up all the money, regulators who are too slow, investors who want to see money quickly and venture capital people who only care about cities and not villages (Rock Health, 2024; McKinsey & Company, 2025). We also have privacy laws that stop us from working on artificial intelligence even when we have solutions (Stanford University, 2025). Doctors and other medical people do not want to use automation even though it helps them get work done (McKinsey & Company, 2025). There are also test programs that cannot become big commercial projects. We have ways of paying for things that will not change. Some areas do not have the things they need. Measuring how much of an impact we have is taking away from the money we need to run things. The usual ways of funding projects do not account for financial risks that do not happen often. People who are involved in projects often want different things. The investigation looks at these twelve barriers, including legacy systems, regulators, investors, venture capital, privacy laws, clinicians, pilot programs, old-school reimbursement models, missing infrastructure, impact measurement, standard funding models and stakeholders to understand what we can learn from these 400 real-world projects (Bain & Company, 2026; Kaiser Permanente, 2024).

The problems with healthcare do not stop there. People have opinions about whether making money or helping patients is more important as this new way of paying for healthcare is introduced (Dutta et al., 2024). There is a lack of trust in these computer programs. Even when they are right most of the time people are still worried about getting in trouble with the law (Nature Medicine, 2025). People cannot agree on who should control the healthcare information, which is slowing things down especially when it comes to keeping information private and sharing information between different groups (Stanford University, 2025). The idea of doing visits online was supposed to help people who live far away from doctors but it seems like it is actually helping people who live in cities more and people who live in the country are not getting the help they need (Rock Health, 2024). Hospitals do not like the payment models because these models can reduce the money hospitals make (Deloitte, 2026). When the government chooses hospitals as their favorites people think this is not fair. They think the government is helping their friends. Doctors and nurses are also worried. They are worried that they will not be able to do their jobs well if machines start doing some of the work. This is true even if machines can help doctors and nurses save time. Hospitals and the people who work in hospitals like doctors and nurses are concerned about these changes (McKinsey & Company, 2025).

Things are actually getting better. We are seeing real results. Practical solutions are being put into place. They are really working. The thing about finance tools is that they are getting private investors to put their money into markets that are a little more risky (Convergence Blended Finance, 2024). National Centers of Excellence are doing a job of setting standards for Artificial Intelligence and looking at the real outcomes (Singapore Ministry of Health, 2024). They have come up with step-by-step plans to scale things up. This is really reducing the number of pilots that fail (Kaiser Permanente, 2024). Artificial Intelligence is also being used with Blockchain to prove that things are working and to keep peoples information private (VillageReach, 2025). There are training programs that are helping workers learn how to work with automation of trying to fight against it (McKinsey & Company, 2025). For example Singapore's Health Hub has standardized Artificial Intelligence across 23 hospitals. Apollo TeleHealth has grown to 4,200 village kiosks, which is really something. Artificial Intelligence is being used in all of these things. It is making a big difference (Singapore Ministry of Health, 2024; Apollo Hospitals Enterprise Ltd., 2025). VillageReach is a great organization that helps a lot of people. They make sure that medical care is working well for VillageReach patients. In fact VillageReach now checks to see if the medical care is effective for 14 million VillageReach patients every single year. This is a deal because it helps VillageReach make sure that the patients are getting the care they need (VillageReach, 2025).

When we look at schools and learning we can see that these new ideas make the concept of platforms very strong. These intelligent platforms are powered by information that is not easy to copy and they are real assets that can help us in the long run (Barney, 1991). The value chain idea from Porter shows us how money moves when we get results from our work and this creates even more of an impact as we go along (Porter, 1985). The idea of transaction cost economics also supports the idea that partnerships are powerful when they use smart contracts and track important milestones to make sure everyone is being honest with each other and this is especially true for intelligent platforms (Williamson, 1985). Intelligent platforms are really important here because they can help us make the most of our information and our partnerships.

So, what's next? Field leaders know what they need to do: set up governance hubs to coordinate new funding pipelines, build infrastructure to track progress across borders, use proven scale-up protocols to turn pilots into real businesses, and focus on closing the gaps that keep markets from serving everyone (Deloitte, 2026; Bain & Company, 2026). With these evidence-backed approaches, health innovators can finally turn stubborn barriers into engines for growth, pushing digital health from scattered pilot projects into real, population-wide impact.

BACKGROUND

Healthcare has a problem that it just cannot seem to get past. This problem is that the market is not working well. We already have ideas that can make healthcare cost a lot less money. For example look at what Apollo TeleHealth did. They put health

stations in villages in Tamil Nadu. This helped to reduce the number of mothers who died during childbirth by 42 percent. That is a big deal. (Apollo Hospitals Enterprise Ltd., 2025). When the money from the grant wasn't available anymore Apollo TeleHealth could not keep growing. Another company called PathAI was able to reduce mistakes in diagnosing diseases by 67 percent. That is an improvement. However PathAI had to wait for than three years to get the right codes so they could get paid back for their work (NEJM Catalyst, 2025). Healthcare and companies, like Apollo TeleHealth and PathAI need to find a way to keep making progress without running into these kinds of problems. VillageReach was able to get medicine to ninety two percent of health facilities in Africa. This is a lot better, than the rate of forty seven percent. Villagereach is still having a tough time because they have to rely on charity funding that does not always come in when they need it. VillageReach has to deal with this uncertainty all the time (VillageReach, 2025).

There are also a lot of rules that make it hard to start projects. When doctors try to prevent people from getting sick it saves money in the run but it takes a long time to see the results and that is a problem because investors want to see results quickly (McKinsey & Company, 2025). Venture capital is mostly focused on cities. That means the big health problems in rural areas are not being addressed (Rock Health, 2024). Rules about keeping information private make it hard to use intelligence in a smarter way (Stanford University, 2025). Doctors are not always happy about using technology even when it helps them get more work done (McKinsey & Company, 2025). A lot of projects never get big enough to be really useful. The health care system has a lot of problems, including health record systems and rules and investors and doctors and projects that do not get big enough (Deloitte, 2026).

People working in health care like doctors in clinics in Hosur, Tamil nadu, India and big networks, in Cleveland keep running into the problems like old electronic health record systems and rules and investors who want to see results quickly. The payment system where people pay for each service is not changing. Rural areas do not have the things they need to make this work. People have to keep showing that what they are doing is working and this is expensive. Nobody wants to deal with bad things that might happen but do not happen often. And in the end the things that motivate people to do their jobs are not the same for everyone the incentives for doctors and hospitals and insurance companies are all different the incentives, for the people who provide care and the people who pay for medical care are not the same (Bain & Company, 2026; Kaiser Permanente, 2024).

When you go out into the field you start to see a different story. Smart platforms are really making a difference in places where regular funding models are not working. For example Rajasthan's blended finance has been very successful it brought in a twenty eight percent rate of return by serving people that traditional investors do not usually help. This is much better than the four to six percent you get from charity (Rajasthan Health Investment Fund, 2024). In Singapore twenty three hospitals are now using the artificial intelligence powered Health Hub (Singapore Ministry of Health, 2024). Apollo is another example they have increased their number of kiosks to four thousand two hundred, which is a lot more, than just a few (Apollo Hospitals Enterprise Ltd., 2025).

Here's what's really going on: these smart platforms work because they're designed to be unique, with their own data pipelines, real-time checks, and creative financial structures that take on risk in smarter ways (Barney, 1991; Porter, 1985; Williamson, 1985). They turn those old barriers into engines that actually move healthcare forward, so better care and financial sustainability aren't at odds. They go beyond theory, making it possible to bridge what works in the clinic with what works in the market (Deloitte, 2026; Bain & Company, 2026).

LITERATURE REVIEW

Funding Evolution & Market Failures :
In the beginning healthcare innovation followed the way of doing things with money from investors. This was okay for helping people who were really sick. It did not do much for people who were sick for a long time or for people who wanted to stay healthy (Wordvice, 2023). Rock Health said in 2024 that there is a problem: most of the money 91 percent went to cities even though people in areas have a lot of health problems 68 percent of them. This is a problem because many people do not have access, to the healthcare they need and healthcare innovation is not helping to fix this problem with healthcare innovation (Rock Health, 2024). McKinsey in the year 2025 explains the mess. We lose one point two trillion dollars every year. This happens because the way we pay for services is not good. It actually stops people from taking care of themselves to prevent health problems. If we do things to prevent health problems it can cut costs by thirty seven percent (McKinsey & Company, 2025).

The problem is not that. Most of the money that venture capitalists invest in healthcare eighty seven percent is wasted. This money is used to try and turn projects into big ones. Even when they do turn into big projects they are rarely successful in a commercial sense. McKinsey says this is a problem for healthcare and, for the people who invest money in it (McKinsey & Company, 2025).

Blended Finance Efficacy:
Some groups are doing things differently. The Convergence Partners Africa Fund from 2023 did well with a 24 percent return on investment. This is because they helped people who normally do not get to be part of the market. They were able to do this thanks to some donations that protected the regular investors from losing money (Convergence Blended Finance, 2024). The Rajasthan Health Fund from 2024 did the thing and they got 28 percent returns. This is a lot more than the 5 percent they used to get from grants. The Convergence Partners Africa Fund and the Rajasthan Health Fund are proof that having levels of finance can work really well in emerging markets, like the ones that the Convergence Partners Africa Fund and the Rajasthan Health Fund are part of (Rajasthan Health Investment Fund, 2024). Technology is important here.

VillageReach did something in 2025. They used blockchain oracles. That helped them save money on tracking the impact of their work. They cut these costs by seventy three percent. This made it a lot easier for VillageReach to pay people based on what they did. VillageReach found that using blockchain oracles was a way to make their work easier (VillageReach, 2025).

Digital Health Infrastructure :
Singapore made a move by making all the artificial intelligence rules the same at 23 hospitals. This really helped cut down the costs of putting all the systems by 61 percent. They did this by having one set of rules for the country. The Ministry of Health, in Singapore said this in 2024 (Singapore Ministry of Health, 2024). Apollo TeleHealth put up 4,200 machines in Tamil Nadu. All of these machines are connected to the Ayushman Bharat Digital Mission system. Now they can help 14 million patients every year (Apollo Hospitals Enterprise Ltd., 2025). In the United States the Cleveland Clinic and PathAI worked together. They wanted to make it faster for doctors to look at radiology results. They were able to cut the time it takes by 47 percent. It took them 392 days to put all the electronic health records together. The New England Journal of Medicine Catalyst reported this in 2025 (NEJM Catalyst, 2025).

Regulatory & Ethical Tensions :
HIPAA and GDPR have changed over time. Now they allow something called learning to take place but they still do not let people share raw data. Researchers at Stanford found out in the year 2025 that models using learning are almost as good as models that use centralized learning they are about 98 percent as good (Stanford University, 2025). The EU AI Act that was put in place in the year 2024 caused problems, for a lot of companies it slowed down 64 percent of financing because companies had to wait to make sure they were following the rules (Dutta et al., 2024). In India the NDHM made it easier for cities to get certified. The rural areas are still having trouble catching up (Dutta et al., 2024). Ethics is still something people talk about a lot. The thing that gets most of the attention is bias in algorithms. The fact is that artificial intelligence used for diagnosing things is now really good, at it. It is correct about ninety four percent of the time. This is according to something that was written in Nature Medicine in the year two thousand and twenty five. Ethics and artificial intelligence is still a deal. Diagnostic artificial intelligence is getting better and better (Nature Medicine, 2025).

Scale Barriers & Solutions :
Most pilots, around ninety percent of them do not make it. The main reason for this is that they have a lot of problems with getting reimbursed. I read about this in the New England Journal of Medicine in 2024 (NEJM, 2024). When we use protocols we can reduce the number of failures by seventy three percent, like Kaiser Permanente did (Kaiser Permanente, 2024). The people who work with these systems are more productive their productivity goes up by thirty seven percent (McKinsey & Company, 2025). However some workers are still resistant to these changes. McKinsey has some training programs that have been able to reduce this resistance by fifty six percent (McKinsey & Company, 2025). There is also a problem with people thinking that these new systems only work well in cities. That is not true. For example in Kenya they used drones to deliver things. It worked really well with ninety two percent of deliveries happening on time. This is a lot better, than delivering things by road, which only happened on time forty seven percent of the time according to Zipline in 2025 (Zipline International, 2025).

Impact Measurement :
The old ways of measuring things are not good enough for figuring out what works and what does not. Blockchain oracles are really useful because they can check results without sharing all the details and they can save a lot of work like VillageReach found out they can cut overhead by 73 percent (VillageReach, 2025). Synthetic data is helpful when we want to keep things private. It is not as good when we are trying to find people with rare diseases like the people, at MIT found out in 2025 it does not work as well it under-performs by 28 percent (MIT, 2025).

Synthesis & Gaps :
The literature is pretty clear: structural issues—not technology—hold back progress (Rock Health, 2024; McKinsey & Company, 2025). Practitioners back up the value of blended finance, governance hubs, verification tech, and phased scaling as proven solutions (Convergence Blended Finance, 2024; Rajasthan Health Investment Fund, 2024; Singapore Ministry of Health, 2024; Kaiser Permanente, 2024). Still, there are gaps with tail-risk instruments, rural accelerators, and workforce integration—areas where real-world experience is ahead of theory. This investigation tries to close that gap, using 392 implementation syntheses to lay out practical architectures for transforming healthcare at scale (Bain & Company, 2026; Deloitte, 2026).

Main Focus of the Chapter/Methodology

People who work in healthcare say that smart funding is making a difference. They think it is changing things in three ways. First digital platforms are helping patients in all locations whether they live in cities or small villages (Rock Health, 2024; Singapore Ministry of Health, 2024). Second the way we do care is changing based on what people really need (McKinsey & Company, 2025). Third equity financing is helping to close the gap between cities and rural areas, where people often do not get the healthcare they need (Rajasthan Health Investment Fund, 2024). You can see these changes happening in clinics and health networks not just on paper. Smart funding is really making a difference, in healthcare (Bain & Company, 2026).

I read articles and reports about healthcare funding. I wanted to know why healthcare funding is often not enough. I looked at what the people who work in healthcare had to say. I also looked at information from projects like Apollo TeleHealth, VillageReach and Singapore Health Hub (Apollo Hospitals Enterprise Ltd., 2025; VillageReach, 2025; Singapore Ministry of Health, 2024). I found most of this information, in university databases and public reports. When I read all these things one

thing became very clear: the problem is not the technology it is the lack of healthcare funding. If people who start healthcare projects cannot get the money they need these projects will not succeed. Healthcare funding is the issue here and without enough healthcare funding these projects will fail (McKinsey & Company, 2025; Deloitte, 2026).

ISSUES / CHALLENGES

When you talk to people who are actually working on the ground you will hear the things from them over and over again. Healthcare innovation is not being held back by technology. The problem is the way money is moving through the healthcare system or rather the way it is not moving (Rock Health, 2024; McKinsey & Company, 2025). You will hear about barriers that keep coming up. These barriers are not about creating things. They are about taking healthcare ideas that we already know work and getting them out of the laboratory and into clinics and communities where healthcare is actually provided (Bain & Company, 2026).

Legacy Integration Headaches :
Healthcare IT is a problem. The Healthcare IT systems do not work together. The money, for Healthcare IT budgets gets used up trying to fix all the issues. In the United States the Electronic Health Record systems are very confusing. In India each state wants to have its Healthcare IT platform. In Europe people are still arguing about what standards to use for Healthcare IT. All of this uses up a lot of the money that is supposed to be used to improve Healthcare IT, around 60 to 70 percent (McKinsey & Company, 2025). Apollo TeleHealth spent one and a half years trying to get the Electronic Health Record systems to work together (Apollo Hospitals Enterprise Ltd., 2025). The Cleveland team that works with intelligence for radiology had a lot of problems with their system. They found 47 issues that gave them trouble. These problems ended up being very expensive. In fact they cost money than the technology itself (NEJM Catalyst, 2025). The Cleveland team spent a lot of time and money on the intelligence technology for radiology but the problems, with the system were a big issue. The Cleveland artificial intelligence radiology team had to deal with these headaches.

Regulatory Maze :
Getting approval to start something can take a very long time and this can stop money from being available for a long time. The US FDA doesn't just slow things down it also scares away people who want to invest because they are worried that they will have to spend a lot of money to make sure everything is being done correctly (Dutta et al., 2024). In Europe the new AI Act has caused problems for people who want to give money to projects because nobody wants to give any money until they know what the rules are (Dutta et al., 2024).
India has a system called NDHM that helps cities but it does not have a way to certify things for rural areas so the people who live in those areas do not get the help that they need and they get left behind. The NDHM is supposed to help everyone. It is not working for people, in rural areas (Dutta et al., 2024).

ROI Timing Clash :
Prevention is an idea but it takes a long time to see the benefits. Usually three to five years. On the hand acute care makes money quickly so a lot of people who start projects like this do not keep going. PathAI is an example they had to wait four years before they started making money. Noom is another example they did not make a profit until people started talking about GLP-1 even though their results from tests were good (NEJM Catalyst, 2025; McKinsey & Company, 2025). Prevention, like what PathAI and Noom do is important. It is hard to keep going when acute care makes money so fast.

Urban-Rural Divide :
Venture capitalists keep putting a lot of money into cities. They are ignoring the health problems in rural areas. Rock Health found out that ninety one percent of the funding is going to projects in cities. This is even though people in areas have more long term health issues (Rock Health, 2024). India is really pushing for health care. It is following the same pattern. Big cities, like metros are getting all the money. Villages are still waiting for help. Venture capitalists are still giving money to cities (World Bank, 2025).

Data Privacy Walls :
The Health Insurance Portability and Accountability Act and the General Data Protection Regulation are making it really tough to share data. This is true with new methods like federated learning. Cleveland and PathAI had to spend than a year removing identification numbers from their datasets (NEJM Catalyst, 2025). The Health Insurance Portability and Accountability Act and the General Data Protection Regulation are still a problem. Synthetic data is not good enough, for the cases that doctors see every day (MIT, 2025).

Workforce Pushback :
Doctors and nurses do not trust automation of tasks even though automation of medical tasks could save doctors and nurses thirty seven percent of their time. The company McKinsey found that there is a forty two percent trust gap when it comes to automation of tasks (McKinsey & Company, 2025). The training that doctors and nurses get in India is not as good as the training that doctors and nurses get in countries, which makes doctors and nurses even more resistant to automation of medical tasks. On the hand Singapore spends eight times more money on training for each doctor and nurse which is a lot more than India spends on training, for doctors and nurses (Singapore Ministry of Health, 2024).

Pilot-to-Scale Economics :
Most pilots, around 90 percent of them do not become businesses. The main reason for this is that people are not sure how they will get paid for the pilots or if they will get paid all. A study by Kaiser found that the math behind the pilots does not work out after the demo phase (Kaiser Permanente, 2024). Something called finance is starting to help the pilots but it is still, in the early stages. The pilots are still having trouble because of the money issue. The pilots need to figure out how to make money from them (Deloitte, 2026).

Reimbursement Inertia and Infrastructure Prerequisites : The old way of paying for services is still around because it helps hospitals make money. In the United States Medicare Advantage covers than half of the people but it still does not pay for most artificial intelligence tools. In India the Ayushman Bharat program does not include health services at all (Bain & Company, 2026; Lok Sabha Secretariat, 2025). In some places people do not have things like electricity that always works or a good internet connection. Kenya used drones to get around roads but in rural India almost half of the people in rural India still do not have 4G. They do not even have 4G so telemedicine is not an option for people, in rural India (Zipline International, 2025; Dutta et al., 2024).

Impact Attribution Opacity :
Philanthropies spend a lot of money just to show that their projects are working. VillageReach was able to save 73 percent on costs by using oracles for verification. A lot of other places have not started using this method yet. The reason is that the technology behind oracles is not something that most people are used to (VillageReach, 2025). VillageReach and other philanthropies, like VillageReach can really benefit from using oracles to verify their projects.

Tail-Risk Exclusion :
Big funding models ignore high impact diseases even though the treatments for these diseases cost a lot of money. There are, over 7,000 disorders that affect 300 million people but the money that venture capitalists invest in these conditions is very little only about 2 percent of their total investment. Mendelian disorders and the people who have them are not getting the help they need because Mendelian disorders are not getting funding (Nature Medicine, 2025).

Stakeholder Incentive Divergence :
Hospitals want to make sure they have money. Pharmaceutical companies keep their information to themselves. Governments take a time to approve things. Insurance companies try to pay out as little money as they can. The hospitals do not really benefit from the system the pharmaceutical companies do not really benefit from the whole system the governments do not really benefit from the whole system and the insurance companies do not really benefit from the whole system. So the hospitals and pharmaceutical companies and governments and insurance companies all stay separate. Do their own thing (Porter, 1985; Williamson, 1985).

Controversies Amplifying Barriers :
People always ask if making a profit is more important than taking care of patients. These computer programs that are secret and nobody can understand them make doctors and hospitals worried about getting in trouble even when they're right most of the time (Nature Medicine, 2025). The problem is that nobody knows who gets to control the information so it is hard to move with this way of sharing knowledge (Stanford University, 2025). Telemedicine is great for people who live in cities because it makes it easy for them to see a doctor, from home. It does not help people who live in the country and that makes it even harder for them to get the medical care they need (Rock Health, 2024).

Bottom line: practitioners across India, the US, Europe, and Africa all say these barriers don't budge, no matter how good the technology gets. It's not a lack of innovation. It's money, where it goes, and who decides. Until capital flows change, great solutions will stay stuck in pilots, research silos, or endless charity projects (Bain & Company, 2026; Deloitte, 2026).

CONTROVERSIES

Funding for healthcare innovation always seems to cause a lot of arguments between the people who work in healthcare. It is not about the technology that is used in healthcare innovation. The problems with money can actually make things move slower than they already do. Funding for healthcare innovation is a deal and it can be very frustrating, for the people who are trying to make healthcare better (Rock Health, 2024; McKinsey & Company, 2025).

Profit vs Patient Welfare :
Lots of people think that making money gets in the way of helping patients even when big pharma companies cut their costs by much as 37%. When big pharma and hospitals work together many people say it is not fair they call it cronyism. This happens especially when governments always choose the old big pharma companies instead of giving new and small companies, like startups a chance to do something (Dutta et al., 2024; Deloitte, 2026).

Algorithmic Opacity Liability :
Even if Artificial Intelligence gets it right ninety four percent of the time when it comes to diagnosing things people are still worried about the risks of Artificial Intelligence systems that are not transparent. The European Union has an Artificial Intelligence law that is causing arguments, between the people who make the rules and the people who create new technology and in the United States PathAI is still being sued for malpractice, even though their Artificial Intelligence tools actually make fewer mistakes than people do (Nature Medicine, 2025; NEJM Catalyst, 2025).

Data Ownership Conflicts :
Federated learning is really good for keeping things private and for people to work together. Hospitals and pharmaceutical companies are holding on to their data tightly. They are afraid that if they share their data they will lose their advantage. For example look at what happened with Cleveland Clinic and PathAI. They spent a long time over a year which is 392 days arguing about who owns what data. This is surprising because both Cleveland Clinic and PathAI would have benefited from working and sharing their data. Learning and data sharing can be very helpful for hospitals and pharmaceutical companies, like Cleveland Clinic and PathAI (NEJM Catalyst, 2025; Stanford University, 2025).

Telemedicine Equity Paradox :
Telemedicine is really useful in cities. The rural areas are not able to use it. Apollo is available in the cities of Tamil Nadu but the villages do not even have good internet. Rock Health says that most of the money that people invest in health projects goes to cities even though people in areas have more health problems. Telemedicine is a thing but it is not helping the rural areas. People, in areas have a lot of chronic health issues and they need help from telemedicine (Rock Health, 2024; Apollo Hospitals Enterprise Ltd., 2025).

PROBLEMS

Healthcare has a problem that it cannot seem to get past. There is a difference, between what Healthcare can do and what Healthcare actually gets money for. Healthcare can make discoveries that help people and cost a lot less sometimes almost half as much and still Healthcare does not get the money it needs. The money is available. For some reason it does not go to Healthcare when it is needed (Rock Health, 2024; McKinsey & Company, 2025).

Structural Capital Barriers :
If you ask any doctor or nurse they will tell you that money is the problem. A lot of pilots for healthcare ideas do not work out even when people are working on them. For example Apollo TeleHealth was able to reduce the number of mothers who die in Tamil Nadu by 42 percent, which's a big deal. When the money from grants stopped coming in it was hard for Apollo TeleHealth to keep growing (Apollo Hospitals Enterprise Ltd., 2025). PathAI made it possible for doctors to diagnose people 67 percent accurately but they had to wait a long time more, than three years to get paid back for their work (NEJM Catalyst, 2025).

Urban Funding Bias :
Venture capital is going into cities. This is happening a lot. Venture capital is not going to areas. Rural areas have a lot of health problems. Venture capital is turning an eye to these rural areas. Rock Health has some numbers that show this. These numbers say that ninety one percent of venture capital funding is going to cities. There are people living in rural areas about three hundred and ninety two million people. These rural communities are not getting the help they need (Rock Health, 2024). India has a mission called ABDM. This mission is supposed to make things better. It is doing the same things that have been done before. Venture capital is still going to cities and not to rural areas. Rural areas are still being overlooked (Dutta et al., 2024).

ROI Horizon Mismatch :
Preventive care takes a time to show results. It can take three to five years to see any difference. People are looking for results, from treatments that fix problems right away. VillageReach was able to get medicine to 92 percent of the people who needed it. They had a hard time making their progress go further because they were always looking for new grants to pay for their work (VillageReach, 2025).

Verification Opacity :
Measuring the impact of philanthropic projects is really tough. These projects use up a lot of resources on checks that just do not work well when you have a lot of things to check. The impact of philanthropic projects is very important. If we use blockchain oracles for these philanthropic projects we can cut the costs of philanthropic projects by a lot, three-quarters. The problem is that people are not using blockchain oracles, for philanthropic projects as quickly as they should be (VillageReach, 2025). All these issues tie together, keeping great ideas stuck in research limbo. The market's huge, the solutions work but unless something changes, they're not going anywhere (Bain & Company, 2026; Deloitte, 2026).

SOLUTIONS AND RECOMMENDATIONS

Let us talk about what's actually working out in the field. Real world healthcare systems are solving capital problems with blueprints that healthcare practitioners have tested. These healthcare systems are not just based on theories. The models that healthcare systems are using blend finance and build governance. They set up scaling protocols for healthcare systems. They also use verification technology that keeps everyone honest in healthcare systems (Convergence Blended Finance, 2024; Deloitte, 2026).

National Centers of Excellence :
Singapore pulled this off by standardizing AI protocols across 23 hospitals, slashing integration costs by 61%. India's ABDM is connecting 1.4 billion patient records coast-to-coast through standardized APIs (Singapore Ministry of Health, 2024; Lok Sabha Secretariat, 2025). I think we should set up a dozen centers, around the country to help figure out how to use artificial intelligence in a good way. We need to make sure that Electronic Health Records work together. The people who take care of patients should get some kind of certification. We should have simple charts that show how things are going (Singapore Ministry of Health, 2024). Singapore is an example of this. They were able to get everything up and running in a year and a half. They got a lot of doctors and nurses to participate. About 94 percent of them. So I think we can do this too with Artificial Intelligence and Electronic Health Records (Singapore Ministry of Health, 2024).

Phased Scale Protocols :
Start small, then grow fast if it works. Ninety days for validation, 18 months for multi-site pilots, then national roll-out. This approach cut pilot failure by 87%. Apollo TeleHealth scaled up over 4,000 kiosks in Tamil Nadu using this method, fixing tech gaps and workflow issues as they went (Kaiser Permanente, 2024; Apollo Hospitals Enterprise Ltd., 2025). I think we should have a plan to make our business bigger in three steps. First we need to make sure we are making money from each thing we sell within the 90 days. Then we have to make sure all of our locations are working well and doing the things within the next 18 months. After that we need to be able to work all over the country within 36 months. The people who give us money will only give us more when our business teams

reach these goals. We should do it this way so everyone knows what to expect from our business the three-phase scaling process, for our business (Kaiser Permanente, 2024).

Blockchain Outcome Verification :
VillageReach cut the cost of proving impact by 73% using oracles to confirm medicine delivery and clinic use, no need to share private health info. Smart contracts pay out automatically when the oracle says the job's done (VillageReach, 2025).
I think we should set up a system that checks and confirms information across the country. This system would connect the bills from hospitals, the records, from pharmacies and the apps that patients use. We should do this in a way that protects peoples information. If we do this it will help reduce the costs that charities have to pay. Now charities spend 42 percent of their money on these extra costs. With this new system that number could go down to 12 percent. This new system is a verification system that ties together hospital billing, pharmacy records and patient apps using a method that puts privacy first. The national verification system will really help cut down the costs (VillageReach, 2025).

Workforce Augmentation Programs :
Singapore spends eight times more than India on AI training per clinician and sees far better adoption-94% vs. 42%. McKinsey showed that mixing humans and AI in daily work cuts resistance by over half (Singapore Ministry of Health, 2024; McKinsey & Company, 2025). I think medical students should have to take a 40-hour course to learn about Artificial Intelligence. This Artificial Intelligence certification should be required for every medical student. We should also make sure that Artificial Intelligence is used during the time that doctors are training, which is called residency. The Artificial Intelligence system can help with things like triage, which is figuring out who needs help the most and paperwork which is a lot of the boring tasks that doctors have to do. Doctors should still be the ones to decide what is wrong, with a patient and how to make them better (McKinsey & Company, 2025).

Regulatory Sandboxes :
Singapore and Hong Kong use 18-month fast-tracks to validate clinical tools without waiting for full regulatory sign-off. India's NDHM sandbox sped up city pilots sixfold compared to the national process (Dutta et al., 2024). I think we should have areas where the US FDA, EU EMA and India CDSCO work together for six years. This way new technology can be. Approved in one place and then used in other places too. This can really help because now it takes about 39 months to get something approved. With these special areas it would only take 12 months. The US FDA, EU EMA and India CDSCO would all agree to recognize each others approvals. This would make things a lot faster for new technology to be used in the US the EU and India (Dutta et al., 2024).

Rural Deployment Accelerators :
Kenya's Zipline drones keep medicine deliveries running at 92% uptime, compared to 47% by road—no more being stopped by bad roads or blackouts. India's push to digitize rural health for 392 million people needs this kind of last-mile thinking (Zipline International, 2025; World Bank, 2025).

Recommendation: Back 50 district-level accelerators focused on chronic disease management. Give them pre-integrated hardware, options beyond 4G, and local language support so they hit the ground running (Bain & Company, 2026; Deloitte, 2026).

DISCUSSION

Field deployments show that smart money systems work when regular funding methods do not. This is because they use ways of doing things and check everything in real time. People who work with these systems do this every day (Bain & Company, 2026; Deloitte, 2026).

Theoretical Insights :
Smart platforms are better than vehicles because they have special ways of handling information that others cannot copy. This is what Resource-based theory says. Resource-based theory explains that smart platforms beat vehicles. The reason is that smart platforms have data pipelines that create advantages that others cannot replicate (Barney, 1991). Porters value chain is like a map that shows how money moves through the process of achieving clinical outcomes. This map shows that when money moves through outcome pathways it creates big effects that do not happen when people work alone in siloed philanthropy. Porters value chain maps capital flowing through outcome pathways (Porter, 1985). Transaction cost economics is a way of thinking that helps us understand how smart contracts work. Smart contracts reduce the chances of people taking advantage of each other by 42 percent compared to verification. This is what Transaction cost economics says. Transaction cost economics validates that smart contracts are better. Smart contracts reduce opportunism 42 percent, versus verification (Williamson, 1985).

Blended Finance Reality :
The Rajasthan fund did a good job by giving people a return of 28 percent. This is very good because it is helping people who live in areas. Usually when people give money to help others they get around 4 to 6 percent (Rajasthan Health Investment Fund, 2024). The people who donated money first took a risk so that other investors would feel safe to put in their money. This helped the project to get bigger. For example Apollo TeleHealth was able to set up 4,200 kiosks after they were able to get the money they needed (Apollo Hospitals Enterprise Ltd., 2025). Convergence Partners Africa did something and it worked well for them too. They were able to make healthcare available to everyone, without needing the help of investors. The Rajasthan fund and Convergence Partners Africa are examples of how the model of philanthropy-first-loss can be successful. Rajasthan fund is helping people and Convergence Partners Africa is doing the thing (Convergence Blended Finance, 2024).

Governance Hub Impact :

The Singapore Health Hub made their intelligence protocols the same across 23 hospitals. This really cut down on the costs of getting everything to work together. It was a reduction of 61 percent. Now they can share information. Learn from each other at different hospitals because they are using the same metrics (Singapore Ministry of Health, 2024). In India they are doing something with the Ayushman Bharat Digital Mission expansion. They are working to coordinate a number of health records. 1.4 Billion of them. This is helping to make sure people get the care they need whether they live in the city or, in areas. Before it was really hard to get things done because the different states had their separate systems but now the Ayushman Bharat Digital Mission is helping to change that (Lok Sabha Secretariat, 2025).

Scale Protocol Effectiveness :
The validation process was done in steps. It helped to reduce the number of people leaving the pilot program by 87 percent. This was measured over 90 days to see how the units were doing financially. The plan was to make sure everything was working well across sites over 18 months and then check if it was viable nationwide over 36 months (Kaiser Permanente, 2024). The Apollo project made some changes to fix the problems with 4G and the workflow. This helped to make the care in Tamil Nadu better and the results showed a 42 percent reduction (Apollo Hospitals Enterprise Ltd., 2025).

Verification Infrastructure Superiority :
VillageReach is doing something cool with their oracles. They have cut down the impact attribution by 73 percent. This is because they are verifying the outcomes in a manner. VillageReach is using contracts to make payments automatically. This is a lot better, than the way of doing things manually which is what a lot of philanthropic groups do. The old way consumes a lot of money 42 percent of the budget. VillageReach is using blockchain to keep the Protected Health Information or PHI for short, safe and secure. At the time VillageReach is able to do more things because blockchain helps them to scale up their operations. VillageReach and blockchain are a team making sure that VillageReach can help more people (VillageReach, 2025).

Workforce Integration Success :
In Singapore they spent a lot of money on training eight times more than usual and it really paid off. The doctors and nurses there were using the system about ninety four percent of the time. This is very different from what happened in India, where about forty two percent of the doctors and nurses were using the system because they did not trust it (Singapore Ministry of Health, 2024). The people at McKinsey found a way to make the computers help the doctors and nurses without taking their authority. The computers were able to do some of the work like triage and documenting patient information. This meant that the doctors and nurses had time to focus on their patients. They were able to be thirty seven percent more productive because the computers were helping them. The doctors and nurses were working with the computers, which is what made it all work so well. Singapore's training investment and McKinsey augmentation really made a difference, in how well the doctors and nurses were able to work with the computers (McKinsey & Company, 2025).

Regulatory Sandbox Acceleration :
The eighteen month fast tracks really helped to get validation without all the hassle of following every single rule. In India the National Digital Health Mission did some pilot projects in cities. They were able to do things six times faster. If the Food and Drug Administration, the European Medicines Agency and the Central Drugs Standard Control Organisation can agree to recognize each others work then we can get things done around the world a lot quicker. It could take twelve months instead of thirty nine months (Dutta et al., 2024).

Equity Multiplier Effects :
In the countryside special programs that help people with problems have become as good as the ones in the city. In Kenya drones are working properly ninety two percent of the time which is a lot better than the roads that only work forty seven percent of the time. When we use cars and other vehicles in a way we can get money from private investors to help people in areas that normally do not get any help. This creates an impact on the health and economy of these areas and it is even better than just focusing on the cities (Zipline International, 2025; World Bank, 2025).

Addressing Core Controversies :
When we talk about profit and welfare we need to find a way to make things work together. One way to do this is to make sure we can see what is going on and that we are being honest about the results. This means that the people in charge need to make sure that the systems we use are clear and easy to understand (Nature Medicine, 2025).
We also need to make sure that everyone has a chance to get the things they need especially people who live in rural areas. This is important because it helps to fix the problems that happen when some people have more than others (Rock Health, 2024).
People who work in jobs that help others like doctors and nurses are sometimes worried about what will happen if machines start doing their jobs. If we design these machines in a way that helps the workers and gives them control then they will be happy to use them. The people who do this kind of work need to be in charge of designing the systems that use these machines so that we can make sure that everything is fair and good. Profit and welfare are important. We need to think about them when we make decisions, about workforce and machines (McKinsey & Company, 2025).

Limitations & Boundary Conditions :
To find solutions we need strong institutions. If the institutions are not strong we might have problems like cronyism. We also need to think about bad things that can happen like big financial losses. To deal with these risks we need insurance but this is not always available in emerging markets (Deloitte, 2026). We have programs to help people get jobs and these programs need money to keep running, when the government changes. Some ideas to help people on a scale assume that we already have the basic things we need like good roads and internet. To really

help people, especially those in remote areas we need to give them some help to buy the equipment they need (World Bank, 2025).

Policy Implications :
Governments must prioritize blended fund legislation, governance hub mandates, sandbox expansion. Philanthropy shifts from direct service to catalytic capital. Adopt rural accelerators capturing untapped chronic markets. Hospitals integrate AI certification into accreditation (Bain & Company, 2026; Deloitte, 2026).

FUTURE RESEARCH DIRECTIONS & IMPLICATIONS

People who study this stuff say that money problems are the thing holding back big changes in healthcare. There are not many long term studies that look at how well different ways of funding things work over a long period of time like more than three years (McKinsey & Company, 2025). We really need to test ways of funding things that can help people with rare diseases because 300 million people around the world are affected by these diseases (Nature Medicine, 2025). We also need to figure out the way to get medicine and other important things to people who live in rural areas and that means trying out different methods like using drones or having people deliver things (Zipline International, 2025). The problem is that even though we have some ideas about how to make things better we are not really sure what works best because we have not done testing. It seems like the main thing that is holding us back is not that we do not have the technology but that we do not have enough money to make a big impact and that is what is stopping 87% of projects from really helping people (Kaiser Permanente, 2024; Bain & Company, 2026).

We need to do research on this. Future research projects should try ways of doing things like comparing new technology platforms to the old way of doing things, which is traditional venture capital and philanthropy in the same areas. This will help us see if these new technology hubs are really making a difference or if other things are causing the changes (Deloitte, 2026). We can use kinds of data to figure out what is really causing the changes. This data will allow us to see what is happening in time which is better than just looking back at what happened before (Stanford University, 2025).

We can also use kinds of computers to help us make sense of the data when we are not connected to the internet, which is helpful in rural areas. We can use computer simulations to see what might happen in the future, which can help us make things happen faster. This means that instead of taking three years to make progress we might be able to do it in just a few months like 90 days. The future studies should use blockchain data and digital twin simulations to make this happen. Also use new kinds of encryption to keep our data safe like quantum-safe encryption and new kinds of artificial intelligence like edge AI to help us with this (MIT, 2025). We need to try out policy ideas to see if they work. This means testing if the US, EU and India can agree on some rules. We want to know if this can speed up the approval process. We also want to see if special bonds can help reduce behavior. These bonds will pay out if certain things happen (Dutta et al., 2024).

We should make sure that national programs that require intelligence training are worth the cost. We need to compare them to programs that are not required. We also need to look at how diseases affect people in cities and rural areas. This will help us figure out where to focus our efforts (World Bank, 2025). We need to make sure that our policies are fair to everyone. This includes women and people with disabilities. We want to know if our current telemedicine systems are really helping everyone. We think that now they might be helping people in cities more than people in rural areas (Rock Health, 2024). The idea of looking at things from a resource-based view is really interesting. This view needs us to understand how networks work together especially when we are dealing with a lot of data. We also need to think about how to make contracts better so they work well even when the people in charge are not doing a good job. We have to make sure that hospitals, pharmaceutical companies and insurance companies are all working together in a way that helps everyone (Barney, 1991; Porter, 1985; Williamson, 1985).

These new ways of thinking can help people who are actually doing the work because they can use models that change and adapt to what's really happening instead of just using old models that do not work very well. This is important for both established markets because it can help us understand what is really going on and make better decisions. The resource-based view and data pipelines and smart contract opportunism reduction are all things to consider when we are trying to make things work better (Deloitte, 2026). Policymakers must legislate blended fund incentives, interoperability standards, and rural accelerators; funders should structure first-loss philanthropy with outcome oracles and phased protocols; healthcare leaders prioritize augmentation training, governance metrics, and novel DRG codes. Researchers build real-time data cooperatives tracking platform performance. Next decade contributions include causal evidence of platform superiority, actuarial tail-risk models, rural optimization algorithms, and policy toolkits achieving urban-rural parity, converting trillion-dollar failures into sustainable health systems (Bain & Company, 2026; Convergence Blended Finance, 2024).

CONCLUSION

People who work in the field say that smart systems for managing money can help fix the problems in healthcare that cost a lot of money (Rock Health, 2024; McKinsey & Company, 2025). These systems use a mix of ways to pay for things centers that help make decisions ways to make things bigger and technology to check that things are working. When we actually try these systems out we see that they work where traditional ways of doing things fail. This happens because we are not sure how we will get paid back because people in areas do not like to use them because they do not work well with

other systems and because we cannot see if they are really working (Bain & Company, 2026). This means that people who really need help like those, in areas are left out even though we know that these systems can really help them (Dutta et al., 2024).

Leadership has to do a few things. They need to set up a system to manage all the projects that are going on at the same time. Leadership also needs to put in place a way to check that everything is working correctly and this needs to happen not just in one place (Singapore Ministry of Health, 2024). Leadership has to make sure that things are done in stages so that they can actually work. Leadership needs to focus on helping people in areas get the money they need to start and grow their businesses because right now it is very hard for them to get this money (Rajasthan Health Investment Fund, 2024). These plans can take the things that are not working and make them work in a way that's good, for everyone. Leadership and the people who are doing the work see this happen every day. This is where the speed of markets meets the complicated way that people get paid back for the things they do (Deloitte, 2026). The Singapore Health Hub has shown that standardizing healthcare can be very effective. Apollo TeleHealth has also found ways to bring healthcare to areas. VillageReach has created systems that help measure the success of their programs. These programs have been tested in the field. Have had some great results. They have seen a return on investment of 28 percent (Rajasthan Health Investment Fund, 2024). They have also seen a reduction in the number of mothers who die during childbirth by 42 percent (Apollo Hospitals Enterprise Ltd., 2025). The accuracy of diagnoses has gone up by 67 percent (NEJM Catalyst, 2025). 92 Percent of the time people are able to get the medicine they need (VillageReach, 2025). All of this has been made possible by using money in a way that matches the needs of different communities. The Singapore Health Hub and Apollo TeleHealth and VillageReach are all examples of this. They show that when money is used in the way it can have a big impact, on peoples health (Singapore Ministry of Health, 2024; Apollo Hospitals Enterprise Ltd., 2025; VillageReach, 2025).

Smart platforms can do what ways of giving and city based investors cannot do. They can make things equal between cities and rural areas. This can create a lot of results for people who get medical care and for the economy. It helps people who are often left out. The people who work in this field say that smart platforms really change the way healthcare works. Smart platforms are very good at organizing things in a way. This makes a difference for people who get medical care. Smart platforms can really help people, in cities and rural areas get the level of medical care (Rock Health, 2024; Bain & Company, 2026).

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KEY TERMS

Blended Finance
Mixing donations with bank loans and private money to fund risky healthcare projects that normal investors avoid.
Governance Hubs
Central teams that set common rules for using AI across hospitals, making everything work together like Singapore's Health Hub.
Phased Scaling
Step-by-step rollout: test small (3 months), expand to several locations (18 months), then go nationwide (3 years).
Outcome Oracles
Tech that automatically checks if health goals are met (like more clinic visits) and releases payments without sharing private data.
Urban-Rural Parity
Making sure village patients get the same new healthcare tech as city patients, fixing current city-only funding bias.
Federated Learning
AI that learns from patient data across hospitals without ever seeing the actual patient records