ECONOMIST IMPACT

From discovery to delivery

Examining US health innovation and performance in a global context

Supported by

THE CIGNA GROUP

Contents

About this report

From discovery to delivery: examining US health innovation and performance in a global context is an Economist Impact report, supported by The Cigna Group, that leverages mixed-methods analysis. It explores the relationship between innovation and health system performance, using the US as a focal point for understanding how health innovation and integration together influence outcomes such as access, efficiency and equity. The report situates the US within a global context, recognizing its position as a leader in biomedical research, biotechnology and digital health, while also examining how innovations translate into views on performance. The report uses both qualitative and quantitative methods to illustrate these points, but also elaborates on how the dearth of data hampers detailed quantitative analysis. Our aim is to present a more balanced, evidence-driven view of the US healthcare landscape that reflects both its complexity and its potential. We examine this through the lens of strengthening the link between innovation and health outcomes.

The analysis draws on a four-phase research program led independently by Economist Impact, including a literature and data review, framework development, expert validation and content synthesis. Comparative evidence across eight countries informs a new conceptual framework—the **Health Systems Innovation-Integration Matrix**—profiling health systems based on how they differ in both their production and integration of innovation. Insights were further grounded in an expert roundtable and in-depth interviews with leading academics, policymakers and practitioners.

We thank the following experts for their time and insights (in alphabetical order by surname):

- **Suresh Balu**, Executive Director, Duke Institute for Health Innovation (DIHI) and Associate Dean, Innovation and Partnerships, School of Medicine
- **Onil Bhattacharyya**, Associate Professor, University of Toronto: Director, Women's College Hospital Institute for Health Systems Solutions and Virtual Care
- **Richard Chapman**, Chief Science Officer, Center for Innovation & Value Research
- **Francesca Colombo**, Head of Health Division, Organisation for Economic Co-operation and Development (OECD)
- **Robin Gauld**, Executive Dean, Bond Business School, Bond University, Gold Coast, Australia
- **Margaret Kruk**, Professor of Health Systems, Washington University in St. Louis
- **Tom Ling**, Senior Research Leader, RAND Europe
- **Charles Lowe**, Chief Executive Officer, Digital Health and Care Alliance (DHACA)
- **Irene Papanicolas**, Health Economist and Provost's Professor of Health Services, Policy and Practice, Brown University
- **Daniel Polsky**, Bloomberg Distinguished Professor of Health Economics and Policy, Johns Hopkins University
- **Che Reddy**, Associate Director, Innovation and Translation, Health Systems Innovation Lab, Harvard University
- **Agnes Soucat**, Director of Health and Social Protection, Agence Française de Développement (AFD)

Economist Impact conducted all analysis and interpretation independently. The findings and views expressed in this report do not necessarily reflect those of the participating experts or The Cigna Group. Amanda Stucke and Barinder Chauhan led the research and report writing with support from Hadia Hussain and Bettina Redway. The report was edited by Elizabeth Sukkar. Although every effort has been made to verify the information in this report, Economist Impact cannot accept responsibility for reliance on it or on any of the opinions and conclusions contained herein.

Executive summary

For decades, health system performance has been measured through static indicators such as life expectancy, population health, hospital capacity or spending. These metrics, although essential, fail to fully capture how systems adapt and evolve over time. Yet adaptation does not happen by accident. It occurs through innovation and the ability to embed it effectively. This report argues that innovation should be treated not as a discrete output, such as an invention or a policy reform, but as a dynamic process that shapes how health systems respond to change. A health system can generate breakthroughs, but without effective integration, their benefits remain unevenly distributed or not fully realized.

To examine this, Economist Impact introduces a **Health Systems Innovation-Integration Matrix**. This matrix categorizes countries into four archetypes based on their capacity to generate innovation and embed it at scale within their health system in a way that translates to real health outcomes.

The Health Systems Innovation-Integration Matrix

		Innovation integration & performance impact	
		Lower innovation integration and performance impact	**Higher** innovation integration and performance impact
Innovation production	**Higher innovation production**	**Opportunity Knocking countries** • Higher innovation production • Opportunities to strengthen integration into health system and performance impact	**Trailblazer countries** • Higher innovation production • Higher innovation integration and performance impact
	Lower innovation production	**Momentum Needed countries** • Opportunities to increase innovation production • Opportunities to strengthen integration into health system and performance impact	**Value Seeker countries** • Opportunities to increase innovation production • Higher innovation integration and performance impact

Source: Economist Impact

Trailblazers, such as Japan and Switzerland, perform well on both dimensions, pairing invention with robust integration mechanisms. *Value Seekers*—including the UK and Canada—excel at adopting proven solutions but often rely on others for innovation. *Opportunity Knocking* systems, like the US and Czech Republic, lead global discovery but have further opportunities to translate innovations into domestic performance gains. Finally, *Momentum Needed* systems, such as Greece and Mexico, lag on both fronts but hold untapped potential as testing grounds for reform.

Five core findings emerge from this research:

Innovation is systematically under-measured in health system performance frameworks. Current HSPA-style models rely heavily on static and historical indicators and do not adequately capture innovation as a dynamic driver of system change.

Innovation alone does not guarantee better health outcomes. Countries that generate high levels of innovation do not automatically achieve

stronger performance; integration capacity determines whether discovery translates into measurable gains.

The US demonstrates how innovation leadership creates significant untapped potential. Its strength in research, development and commercialization provides a powerful foundation for advancing domestic health outcomes through deeper integration and scale.

Integration is a system capability, not a one-time event. Scaling innovation requires aligned incentives, infrastructure, policy coherence and sustained implementation, not simply adoption.

Health systems play complementary roles in a global innovation ecosystem. Trailblazers, Opportunity Knocking systems, Value Seekers and Momentum Needed countries each contribute differently to global progress.

Ultimately, high-performing health systems are not defined solely by how much they innovate, but by how effectively they turn innovation into better, fairer and more sustainable care. For the US, closing the gap between invention and integration offers the next frontier in health system reform—and an opportunity to translate its global leadership in innovation into domestic health equity and resilience.

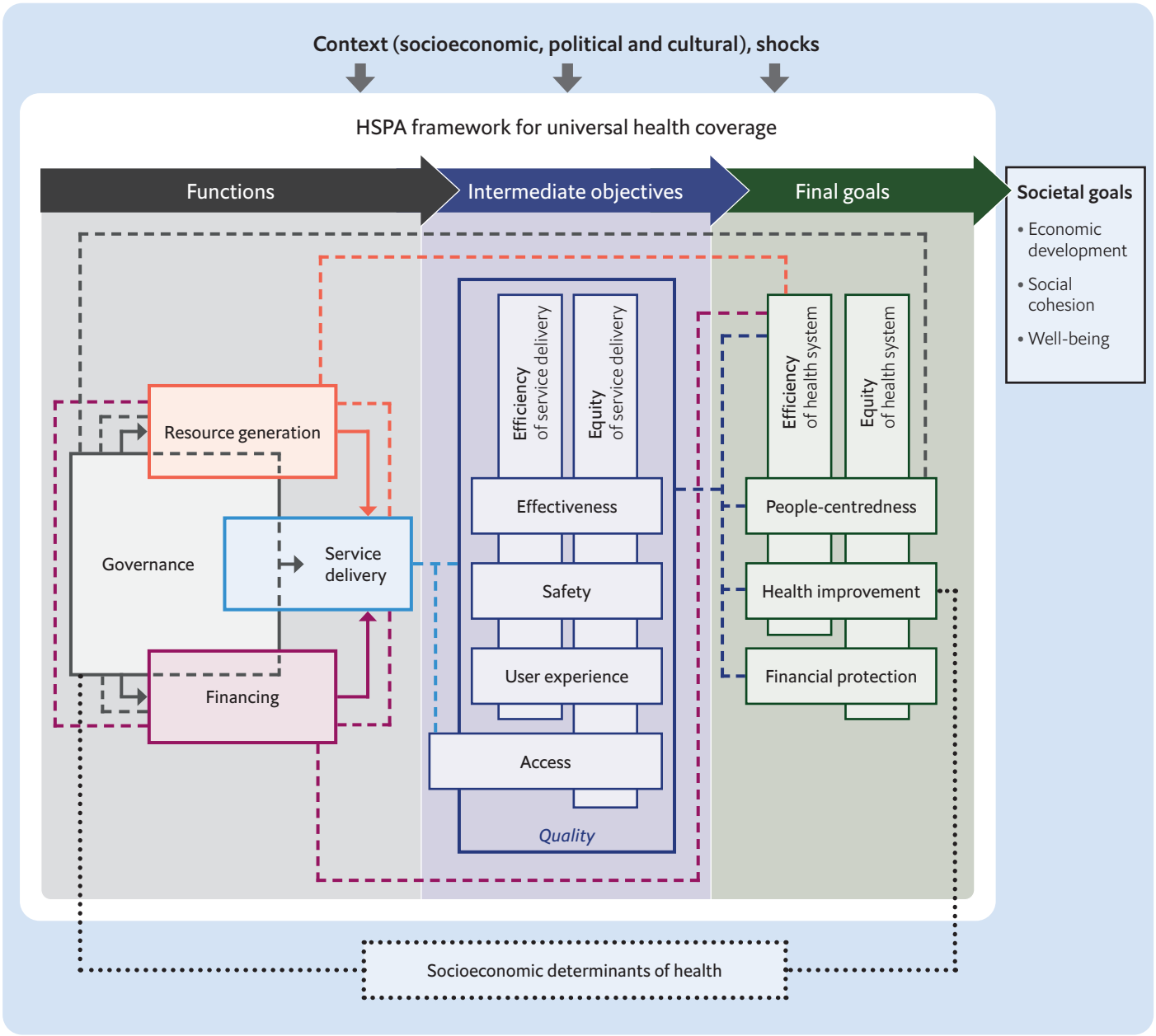
The nexus of innovation, integration and health system performance

Introduction

Measuring health system performance is essential to improving health outcomes. It enables policymakers and stakeholders to identify weaknesses, design targeted interventions, allocate resources more effectively and build accountability for results. A consistent, systematic approach to measurement across countries also allows for meaningful comparison, creating benchmarks and identifying high-performing systems. Examining what drives these successes creates opportunities for cross-country learning, where proven strategies can be adapted and applied elsewhere, fostering shared progress toward more efficient, equitable and resilient health systems.

Over the past 20 years, various iterations of the Health System Performance Assessment (HSPA) framework, which was originally developed by the World Health Organization (WHO), Organization for Economic Cooperation and Development (OECD) and others, have become the leading methodology for evaluating and comparing health systems (see Figure 1).[1,2] These frameworks offer a structured approach, enabling analysis of how different system functions, including governance, financing and service delivery, contribute to intermediate objectives such as efficiency, quality and responsiveness, and ultimately goals, such as improved health outcomes, equity and resilience.[3] In practice, HSPA models rely on a wide variety of health indicators that tie to the different domains, such as: life expectancy and disability-adjusted life years (DALYs) lost for population health; immunization rates and percent of population with insurance for access; per head health expenditure for resource generation; and other measures to capture system performance across multiple dimensions.[2]

Figure 1: Health System Performance Assessment (HSPA) for universal health coverage[4]



Source: adapted from Papanicolas I, Karanikolos M, Rajan D, et al.[4]

Despite this evolving thinking, many approaches to assessing health system performance remain heavily weighted toward static measures of system activity, capacity and clinical outcomes related to morbidity and mortality. Based on literature review and expert consultation, Economist Impact finds that these frameworks can under-represent how health systems respond to change, adopt new technologies or adapt care delivery models in innovative ways. "We see that [innovation] becomes very difficult to measure," says Irene Papanicolas, Health Economist and Provost's Professor of Health Services, Policy and Practice, Brown University. "Obviously health gain is a big element, but we're also interested in lowering costs or improving efficiency. And those outcomes are also very complicated to measure."

Despite spending more on health care than any other high-income country, the US consistently underperforms when assessed against traditional performance frameworks, particularly on metrics such as life expectancy, avoidable mortality and equity in access.[5,6,7] These outcomes are frequently used to characterize the system as inefficient or underperforming. However, such assessments can overlook the scale of the US's contribution to global health innovation.

In 2024 the US initiated 3,408 interventional clinical trials, for example, substantially more than Germany (443), the UK (435) or Switzerland (103).* It also invests approximately 3.4% of GDP in research and development, placing it among the most R&D-intensive economies in the OECD.[8] This level of activity supports the development and commercialization of new therapies, devices and care models that are often adopted beyond US borders and shape global standards of care.

When viewed alongside these indicators of innovation production, it becomes clear that conventional performance measures capture only part of the system's capabilities. The divergence between the US's strength in generating innovation and the extent to which those innovations translate into system-wide outcomes highlights the limitations of existing performance frameworks.

When innovation is considered, it becomes clear that challenges in achieving an equitable balance between generating innovations that deliver global value and implementing them within health systems have prevented the US from fully realizing the benefits of its innovation output. This paradox raises a critical question: is our current definition of a high-performing health system comprehensive and able to recognize the impact of innovation? And, if not, what is being missed?

* Source: Economist Impact (EI) analysis of Clinicaltrials.gov data. EI only looked at data for interventional studies (in phase 1, 2 and 3) that started in the 2024 calendar year.

Why innovation matters

Innovation, defined by Economist Impact as the introduction of a new—or different application of an existing—concept, idea, service, process or product into a system, with the goal of improving outcomes in access, quality, safety, efficiency or cost, has been a key driver of change in health systems worldwide, shaping both outcomes and the organization of care. Innovation can advance treatment, diagnosis, medical education, prevention and research, and act as a pioneering force that changes both outcomes and how they are achieved.[9] Whether through new care models, policy changes, digital platforms or therapies, innovation has reshaped care experience, improved outcomes and extended life expectancy.

Advances in hygiene and sanitation, genomics, virtual care and personalized medicine illustrate the impact of innovations. This extends beyond just individual interventions and can have a ripple effect that can shift the trajectory of health systems more broadly. Yet, despite its importance, the role of innovation is often overlooked or only minimally considered in how we think about health system performance. Scholarly analysis of HSPA frameworks notes that resilience and adaptive capacities (which are close proxies for the systemic effects of innovation, such as workforce agility and responsiveness) have not traditionally been embedded in performance measurement, and are only now being considered for inclusion.[10,11]

The literature reveals a growing consensus on the need for frameworks to move beyond purely cost-effectiveness and health outcomes toward more holistic, people-centered assessments of health system performance.[12,13,14] In doing so, these frameworks must also capture innovation as a dynamic driver of system transformation, not merely as a product or intervention. This is echoed by Dr Tom Ling, Senior Research Leader at RAND Europe, who says, "It's important to see innovation not as a single bright, shiny, new thing or a single moment but as a process, and that it may prove to be transformational, even if it doesn't start off that way."

This report proposes a more nuanced and integrated approach to measuring health system performance. This approach includes recognizing innovation and its scalable integration into health systems not as a separate add-on, but as a cross-cutting lens capable of driving improvements across a system. A defining strength of all high-performing health systems is their ability to evolve over time. Innovation is one key to how they achieve this. Yet this dynamic element is often missed in existing HSPA frameworks, which tend to emphasize static, point-in-time measures rather than capturing how systems adapt to changing demand and improve. Drawing on literature, expert insights and applied frameworks, the report makes the case for incorporating innovation within the full architecture of health system assessment.

Current approaches to measuring innovation

Traditional models

One of the most commonly used approaches to evaluating innovation in health systems is through health technology assessments (HTAs) and other economic evaluations.[15] These models, which are widely used for pharmaceutical and med-tech evaluations, combine clinical evidence and economic metrics to determine value. Cost-effectiveness analyses, such as those employing quality-adjusted life years (QALYs) and DALYs, serve as foundational tools in decision-making across health agencies and payors.[16]

Although HTAs are valuable for discrete or individual interventions, such as a drug or device, they are poorly suited for assessing service-delivery models, system-level reforms or policy innovations.[17] For example, while cost-effectiveness analysis may be useful for determining coverage of a new therapy, innovations such as integrated community care models or artificial intelligence (AI)-based triage systems often lack the clinical end points and economic modeling required by traditional HTA protocols. As a result, their future system-level impacts are not considered.

As several experts noted, innovation in health systems also occurs at the meso and macro levels, through policy, organizational structure and service integration, not solely in products. As Ms Papanicolas notes, innovation can mean a multitude of things, depending on the audience, which can make it hard to measure. "[I]nnovation can mean different things in the system and we see it cropping up increasingly, but in different ways … innovation is inherently dynamic and a lot of the measures are static." Current economic evaluation tools offer limited insight into such systemic transformations.

Evolving approaches

Recent approaches to evaluating innovation in health systems reflect a growing recognition that traditional models, centered on cost-effectiveness, are too narrow to capture the full value of innovation. In response, other frameworks emphasizing responsible innovation have gained traction.[18,19] These models assess not only whether an innovation is effective but also whether it is sustainable, equitable and aligned with the broader needs of the population.[19] Innovations are increasingly evaluated on their capacity to strengthen systems and serve societal goals, not just improve technical performance. As Dr Che Reddy, associate director of the Health Systems Innovation Lab at Harvard University,

notes, innovation should be understood as "a system function … the capability of the system to capture and leverage the innovation to improve health outcomes at scale."

This shift has led to the incorporation of new dimensions into some assessment models, particularly around people-centeredness. For example, the People's Voice Survey introduces metrics like user-reported quality of care, trust in the health system and confidence in service delivery.[14] These indicators reflect how patients experience care and help to evaluate whether innovations are addressing real-world challenges in accessibility, safety and respectfulness. Professor Robin Gauld, Executive Dean, Bond Business School, notes that "The human factor is really important in all of this and this again is where the success and scale is so complicated. You need to have the right people in the right place at the right time with the right support in place, otherwise you're probably going to go nowhere." As Suresh Balu, executive director of the Duke Institute for Health Innovation, observes, "It's not just about whether something is new—it's about whether it creates value for patients, providers and communities." By centering the patient perspective, such tools fill critical gaps left by traditional HTA approaches, which often fail to capture experiential or equity-related impacts.

Core gaps and limitations

Despite evolving approaches, four significant gaps persist in relation to existing models:

- **Measurement blind spots:** Innovations often produce indirect, long-term or system-wide benefits that are not captured in short-term metrics or siloed indicators. Their effects on workforce satisfaction, sustainability or population trust may go unmeasured.[20]
- **Evaluation-model limitations:** Traditional tools and measures such as cost-effectiveness analyses and HTAs are overly narrow for assessing systemic and policy innovations. They struggle to evaluate preventive strategies, delivery models or equity-focused reforms.[21]
- **Contextual misalignment:** Cross-country comparisons often overlook national differences in governance, financing, regulation, infrastructure and population needs.[22] Innovations that thrive in one system may fail in another because these contextual constraints are not fully considered. As Dr Ling emphasized, comparative data should drive improvement, not imply that entire systems can be transplanted wholesale. The US system underscores this point: about half of Americans rely on employer-sponsored insurance, making employers a central—yet frequently overlooked—actor in shaping access to innovation.[23] This distinctive configuration limits how lessons from other countries can be applied and reinforces the need for context-sensitive performance frameworks.
- **Mistaking implementation gaps for ineffective innovation:** Innovations are often judged against predefined performance metrics, yet poor outcomes may stem from flawed implementation, insufficient resources or misaligned scaling strategies rather than the innovation itself. As a result, promising ideas risk being dismissed due to factors beyond their core design. Dr Balu emphasizes this point, stating that "I think we are viewing innovation as an intervention, we are looking at a specific set of outcomes that boil down to change management and implementation. So, are we really measuring innovation or are we measuring the implementation?" Dr Charles Lowe, chief executive of Digital Health and Care Alliance, an association supporting innovation in the UK health sector, presented a similar sentiment, arguing that "It's very much a package of activities in order to make us successful in innovation."

Current evaluation approaches are narrow, focusing mainly on individual technologies while overlooking broader system-, policy- and patient-level dimensions. They also do not take into account system-specific nuances, such as health system goals, objectives and desired outcomes. More comprehensive models, which view innovation with a system-wide capability and embed it into performance measurement, are needed.

As several experts noted, innovation is closely tied to its implementation; new ideas only create value when they are effectively integrated into practice. Therefore, to fully capture innovation's role in health system performance, it is necessary to assess not only innovation itself but also how it is implemented in practice. However, given the speed at which innovation is progressing and being implemented, this needs to be addressed quickly. "I think the longer that we wait, the harder that becomes," notes Ms Papanicolas.

Integration: the path to realizing innovation's full performance potential

To measure the value and outcomes of an innovation effectively, the generated value for patients, clinicians, payors and communities needs to be measured. This can only really be done when an innovation is integrated into a health system. Without effective integration into the health system, the value of innovation remains unrealized. "There are massive, massive institutional barriers to spreading innovation within health care," notes Dr Gauld. It is only through integration that innovation becomes accessible and impactful, enabling the system to improve over time.

Innovation should not be seen solely as the creation of new technologies, policies or approaches, but also in terms of how these are embedded within the health system. Countries that have demonstrated sustained improvements in health system performance have done so by strategically adopting and integrating innovations into their operations, structures and policies. For example, a study examining the transition to electronic patient records by family doctors in Canada from 2006 to 2012 found that this improvement in communication between doctors led to better patient care, reduced time spent on chart retrieval and filing, and saved approximately $1.3bn over the six years.[24,25]

The integration of processes like these can enhance system efficiency, resilience and responsiveness over time. In contrast, health systems that fail to incorporate innovation effectively risk stagnation and slower progress. For example, the UK National Health Service (NHS) National Programme for IT, launched in 2002, aimed to implement a centralized electronic patient record system, failed and was shut down owing to poor planning and a lack of clinical engagement.[26] England has since transitioned to having 90% of its trusts with electronic patient records.[26] Innovation alone is not sufficient; it must be deliberately integrated in a way that aligns with system goals, ensures accessibility and delivers tangible value.

When integration is strategic, addressing access, equity and long-term priorities, health system performance improves. Ultimately, it is not just innovation, but its effective integration that drives meaningful progress. This relationship drives the need for a new understanding of the relationship between innovation production, integration into the health system and health system performance.

The Health Systems Innovation–Integration Matrix

When examining innovation and its role in health systems through an outcomes matrix, four archetypes emerged based on the intersection of two dimensions: 1) innovation production and 2) the ability to integrate and scale innovation into the health system effectively with measurable impact on performance (see Figure 2).

Figure 2: The Health Systems Innovation–Integration Matrix

		Innovation integration & performance impact	
		Lower innovation integration and performance impact	**Higher** innovation integration and performance impact
Innovation production	**Higher innovation production**	**Opportunity Knocking countries** • Higher innovation production • Opportunities to strengthen integration into health system and performance impact	**Trailblazer countries** • Higher innovation production • Higher innovation integration and performance impact
	Lower innovation production	**Momentum Needed countries** • Opportunities to increase innovation production • Opportunities to strengthen integration into health system and performance impact	**Value Seeker countries** • Opportunities to increase innovation production • Higher innovation integration and performance impact

Source: Economist Impact

1. Opportunity Knocking: Countries that fall into this archetype are considered to be innovation-rich environments that help to spur local and global innovation. They actively seek opportunities and develop cutting-edge solutions, positioning themselves as influencers and authority figures in the innovation space. This often attracts funding for future innovation and puts them in a position to be able to monetize their solutions, generating resources that can support their health systems or other services.

However, despite their strength in discovery and development, Opportunity Knocking countries often do not effectively implement or scale these innovations within their own systems, for a variety of reasons. These can include low uptake of innovation, misaligned incentives, poor access or fragmented infrastructure. This creates a paradox: despite heavy investment in developing solutions, these countries often struggle to realize a return on investment because the innovations do not translate into improved system outcomes within their own country.

The US is a prime example. It remains a global leader in scientific and technological innovation in healthcare, ranking first in scientific advancement according to the World Index on Healthcare Innovation.[5] The top-place ranking stems from the number of new drugs and medical devices gaining regulatory approval. Additionally, the US ranks near the top in scientific Nobel prizes per head, scientific impact in academia and research and development (R&D) expenditure per head.[5] As a result, many novel therapies, digital health tools and advanced medical technologies are often launched or approved in the US before becoming widely available elsewhere. The US also spends more than most comparator countries on R&D, at approximately 3.5% of its GDP. [27]

Despite this innovation strength, health outcomes remain uneven. Limited accessibility refers not to the absence of new technologies, but to uneven insurance coverage, high out-of-pocket costs, geographic disparities in provider availability and variation in benefit design, all of which affect who can access new treatments and how quickly they are adopted. Systemic misalignment stems from fragmentation across payors, providers and regulatory bodies, with incentives that do not always reward prevention, coordinated care or long-term value. As a result, innovations may be introduced into the market but diffuse inconsistently across populations and care settings.

"[The US is] a country where you have a lot of innovation everywhere. It's just that it doesn't reach everyone, which is a different problem," notes Ms Papanicolas.

Employers, who serve as the entry point to healthcare coverage for many Americans, play a critical role in shaping uptake. Through benefit design, value-based contracting, investment in digital health platforms, coverage of preventive services and partnerships with providers, employers can influence how quickly innovations reach working populations and whether they are aligned with broader population health goals. Their proximity to the workforce presents an underutilized lever for strengthening integration and expanding equitable access.

The Czech Republic is another country viewed as a strong producer of health system innovation as reflected in its patent activity in selected medical technologies. Notably, it is a global leader in the development of nanofiber technologies with pioneering medical applications, such as absorbable wound dressing, which improve health and reduce the need for additional interventions.[28,29] It has also made other developments including breakthroughs in antibiotic resistance and early detection of diseases in newborns.[30] However, like the US, the Czech Republic demonstrates room for

improvement in terms of health outcomes. For example, although at 79 years its life expectancy is generally close to the EU average of 81.7 years, the Czech Republic still lags behind western European leaders. For comparison, Switzerland's life expectancy is 83.7 years.[31]

Opportunity Knocking countries are uniquely positioned to turn their innovation strength into transformative impact. With world-class research infrastructure and strong innovation pipelines, these systems have the potential to lead not only in discovery but also in demonstrating how innovation can be scaled equitably. By aligning incentives, strengthening integration mechanisms and fostering collaboration across public and private sectors, they can convert global leadership in invention into measurable gains in access, efficiency and outcomes. Harnessing this opportunity would allow countries like the US and Czech Republic to redefine what it means to be both innovators and implementers, realizing the full social and economic return on their investment in innovation.

2. Trailblazers: Trailblazers have track records in both producing innovation and integrating it effectively. They foster innovation ecosystems that are aligned with the values and long-term goals of the health system. These systems prioritize scaling up impactful innovations, create supportive policy and regulatory environments, ensure equitable access and monitor implementation for continuous improvement. As a result, they achieve strong health outcomes and serve as global models of high-performing, future-ready health systems.

However, becoming a trailblazer is particularly difficult. Achieving this balance of innovation and integration can be resource-intensive, requiring significant public and private investment. Publicly, it demands governments that are committed to prioritizing innovation through sustained investments in personnel, funding and infrastructure. It also requires embedding innovation into health policy and ensuring that it remains a priority, despite the fact that returns on such investments often extend beyond typical government cycles.

For countries in the Value Seeker and Opportunity Knocking archetypes, Trailblazers provide a roadmap for becoming both innovators and implementers. Yet the rarity of Trailblazers emphasizes the structural, financial and political challenges involved in reaching this level of system performance.

Japan and Switzerland are often cited as high-performing health systems that not only generate innovation but also have mechanisms in place that allow for integrating and scaling successful innovations across their health systems. Japan, through its WHO Kobe Centre for example, examines how service delivery, workforce design and financing policies are being adapted to the pressures of a rapidly ageing society, with a goal of promoting scalable solutions.[32] Similarly, Switzerland has invested in integrated care initiatives, via the SCIROCCO tool, for example, which assesses the maturity of health system integration and has explored how to co-ordinate care delivery, data sharing and decentralized innovation to adopt meaningful change at scale.[33]

3. Momentum Needed: These health systems exhibit both low innovation production and a limited capacity for integration. This may stem from underinvestment, lack of infrastructure or a survival-oriented mindset. Without a supportive environment or adequate resources, innovation is neither widely produced nor adopted. These systems can be more reactive than proactive, often integrating innovation only when absolutely necessary. Over time, if they continue the status quo, they fall further behind global peers.

Greece and Mexico, which struggle with both innovation and integration of innovation with their health systems, are two examples. In relation to comparator countries, both fall on the lower end of the spectrum in terms of proportion of GDP spent on innovation. Greece spends 1.5% on R&D and Mexico spends 0.3%,[25] which means that they are not able to generate R&D at the rate of a country focused on generating novel ideas and products. Both countries also face systemic barriers that limit the generation and diffusion of new health innovations. In Greece, weak institutional support, limited funding and low science and technology capacity hinder innovation, and financial and organizational constraints prevent scaling of innovation beyond early pilots.[34] Mexico struggles with deep system fragmentation, including siloed institutions and unequal resource allocation, which obstructs integration and limits equitable adoption of new technologies.[35] This is compounded by comparatively low health investment.[35]

Despite these challenges, Momentum Needed countries represent fertile ground for targeted innovation and partnerships. Their structural constraints and resource limitations make them ideal environments for testing scalable, cost-effective solutions that address real-world health system problems. With appropriate investment, international collaboration and policy reform, these systems can act as living laboratories for adaptive innovation, piloting models of care,

digital tools and financing mechanisms designed for efficiency and equity. By engaging with global partners, including private innovators and multilateral institutions, Greece, Mexico and similar systems can transform perceived weaknesses into strategic advantages—using innovation not as a luxury but as a necessity for system resilience and progress. In doing so, they can carve a pathway toward inclusive, sustainable performance improvement while contributing valuable insights to global health innovation efforts.

4. Value Seekers: Countries of this archetype place less emphasis on the development of innovation, generating fewer innovations compared with other countries, but are focused on adopting and integrating proven innovations developed elsewhere. Their strength lies in pragmatic implementation, resulting in tangible and measurable outcomes. By focusing on value, outcomes and relevance, these systems improve health performance through strategic adoption and adaptation. Despite lower innovation generation, their capacity for effective integration positions them as high-performing systems using traditional assessment models. Importantly, they can also serve as examples for countries that struggle with integration, offering lessons and practical approaches to bridging the gap between innovation and outcomes.

Canada and the UK are viewed more as adopters and integrators of innovations with demonstrated success, rather than as originators of innovation themselves. For example, in Canada, hospitals such as Southlake have implemented a value-based procurement approach that incorporates outcomes evidence into purchasing decisions around innovation.[36] Through this approach, they have produced shorter wait times, lower readmission rates and established strong relationships with vendors who are committed to innovation.[36] Similarly in the UK, the NHS has strong institutional pathways for rolling out evidence-backed innovations, rapid evidence synthesis frameworks and policies focused less on invention and more on spreading good practices and proven technologies across the country's health system.[37] The UK's strong performance in economy-wide innovation rankings reflects its research base and cross-sector innovation ecosystem.[38] However, in this analysis, its health-sector R&D intensity, patent output and clinical trial activity are comparatively lower than those of countries categorized as Trailblazers or Opportunity Knocking systems.

Looking ahead, Value Seekers have an opportunity to evolve from efficient adopters to co-creators of innovation. By investing strategically in local research capacity and fostering partnerships with global innovators, these systems can shape solutions that reflect their own priorities and contexts. Strengthening this feedback loop between adoption and innovation would allow countries such as Canada and the UK to not only sustain high performance but also export models of integration that other health systems can emulate.

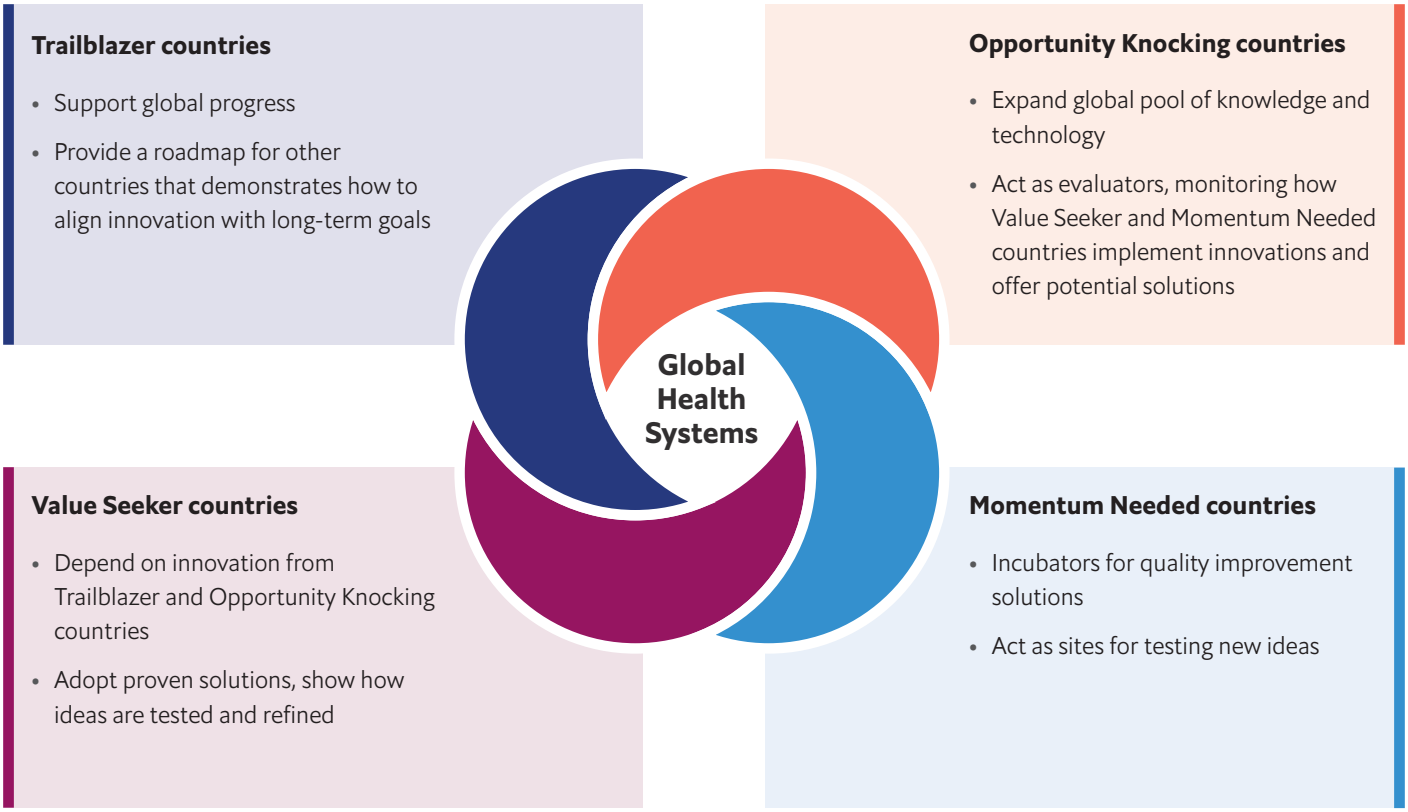
The interconnectedness of archetypes

It is important to recognize that these archetypes are not a ranking, but rather represent different roles health systems can play within a broader ecosystem of innovation and performance. Each archetype contributes in distinct ways, and the interplay between them helps to drive global progress in health systems (see Figure 3).

Momentum Needed countries, such as Greece and Mexico, although often constrained by finances, infrastructure or personnel, are not passive actors. They hold significant opportunities as incubators for quality improvement, testing new ideas and leapfrogging past limitations and bureaucracy of more developed systems. By engaging with Trailblazers, Opportunity Knocking systems and Value Seekers, they can draw lessons both from innovation creation and from implementation practices.

Opportunity Knocking countries, such as the US and the Czech Republic, also play an important role, even if their domestic integration of innovation is limited. Their investments in R&D expand the global pool of knowledge and resources, which in turn can benefit all other archetypes (particularly Value Seekers and Trailblazers). The Pfizer-BioNTech COVID-19 vaccine illustrates how US investment drives

Figure 3: Interconnectedness of archetypes and their contribution to the global pool of innovation and broader health system



Source: Economist Impact

global spillovers. Although the scientific breakthrough originated in Germany, the US's major investment in clinical trials and manufacturing, through Pfizer's US-based R&D and trial networks, enabled rapid scale-up.[39,40] Notably, even before the US, the UK became the first country to authorize the vaccine for emergency use, followed soon after by many others worldwide.[41] As other countries adopt and integrate innovations produced by Opportunity Knocking countries, they can also take on the role of evaluator, monitoring how Value Seekers and Momentum Needed countries implement innovations and offering potential solutions for improvement. These countries can also leverage multi-stakeholder approaches to enable access.

Value Seekers often depend on innovations produced by Trailblazers and Opportunity Knocking countries. Their strength lies in adopting and adapting proven solutions, which not only improves their own systems but also demonstrates how innovations can work in practice. In this way, they can help Trailblazers and Opportunity Knocking systems to see their ideas tested and refined through cycles of quality improvement, such as plan-do-study-act approaches. For countries that have relatively lower levels of innovation production, this model offers a way to remain engaged in innovation, even if it requires significant adaptation to local contexts, a process that can demand time, money and personnel.

Trailblazers, meanwhile, not only advance their own systems but also support global progress through innovation exports. They provide a roadmap for countries that aspire to both create and implement innovation, showing what it takes to align innovation ecosystems with long-term health goals. Although rare, Trailblazers influence the entire system of global health innovation by offering models and lessons that others can learn from.

Ultimately, the archetypes exist in a dynamic and interdependent relationship. Trailblazers generate and integrate innovations, Opportunity Knocking countries contribute to discovery, Value Seekers demonstrate effective implementation and Momentum Needed systems serve as testing grounds and incubators for improvement. Together, these interconnections illustrate that innovation and system performance are not solely national concerns but are also part of a global cycle of learning, exchange and adaptation.

Applying the matrix framework: exploring data and measures

To put this framework into practice, we analyzed various indicators around the production of innovation, as well as capacity for integration and scale. On the innovation side, metrics such as healthcare-related patent applications, scientific publications in health and medicine, and clinical trial registrations per head were reviewed to provide evidence of a country's innovation ecosystem. Although not comprehensive, these measures provide evidence around the level of innovation activity. In addition to these measures, complementary financial indicators, including R&D expenditure as a percentage of GDP, help to contextualise the level of investment devoted to sustaining this pipeline. This speaks to the broader emphasis placed on innovation.

Measures of adoption and integration are equally as important as measures of innovation. However, indicators on integration are spare and more challenging to capture. Indicators around supportive infrastructure were analyzed as a proxy to understand how well a system is set up to integrate innovation. One example of this, as described by Dr Margaret Kruk, Professor of Health Systems at Washington University in St. Louis, is electronic health record (EHR) adoption.

We also considered lagging indicators that can correlate with the impacts of integrations, such as avoidable hospitalizations, timeliness of access to new medicines, uptake of digital health tools and patient-reported confidence in care delivery. These indicators can help to reveal whether innovations are making a real-world difference once introduced into the system, providing visibility on how well systems translate new ideas into improved efficiency, quality and equity. For example, high clinical-trial activity paired with low uptake of novel therapies would suggest an "Opportunity Knocking" archetype, whereas steady improvements in access and avoidable mortality may signal the pragmatic strengths of a "Value Seeker."

When considered together, these indicators allow us to begin to analyze and categorize systems accordingly. This allows for preliminary understanding around innovation generation and integration capacity across different health systems. It also allows for more nuanced classification of health systems beyond traditional outcome measures, such as life expectancy or total spend. By combining upstream measures of innovation with downstream metrics of integration and performance, the framework offers a dynamic tool for assessing not just what health systems are producing but also how effectively they are adopting and scaling those innovations to produce positive outcomes.

To dive more deeply into this, the following section leverages the ***Health Systems Innovation-Integration Matrix*** to explore these metrics in more detail across eight countries: Japan, Switzerland, the US, the Czech Republic, the UK, Canada, Greece and Mexico.

Innovation generation

Investment in R&D is a macro-level indicator of how strongly a country prioritizes innovation. Higher R&D spending as a share of GDP signals that innovation is a national priority, whereas lower spending implies that it is less of a focus. The US, a country already identified as a global leader for innovation, spends the highest percentage (3.4%) of GDP on innovation among our eight comparator countries. Japan and Switzerland spend similar proportions, both at around 3.3%.[27] This solidifies their position as leading countries for innovation along with the US.

Conversely, Greece and Mexico have been identified as countries that allocate comparatively little of their GDP to innovation, spending less than half the share of GDP spent by high-innovation countries. This supports their position as countries with low innovation input. Canada and the UK come in somewhere in the middle. Based on their GDP spend, at 1.8% and 2.7% respectively, these countries appear to take a more conservative approach to innovation.[27]

While investment in R&D indicates the weight or significance placed on innovation at the macro level, innovation also occurs at the meso and micro level across governments and health systems more broadly. The number of patent applications can be analyzed to gain insights on innovation at these levels, as it indicates the scale of novel products, processes and technologies being developed. Despite this different lens, similar country-level trends to R&D investment persist. In 2024, Japan and Switzerland report a high number of resident patent applications per 1m population, at 1,913 and 1,235 respectively, with the US not far behind at 794.7.[42] The UK (248.1), Canada (104.2), the Czech Republic (65.6), Greece (45.5) and Mexico (9) trail significantly behind on this indicator.[42] This further supports that these are not countries of high innovation input.

These two measures are not perfect or comprehensive indicators for innovation, as they focus primarily on the generation of products and technologies. However, they do serve as good proxies for how R&D can translate into tangible outputs. Yet innovation, as defined earlier in the report, also encompasses areas such as policies, services and processes, which are more difficult to measure. If we are to meaningfully integrate innovation into health system performance, we must find better ways to track and capture these harder-to-measure dimensions of innovation generation.

Integration capacity

In addition to production, a country's ability to integrate and scale innovation plays an important role in driving health and health system outcomes. Many factors affect this, including centralized infrastructure, funding mechanisms and country-level policies and priorities. As a result, measuring successful integration is both complex and challenging. These types of indicators are also not well documented or readily available. The majority of indicators outlined in this analysis, including avoidable hospitalizations, timeliness of access to new medicines, uptake of digital health tools and patient-reported confidence in care delivery, were limited and not available across all eight countries.

The best proxy uncovered through this research was EHR adoption rates. EHRs provide centralized data and allow for interoperability and greater reach of innovations, which can result in easier ability to scale. Although not comprehensive, EHR adoption rates do offer valuable insights. Japan, Switzerland, the UK and Canada are all reported to have high rates of EHR adoption across their health systems.[43,44] Over 80% of hospitals in Japan and 83% of hospitals in the French-speaking regions of Switzerland report adopting EHR systems.[44,45] Similarly, the UK and Canada report 90% of hospitals and 93% of primary-care providers adopting EHR respectively.[46,47] The US

has relatively high adoption rates, at 88.2% of office-based physicians. However, US EHR systems are fragmented, leading to challenges with interoperability and siloed patient data.[48,49] The Czech Republic has lower EHR adoption rates, at roughly 60%.[45] Lastly, Greece and Mexico have the lowest rates of EHR adoption, consistent with being in the Momentum Needed category, at 14% of surveyed providers in Greece and 20% of hospitals in Mexico.[45,50] While we are limited in the application of these data to integration more generally, these insights indicate that Japan, Switzerland, the UK and Canada may be more willing and able to adopt technology that is challenging to implement across systems, compared with the US, the Czech Republic, Greece and Mexico.

Although standard indicators are valuable for understanding the uptake and integration of innovations, it is equally important to view integration as a dynamic process. For example, the Veterans Administration (VA) in the US has had an EHR system for over 30 years.[51] As Dr Daniel Polsky, Bloomberg Distinguished Professor of Health Economics and Policy at Johns Hopkins University, notes, "If you look at the VA in the United States—the Veterans Administration—they adopted electronic health records well before any other part of the healthcare system. They were really leading the charge. They still have the same system they implemented 30 years ago. It's archaic, but it's an EHR. So when I think of innovation, it's not about whether you have the technology—it's about how much it's constantly evolving. Is it improving?" This example highlights a key limitation of static indicators: although the number of institutions that have adopted EHRs may serve as a proxy for integration, it does not capture whether these systems are being effectively used or continuously improved. To fully understand innovation integration, we need more nuanced and supplementary indicators that go beyond initial uptake and assess effectiveness, provider engagement and ongoing system evolution.

Measuring impact

There is no shortage of measures for assessing health outcomes. However, as part of this research, three stood out as useful indicators for understanding the impact of innovation. First, the percentage of the population with health coverage provides context on the potential reach of new solutions. If broad coverage does not exist, there will be inequalities in access stunting the potential impact of innovations. Second, avoidable mortality highlights critical system failures and points to areas where innovative approaches are most urgently needed. Low avoidable mortality rates indicate solutions have been created and put in place to prevent avoidable deaths in an evolving system. Third, 30-day mortality following acute events provides a direct measure of how effectively health systems translate innovations into improved survival.

Of the eight countries included in this comparison, the US and Mexico are the only countries that do not have universal health coverage. This is a key indicator for two reasons. First, it means that not everyone benefits equally from innovation, as financial barriers limit access. As a result, innovations are not being leveraged to their full extent to drive positive health outcomes. Second, it highlights an opportunity for innovation itself, through tools like telehealth and new delivery models, to close coverage gaps and improve both efficiency and equity to get to full population coverage.

The indicators discussed in the previous sections are presented as examples to demonstrate how the archetypes can be applied to explore the relationship between innovation, its integration and health outcomes. However, they are not comprehensive. A fuller picture requires a broader set of indicators, particularly those that capture integration and uptake, as well as innovations that are less tangible, such as new policies, service delivery models or conceptual shifts in care. Expanding the range of measures will be essential for more comprehensive analyses and more meaningful cross-country comparisons.

Ultimately, incorporating innovation as a domain of performance encourages a shift from viewing health systems as static entities to seeing them as dynamic ecosystems, capable of learning, evolving and adapting. This broader lens enables more accurate assessments of system readiness for future challenges and fosters more meaningful pathways for cross-country learning and collaboration.

Because current HSPA frameworks do not consider innovation as a core health system strength, they risk misclassifying countries that are highly innovative, such as the US, as underperforming, without fully capturing the nuances of their system capabilities. The broader *Health Systems Innovation-Integration Matrix* model offers a nuanced perspective, taking into account both innovation production and the ability to translate that innovation into the health system effectively.

High-performing health systems are not only defined by their capacity to innovate, but also by how well they integrate those innovations to enhance system-wide access, efficiency, equity and resilience. Ultimately, it is this translation capacity that drives improvements in both health outcomes and overall health system performance. In this light, innovation should be assessed not in isolation, but in terms of its real-world impact through successful integration.

“High-performing health systems are not only defined by their capacity to innovate, but also by how well they integrate those innovations to enhance system-wide access, efficiency, equity and resilience.”

The way ahead

Innovation is essential for driving health system performance forward. However, it remains under-represented in how we measure and compare countries. Popular models such as the HSPA frameworks rely mostly on static and historical indicators, such as total healthcare spend, morbidity and mortality outcomes, workforce indicators and governance structures, but do not adequately capture the role of innovation. Although health technology assessments and cost-effectiveness analyses are commonly used to evaluate individual innovations, these approaches capture only part of the picture and exclude system-level innovations in policy and process. Additionally, these approaches often miss potential ripple effects and the transformative capacity that can come from innovation.

When looking at country examples, it becomes evident that innovation alone is not sufficient to improve outcomes. The US, for example, is considered to be a global leader in innovation, yet lags behind other countries in health and health system outcomes. Integration and scaling of innovation is equally important for delivering progress. To reflect this, Economist Impact's ***Health Systems Innovation-Integration Matrix*** can be used to categorize countries to better understand their strengths and weaknesses in terms of capacity for innovation generation and ability to adopt and integrate these innovations into practice.

Countries with high innovation and high adoption, such as Japan and Switzerland, achieve the strongest outcomes, representing models to learn from. Other countries, such as Canada and the UK, perform well by focusing less on innovation generation and more on scaling evidence-based innovations. In contrast, countries such as the US demonstrate strong innovative capacity but are unable to realize the full benefits of their innovation owing to challenges with adoption. By categorizing and identifying the strengths and weaknesses of different countries, key learnings can be identified and applied to other countries to support stronger outcomes.

Across countries, three key themes emerge that create an enabling environment for strengthening the pathway across innovation generation, integration and resulting health outcomes.

1. Build consensus on the role of innovation in health system performance

- **Cultivate broad-based buy-in:** Innovation is essential for driving improvements in health system performance. Recognition of and commitment to innovation by all relevant actors, including governments, payors, producers of innovation, providers and the general public, is a necessary first step for ensuring change in how we measure its value and impact. Governments should embed innovation priorities in policy, foster public trust by demonstrating value for taxpayer investment, and strengthen partnerships with private industry to encourage collaboration, resource-sharing and joint research. System-specific stakeholders should also be considered. In the US, the prevalence of employer-sponsored coverage brings the business community into close contact with healthcare decision-makers. This connection offers a practical conduit through which insights from other countries' adoption of innovation can be translated into improvements at the population level.
- **Clearly identify strategic health system priorities and outcomes:** Transparency on country-level priorities, whether they be around innovation, integration or both, will ensure broader understanding of different health system priorities. This will allow for easier cross-country comparison and information sharing, promoting visibility on where key learnings can be extrapolated and applied elsewhere.

2. Incorporate innovation into existing frameworks and assessment tools

- **Integrate innovation as a central component of existing HSPA frameworks:** Frameworks such as the HSPA remain valuable tools for comparing health systems, identifying strengths and weaknesses, and drawing lessons from peer countries. As this paper demonstrates, innovation and integration are essential for advancing health system performance and should be embedded as core components within these frameworks, ensuring that they are systematically assessed and used to inform future comparisons, learnings and policy decisions.
- **Incorporate potential spillover effect:** Innovations have the potential to bring about a stepwise change or have spillover effects that radically change how health systems operate. When innovations are being considered through a process like an HTA, potential ripple effects should be noted and considered within the evaluation, rather than just immediate applications.

3. Support more robust data collection to capture innovation and integration appropriately

- **Establish indicators that capture a more diverse range of innovations:** Metrics for capturing innovation are limited. Current measures focus primarily on new products, devices and technologies. However, this overlooks innovation in process and policy, creating a significant blind spot in our understanding of innovation and making it more difficult to identify, assess and monitor over time.
- **Amend existing metrics to make them more dynamic, to capture the impact of integration:** Key indicators for assessing integration need to be created and amended so that they reflect its flow, or continuous change and improvement, rather than a static measure or count. For example, data on the total number of hospitals (static measure) is less informative than a flow metric like the number of facilities that were replaced or updated to incorporate innovation such as more modern technologies. These flow metrics allow for understanding of the evolution and change resulting from innovation.
- **Prioritize patient outcomes and perspectives:** Place patient safety and health outcomes at the center of innovation adoption, embedding patient perspectives throughout the process and defining measurable standards of "success" from the outset.

The *Health Systems Innovation-Integration Matrix* should be viewed as a starting point for how innovation and integration can be incorporated into measurements for health system performance. Future refinement is needed and could dig deeper into how the matrix can be applied to different actors, such as providers, payors and patients, as well as across key sectors within health systems, like the pharmaceutical industry, the digital sector, financing and policy. Understanding innovation across these levels would identify not just whether a system innovates but also how those innovations are embedded and leveraged to drive lasting performance improvements.

The matrix shows that, in the US, significant capacity for innovation has propelled global medical progress, yet the benefits of that ingenuity are not fully realised within its own borders. By translating discovery into equitable and scalable delivery, the US has the opportunity to redefine what a high-performing health system looks like, not only for itself but also for the world. The challenge for the US, and all health systems, is not just to innovate more, but to innovate better: aligning invention with integration to deliver lasting impact.

References

1. World Health Organization. Health System Performance Assessment: A Framework for Policy Analysis. Geneva: World Health Organization; April 13, 2022. Available at: https://iris.who.int/bitstream/handle/10665/352686/9789240042476-eng.pdf?sequence=1.

2. Papanicolas I, Rajan D, Karanikolos M, et al. Health system performance assessment: a framework for policy analysis. Geneva: World Health Organization; 2022. Available at: https://iris.who.int/server/api/core/bitstreams/266443fd-e3c2-4c02-ad69-a5e7d99b5e3d/content

3. de Jong, J. D. (2016). Health Systems Performance Assessment. European journal of public health, 26.

4. Papanicolas I, Karanikolos M, Rajan D, et al. A framework for Health System Performance Assessment. In: Papanicolas I, Rajan D, Karanikolos M, et al., editors. Health system performance assessment: A framework for policy analysis [Internet]. Copenhagen (Denmark): European Observatory on Health Systems and Policies; 2022. (Health Policy Series, No. 57.) Chapter 8. Available from: https://www.ncbi.nlm.nih.gov/books/NBK590185/

5. Peterson Foundation. 2024. "U.S. Healthcare System Ranks Seventh Worldwide — Innovative but Fiscally Unsustainable" Peter G. Peterson Foundation. Last modified June 30 2025.

6. David Blumenthal et al., Mirror, Mirror 2024: A Portrait of the Failing US Health System — Comparing Performance in 10 Nations (New York: The Commonwealth Fund, September 19, 2024), https://doi.org/10.26099/ta0g-zp66.

7. Blumenthal, David, Evan D. Gumas, and Reginald D. Williams II. "Why the US Healthcare System Is So Much Worse Than Its Peers." Harvard Business Review, November 13, 2024. Accessed June 9, 2025. https://hbr.org/2024/11/why-the-u-s-healthcare-system-is-so-much-worse-than-its-peers.

8. Organisation for Economic Co-operation and Development (OECD). Gross domestic expenditure on R&D (GERD) as a percentage of GDP. Main Science and Technology Indicators [Internet]. Paris: OECD; 2024. https://stats.oecd.org/

9. Thacharodi A, Singh P, Meenatchi R, Tawfeeq Ahmed ZH, Kumar RRS, V N, Kavish S, Maqbool M, Hassan S. Revolutionizing healthcare and medicine: The impact of modern technologies for a healthier future-A comprehensive review. Health Care Sci. 2024 Oct 9;3(5):329-349. doi: 10.1002/hcs2.115. PMID: 39479277; PMCID: PMC11520245.

10. Kringos D, Ivanković D, Barbazza E, Klazinga N, Brito Fernandes Ó. Health system performance assessment: embedding resilience through performance intelligence. Int J Qual Health Care. 2024;36(1):mzae010

11. Erickson SM, Martin A. Challenges in International Comparison of Health Care Systems. JAMA. 2017;318(6):515–516

12. Smith, P. C., Sagan, A., Siciliani, L., Panteli, D., McKee, M., Soucat, A., & Figueras, J. (2020). European Observatory Policy Briefs. In Building on value-based health care: Towards a health system perspective. European Observatory on Health Systems and Policies

13. Müller, L., El Oakley, R., Saad, M., Mokdad, A. H., Etolhi, G. A., & Flahault, A. (2021). A multidimensional framework for rating health system performance and sustainability: A nine plus one ranking system. J Glob Health, 11, 04025. https://doi.org/10.7189/jogh.11.04025

14. Lewis, T. P., Kapoor, N. R., Aryal, A., Bazua-Lobato, R., Carai, S., Clarke-Deelder, E., Croke, K., Dayalu, R., Espinoza-Pajuelo, L., Fink, G., Garcia, P. J., Garcia-Elorrio, E., Getachew, T., Jarhyan, P., Kassa, M., Kim, S. A., Mazzoni, A., Medina-Ranilla, J., Mohan, S.,...Kruk, M. E. (2023). Measuring people's views on health system performance: Design and development of the People's Voice Survey. PLoS Med, 20(10), e1004294. https://jogh.org/documents/2021/jogh-11-04025.pdf

15. Rozmarinová, J. (2019, Jun 02-04). Health Technology Assessment. [Smart governments, regions and cities]. 2nd Scientific Conference on Economics of Digital Transformation - Smart Governments, Regions and Cities, Opatija, CROATIA.

16. Abrishami, P., Boer, A., & Horstman, K. (2015). How can we assess the value of complex medical innovations in practice? Expert Review of Pharmacoeconomics & Outcomes Research, 15(3), 369-371. https://doi.org/10.1586/14737167.2015.1037834

17. Xie, R., Cheng, M. Y., Bright, J., Spangler, J., Krieger, J. L., Graglia, M., & Chapman, R. (2023). HTA75 Prioritized Attributes to Better Define and Measure Innovation in Health Technology Assessment: Findings from an Expert Roundtable. Value in health, 26(6 Supplement), S273. https://doi.org/https://dx.doi.org/10.1016/j.jval.2023.03.1504 (ISPOR 2023: Impacting Innovation, Value, and Healthcare Decision Making. Boston, United States.)

18. Charlton, V., & Rid, A. (2019). Innovation as a value in healthcare priority-setting: the UK experience. Social Justice Research, 32(2), 208-238. https://doi.org/10.1007/s11211-019-00333-9

19. Silva, H. P., Lehoux, P., Miller, F. A., & Denis, J. L. (2018). Introducing responsible innovation in health: a policy-oriented framework. Health Research Policy and Systems, 16, Article 90. https://doi.org/10.1186/s12961-018-0362-5

20. Gusmão Louredo F de S, Raupp E, Araujo CAS. Meaning of sustainability of innovations in healthcare organizations: A systematic review. Health Services Management Research. 2023;37(1):16-28. doi:10.1177/09514848231154758

21. Thokala P, Srivastava T, Smith R, Ren S, Whittington MD, Elvidge J, Wong R, Uttley L. Living Health Technology Assessment: Issues, Challenges and Opportunities. Pharmacoeconomics. 2023 Mar;41(3):227-237. doi: 10.1007/s40273-022-01229-4. Epub 2023 Jan 18. PMID: 36652184; PMCID: PMC9848020.

22. Papanicolas I, Cylus J, Alderwick H, Lorenzoni L. Policy questions as a guide for health systems' performance comparisons. Bull World Health Organ. 2024;102(7):550-552. doi:10.2471/BLT.24.291635

23. Sen AP. Research and policy to strengthen the employer-sponsored health insurance market. Health Serv Res. 2022;57(3):439–442

24. Canada Health Infoway. The Emerging Benefits of Electronic Medical Record Use in Community-Based Care: Full Report. April 21, 2013. https://www.infoway-inforoute.ca/en/component/edocman/resources/reports/benefits-evaluation/1224-the-emerging-benefits-of-electronic-medical-record-use-in-community-based-care-full-report?Itemid=103

25. CBC. E-health records saved medical system $1.3B in 6 years. CBC News. April 22, 2013. https://www.cbc.ca/news/politics/e-health-records-saved-medical-system-1-3b-in-6-years-1.1384119

26. The Health Foundation. Electronic Patient Records: Why the NHS Urgently Needs a Strategy to Reap the Benefits. April 9, 2025. https://www.health.org.uk/reports-and-analysis/analysis/electronic-patient-records-nhs-strategy

27. Organisation for Economic Co-operation and Development. Gross Domestic Spending on R&D. OECD Data. Accessed November 12, 2025. https://www.oecd.org/en/data/indicators/gross-domestic-spending-on-r-d.html

28. Radio Prague International. "Czech Scientists Develop Breakthrough Technology of Commercial Production of Nanofibres." Radio Prague International (English), November 4, 2015. https://english.radio.cz/czech-scientists-develop-breakthrough-technology-commercial-production-8090483

29. nanoSPACE. Discover the Wonder of Nanofiber Technology in Everyday Life. nanoSPACE Store Blog, January 16 2023. https://www.nanospace.store/blog/discover-the-power-of-nanofiber--all-you-need-to-know/

30. Visit Czechia. "Seven Fascinating Czech Scientific Discoveries." Visit Czechia News, March 2021. https://www.visitczechia.com/en-us/news/2021/03/n-czech-scientific-discoveries

31. Organisation for Economic Co-operation and Development. Life Expectancy at Birth (indicator). OECD Data. Accessed November 12, 2025. https://www.oecd.org/en/data/indicators/life-expectancy-at-birth.html

32. Rosenberg, Megumi; Tomioka, Shinichi; and Barber, Sarah L. "Research to Inform Health Systems' Responses to Rapid Population Ageing: A Collection of Studies Funded by the WHO Centre for Health Development in Kobe, Japan." Health Research Policy and Systems 20 (Suppl 1), 128 (2022). https://doi.org/10.1186/s12961-022-00917-z

33. Filliettaz SS, Berchtold P, Koch U, Peytremann-Bridevaux I. Integrated Care in Switzerland: Strengths and Weaknesses of a Federal System. Int J Integr Care. 2021 Oct 29;21(4):10. doi: 10.5334/ijic.5668. PMID: 34754285; PMCID: PMC8555474.

34. Piperopoulos, Panagiotis. "Barriers to Innovation for SMEs: Empirical Evidence from Greece." International Journal of Business Innovation & Research 1, no. 4 (2007): 365-386. doi:10.1504/IJBIR.2007.013725.

35. González Block, Miguel A., Mariana Morales-Vázquez, Hortensia Reyes, Diego Hernández Galdámez, and Otilio Reducindo Maldonado. Health Systems in Action 2024: Mexico. Insight Series. Copenhagen: European Observatory on Health Systems and Policies / World Health Organization, 2025. https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-2024-mexico

36. Southlake Regional Health Centre. "Value Based Procurement Improves the Patient Experience." January 23, 2023. https://southlake.ca/news/value-based-procurement-improves-the-patient-experience/

37. NHS Innovation Accelerator. NHS Innovation Accelerator (NIA) – Empowering innovators to scale impactful solutions across the NHS. Accessed November 12, 2025. https://www.nhsaccelerator.com/

38. European Commission. European Innovation Scoreboard 2025: Country profile – United Kingdom [Internet]. Brussels: European Commission; 2025. Available from: https://ec.europa.eu/assets/rtd/eis/2025/ec_rtd_eis-country-profile-uk.pdf

39. Fox, Kara, and Frederik Pleitgen. "Scientists Who Developed the Pfizer/BioNTech COVID-19 Vaccine Are a Turkish-German Power Couple." CNN, November 10, 2020. https://edition.cnn.com/2020/11/10/europe/biontech-pfizer-vaccine-team-couple-intl

40. Lalani, Hussain S., Jerry Avorn, and Aaron S. Kesselheim. "US Taxpayers Heavily Funded the Discovery of COVID-19 Vaccines." Clinical Pharmacology & Therapeutics, March 2022. https://pmc.ncbi.nlm.nih.gov/articles/PMC8426978/

41. López-León, Sandra, and Lars Heymann. "Prevalence of Long-Term Effects in COVID-19 Survivors: A Systematic Review and Meta-analysis." medRxiv / PMC, 2021. https://pmc.ncbi.nlm.nih.gov/articles/PMC8704081/

42. World Intellectual Property Organization. Intellectual Property Statistics – IP Statistics Data Center. Accessed November 12, 2025. https://www3.wipo.int/ipstats/ips-search/search?tab=patent

43. Organisation for Economic Co-operation and Development. Health at a Glance: OECD Indicators. OECD Publishing, Paris. Accessed November 12 2025. https://www.oecd.org/en/data/indicators/gross-domestic-spending-on-r-d.html

44. European Observatory on Health Systems and Policies & World Health Organization. "Government Pushes for Universal Electronic Health Record in Switzerland." Health Systems & Policy Monitor (HSPM), 04 July 2023. https://eurohealthobservatory.who.int/monitors/health-systems-monitor/analyses/hspm/switzerland-2015/government-pushes-for-universal-electronic-health-record-in-switzerland#:~:text=In%20French-speaking%20regions%20of,%25%2C%20respectively%2C%20opened%20one

45. Organisation for Economic Co-operation and Development. Health at a Glance 2023: OECD Indicators. OECD Publishing, Paris, 2023. https://doi.org/10.1787/7a7afb35-en

46. Clews, Graham. "Electronic Patient Records Being Used in 90% of Hospital Trusts, Says NHS England." The Pharmaceutical Journal, November 20, 2023. https://www.pharmaceutical-journal.com/article/news/electronic-patient-records-being-used-in-90-of-hospital-trusts-says-nhs-england?utm_source=chatgpt.com

47. Canadian Institute for Health Information. Improved Use of Information Technology Can Result in More Coordinated Care for Patients. Infographic, June 8, 2023. https://www.cihi.ca/en/improved-use-of-information-technology-can-result-in-more-coordinated-care-for-patients

48. Office of the National Coordinator for Health Information Technology. National Trends: Hospital and Physician Adoption of Electronic Health Records – QuickStats. Accessed November 12 2025. https://www.healthit.gov/data/quickstats/national-trends-hospital-and-physician-adoption-electronic-health-records

49. Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. "Electronic Medical Records/Electronic Health Records (EMRs/EHRs)." FastStats. Accessed November 12 2025. http://medbox.iiab.me/modules/en-cdc/www.cdc.gov/nchs/fastats/electronic-medical-records.htm

50. ACCESS Newswire. "Greece's Digital Health Reset: Opportunities Emerge for Local EHR and Interoperability Vendors Amid Lagging IT Infrastructure." June 8, 2025. https://www.accessnewswire.com/newsroom/en/healthcare-and-pharmaceutical/greece%E2%80%99s-digital-health-reset-opportunities-emerge-for-local-ehr-and-1036613#:~:text=Only%2014%25%20of%20Greek%20providers,size%2Dfits%2Dall%20technologies

51. U.S. Government Accountability Office. "Veterans Affairs' Ongoing Struggle to Modernize Its Electronic Health Record System." GAO Blog, accessed November 12 2025. https://www.gao.gov/blog/veterans-affairs-ongoing-struggle-modernize-its-electronic-health-record-system

Appendix: methodology note

This report was developed by Economist Impact through a mixed-method research approach combining evidence review, expert consultation and comparative analysis.

Evidence review
Economist Impact conducted a targeted review of global literature, policy documents and datasets related to health system performance assessment and innovation measurement. Sources included frameworks developed by the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD) and the European Observatory on Health Systems and Policies.

Framework development
Insights from the evidence review informed the creation of a new conceptual model—the Health Systems Innovation-Integration Matrix—which classifies health systems based on two dimensions: innovation generation and integration capacity. This framework was designed to move beyond static performance metrics toward a more dynamic understanding of how health systems evolve and improve over time.

Expert engagement
Economist Impact convened a global roundtable of seven health system experts in July 2025 to test and refine the framework. Additional in-depth interviews were conducted with academics, policymakers and practitioners. Experts were selected by Economist Impact for their diverse perspectives on innovation policy, health system evaluation and implementation science.

Comparative analysis
Using publicly available data, literature review and expert insight, Economist Impact segmented selected upper and middle-upper income markets, as defined by the WHO, along two dimensions: innovation generation and integration capacity. Country selection was led independently by Economist Impact and informed by the aim of capturing variation across both axes of the Health Systems Innovation-Integration Matrix.

Quantitative indicators were used to assess innovation production and integration within each country. Measures of innovation generation included R&D expenditure as a percentage of GDP, healthcare-

related patent activity, clinical trial registrations and scientific publications. Measures of integration capacity included proxies such as electronic health record (EHR) adoption, uptake of digital tools and lagging performance indicators that reflect how effectively innovations are translated into access, efficiency and equity gains. These indicators were complemented by expert validation to ensure contextual interpretation.

This approach focuses specifically on innovation within the health sector and its translation into system performance. As such, classifications within this matrix may differ from broader economy-wide innovation indices—such as the European Innovation Scoreboard—which assess overall national innovation capacity across sectors rather than health-system-specific innovation and integration. The matrix is not intended to rank countries, but to illustrate relative positioning within a health innovation–integration framework and to surface structural differences in how innovation is generated and embedded in practice. Countries were selected to ensure representation across all four archetypes and to facilitate meaningful cross-country comparison, rather than to provide a comprehensive global ranking.

ECONOMIST IMPACT

LONDON

The Adelphi
1-11 John Adam Street
London WC2N 6HT
United Kingdom
Tel: (44) 20 7830 7000
Email: london@economist.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@economist.com

SÃO PAULO

Rua Joaquim Floriano,
1052, Conjunto 81
Itaim Bibi, São Paulo,
SP, 04534-004
Brasil
Tel: +5511 3073-1186
Email: americas@economist.com

NEW YORK

900 Third Avenue
16th Floor
New York, NY 10022
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@economist.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@economist.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@economist.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@economist.com