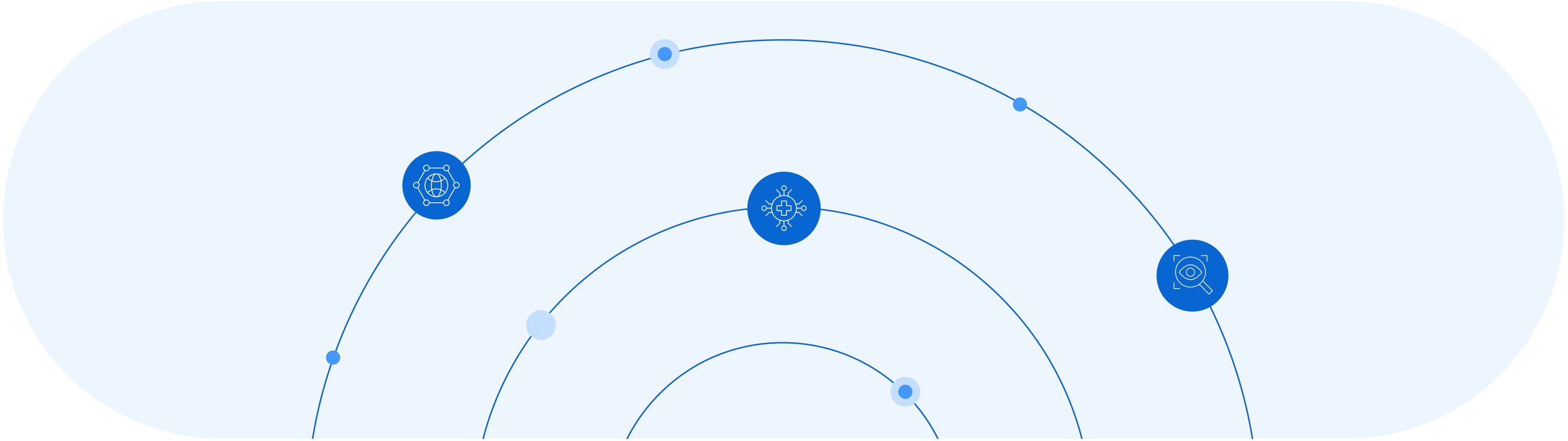
Making health care work for everyone

How AI can help public and private health care organizations enhance efficiency, increase value and improve patient care

Foreword



Across the globe, health care organizations are looking for new ways to make health systems work for everyone. Both the public and private health care sectors are looking to solve serious challenges, especially around controlling the cost of care while addressing staffing shortages and managing the increasing demands of an aging population.

New research from Economist Impact shows that health care organizations are turning to AI to help increase efficiency, improve the quality of care, create better outcomes for patients and deliver greater value for money.

What will it take to turn your organization's AI vision into reality? And how can you deliver AI-powered health care services quickly, safely and successfully? In this paper, we'll provide a blueprint for AI success.

Contents

01
Introduction

As part of a research project called **“Reimagining the future of public sector productivity”**, Economist Impact engaged with more than 700 health care sector workers on a broad range of productivity-related topics. One of the key topics that emerged was how health care organizations are starting to adopt **AI** and **generative AI** to transform the way that health care services are delivered.

AI can predict patients who are at risk of postoperative complications, improving patient outcomes and reducing hospital stays. It can help health care professionals review patient records faster by extracting information from handwritten and copied documents – and even automatically generate notes to summarize consultations with patients. It can detect fraud in health care claims automatically. It can simulate how hospitals work, highlighting opportunities for new efficiencies. It can model the spread of infectious diseases to help health systems prepare for outbreaks and pandemics. The potential for AI in health care is endless, and innovators in the sector are identifying new use cases all the time.

Crucially, AI technologies are designed to augment – not replace – the skills of health professionals. AI can free clinicians, researchers and administrators from drudgery and enable them to provide better patient care, focus on new discoveries and run hospitals and clinics more efficiently.

The case for the benefits of AI has already been proven in public and private health care organizations and government health agencies around the world. But for organizations that are just starting their AI journey, it’s not always obvious how to deliver AI projects quickly, successfully and safely.

In this e-book, we explore the guiding principles that will help you implement your AI-powered future:

- Build your business case.
- Identify your requirements.
- Develop your team.
- Get your data in shape.
- Start small and evolve incrementally.

As digital transformation and modernization efforts progress, governments and public organizations will look to utilize data and AI better to augment their efforts. Take advantage of peers’ insights about the future, governance and accountability to help you make the best decisions for your organization.

> **With our ambient AI documentation system that saves my time by transcribing and summarizing clinical notes in real time during physician-patient conversations, I can be more present in providing care for patients, enhancing the human touch in care delivery.**
>
> **Professor Tan Hiang Khoon**
> CEO, Singapore General Hospital

02

Five key steps to start your health AI journey

Putting AI into practice

The Economist Impact research shows:

89% of respondents believe AI will have a noticeable impact on improving their organization's productivity over the **next three years**.

Over **50%** believe it will have a significant or **critical impact**.

However, turning this AI vision into practice is not always easy. Most health care professionals recognize that:

61% digital transformation and **61%** organizational change are **prerequisites for AI-powered productivity gains**, but action is lagging behind ambition.

Only **34%** of respondents say **digital transformation** has been widely **implemented** across their organization.

Only **33%** can claim the same for **organizational change**.

So, how do you get started with transforming your organization to embrace AI? Here are the five key steps.

1. Build your business case

As a first step toward both digital and organizational transformation, it's vital to gain buy-in from stakeholders at every level – from health care leaders, clinicians and researchers to administrators and patients. In public health care settings, you will also need to win over politicians and taxpayers, while in private health care, you must convince your board and shareholders too.

To get all these stakeholders onside, the best first step is to create a strong business case that clearly articulates how AI will deliver practical benefits, not just science experiments.

- Document the specific projects where you expect AI to deliver the most value.
- Prioritize projects that can be implemented quickly, safely and cost-effectively.
- Describe the benefits for each of your groups of stakeholders.
- Highlight the risks of continuing with current practices unchanged.

2. Identify your requirements

For each project, it's important to identify the most important question that you want AI to answer, the question that will have the single greatest impact on everyday decision making. With this question as your "north star," you can then map out the key requirements, tools and processes that you will need to deliver it, the metrics you can use to prove that the project is achieving its goals and the communication plan you will use to notify stakeholders of progress and celebrate success.

3. Develop your team

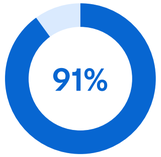
Inevitably, the introduction of AI will lead to changes in the way people work. In general, AI will make life better for health care professionals by automating tedious routine tasks – but even so, some individuals and teams will be ready for change, while others may be more resistant.

A good approach is to identify a small set of curious, capable, pragmatic individuals in each of your existing groups of stakeholders – these are the early adopters who will lead the way on AI and become your strongest advocates.

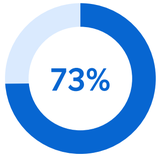
As your plans become more established and larger-scale implementations begin, AI-oriented change management tactics can help, including providing extra support, training and coaching. External partners can assist here, too, providing capabilities such as staff augmentation and outsourcing technical capabilities such as data management and analysis and infrastructure hosting.

4. Get your data in shape

According to the Economist Impact study:

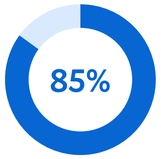


of health care professionals believe data privacy concerns block the adoption of new technologies.



consider this a major or critical challenge.

When organizations are concerned about the risks of sharing data internally, it often leads to silos forming within the organization.



of respondents see these silos as another obstacle to adopting new technologies like AI.

5. Start small, evolve incrementally

With your requirements mapped, your early adopters identified and your data in order, you will be ready to start implementing your first AI projects. At this point, it's extremely important to focus on the highest-priority items in your business case. Ideally, these should be "quick win" projects that you are confident you can implement in a short timeframe with minimal risk of failure, and that will deliver clear benefits for your stakeholders.

The reason for starting with the quick wins is that early success in an AI initiative creates momentum for change. On the flip side, if your initial projects fail, it can lead to a loss of confidence in AI within the organization. That's why it is best to start small and implement ideas that you know will work, for example, by choosing technologies and ideas that have already proven their value in other organizations.

03
Identifying AI opportunities in health care

To build a strong business case for the digital transformation and organizational change necessary for AI-powered health care services, it's vital for health care organizations to identify opportunities to adopt AI that aligns with their core mission. The best candidates will be:

Quick to deliver a measurable positive impact on key health care metrics.

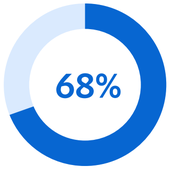
Easy for health care professionals to adopt and see the value.

Simple, safe and cost-effective to implement.

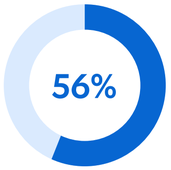
It follows that one of the most effective ways to introduce AI to your organization is to start with use cases where other health care organizations have already tested and proven the value of AI. This low-risk approach resonates with most health care organizations. According to the Economist Impact survey, 69% of respondents say that their organization will only adopt new technologies that other organizations have already proven to be effective.

Capitalizing on proven opportunities for AI

The Economist Impact report highlights:



of health care organizations use **predictive analytics** for proactive patient care.



of health care providers deploy **cybersecurity and fraud analytics** to protect against threats.

SAS has countless examples of projects we have successfully delivered in these areas for health care organizations worldwide, for example:

Predictive analytics

Researchers at University College Dublin worked with SAS to develop and deploy an advanced AI algorithm to help clinicians make effective and efficient clinical diagnoses of suspected preeclampsia.

> **The AI engine in SAS Viya enables us to analyze an increasing store of data points and biomarkers and create a powerful decision support assistant.**
>
> **Dr. Katrina Comerford**
> Research Scientist at the School of Biomolecular Science, UCD

Fraud analytics

Using SAS to drive its fraud prevention strategies has helped Bupa UK Insurance identify and prevent criminal activity.

> **The detailed insight that SAS provides helps us to clamp down on potential criminal behavior, such as inappropriate billing or incorrect coding and helps law enforcement fight organized crime.**
>
> **Peter Woods**
> Head of Data Operations, Bupa UK Insurance

Expanding AI into new areas

By successfully adopting established AI use cases, you can build organizational confidence to pursue more advanced and ambitious applications. Demonstrating tangible benefits early on reinforces that AI's potential is both real and achievable – laying the groundwork for broader adoption.

Some other areas where SAS has been helping health care organizations realize significant gains with AI include:

Transforming medical documents – using machine learning and optical character recognition to convert paper and handwritten documents into digital patient records, which can be searched and analyzed to surface insights faster.

Predicting high-risk infections faster – creating predictive models that forecast trends for infectious diseases in the general population, or track and reduce hospital-acquired infections and mortality.

Simulating hospital operations with IoT – collecting data from sensors throughout a hospital to monitor availability of beds, medical devices and equipment and predict demand patterns for staffing and other resources.

Improving patient engagement – harnessing natural language processing to analyze complaints, feedback and other interactions with patients and other stakeholders, helping to identify trends and highlight opportunities to increase satisfaction for service users.

Optimizing care management – anticipating the post-surgical outlook for patients before they are discharged from the hospital, enabling health care professionals to build personalized care pathways to reduce the risk of relapse and improve outcomes.

Simulating health care policy impact – using data and evidence-based analysis to model and quantify the impact of policy changes on health care costs, quality and outcomes.

04

Reducing risk with proven technologies

According to the Economist Impact report, 65% of health care professionals say that budget constraints are a major or critical challenge to successful technology adoption. When budgets are tight, it's critical to ensure that your AI projects have positive outcomes to demonstrate value for money to your stakeholders.

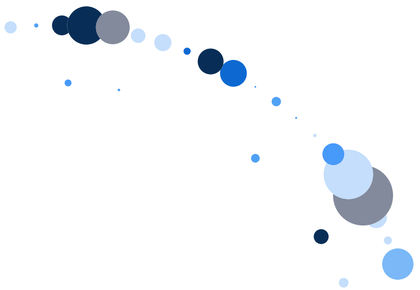
Ensuring positive outcomes is especially important when you are in the early stages of your AI journey. If you start with a project that fails or underachieves, there's a serious risk that you won't get funding for future AI investments.

So how do you minimize that risk? One way is to invest only in **proven technologies.**

An **established platform**, such as **SAS® Viya®**, which is already used by thousands of public and private health care organizations and government health agencies around the globe, can give your team confidence that the foundations of their AI initiatives are solid and secure.

A second recommendation that emerges from the report is to take an **incremental approach**. Instead of massive, multi-year transformation projects, just start with one small project and evolve from there. This is good advice — but it's important to approach it in the right way.

While your initial AI project itself should be small and self-contained, it's important that the **underlying technology should be scalable** enough to expand to much larger and more complex use cases in the future. Otherwise, the result may be dozens of tiny projects, each running on its own separate technology stack — creating yet more data silos that prevent your AI projects from achieving their full potential.



The ideal technology platform to support an incremental approach to AI should offer:

Robust data and analytic governance – 91% of health care sector workers regard data privacy concerns as a blocker for the adoption of new technologies, so it's crucial to build your AI platform on a strong foundation with governance at its core. This can help gain the trust of users and other stakeholders, encouraging them to share more of their data and gain greater benefits from AI.

Intuitive user experience – so you can empower everyone, not just data scientists and engineers, to incrementally integrate AI into their daily work. User experiences should range from "just log in and click a button" through low-/no-code, drag-and-drop interfaces to the full power of open source AI programming frameworks.

Modular components – so you can accelerate delivery by taking advantage of prebuilt AI models for common use cases such as document recognition or fraud detection.

Comprehensive AI tooling – so you have instant access to the techniques you need to implement your first use cases without placing any limitations on what you can achieve in later, more ambitious projects.

End-to-end automation – so you can establish a streamlined process to develop and deploy your AI models, enabling rapid iterations and continuous incremental improvement.

Flexible licensing – so you can start by onboarding a small initial userbase and can increase your subscription instantly as demand for AI projects and services grows.

05

What to look for in a health AI partner

AI is evolving rapidly, but there is a relative scarcity of expert data scientists and data engineers in most health care organizations. As a result, it can be difficult to build up the internal expertise to launch AI initiatives successfully. The Economist Impact report highlights a trend of turning to external partners, with 47% of respondents considering outsourcing an effective strategy for improving productivity.

However, once again, there are caveats. While the report suggests that more accessible procurement processes could make it easier to source AI services from smaller players, this may be a risky approach. Out of the thousands of AI startups clamoring for contracts today, how can you identify the small handful that will still exist in five years' time?

A more prudent approach is to partner with established players who have the credentials, the network and the financial stability to support your AI strategy – not just today but in the longer term too.

Here's a checklist of things to look for in an AI partner:

Proven technology that has already shown its value in multiple health industry applications.

Years of experience in delivering data and AI projects for health care organizations.

Ability to scale with sufficient personnel to support your growth when your AI initiatives take off.

Robust ethics embedded in their technology and working culture to ensure safe, trustworthy AI.

Strong working relationships with existing health care technology and outsourcing partners.

Full compliance with health care procurement, security, privacy and regulatory frameworks such as HIPAA, GDPR, the EU AI Act and more.

Learn more about **SAS core principles for responsible innovation.**

06
Why SAS?

Deep expertise and trustworthy results

With nearly 50 years at the forefront of data and analytics technology, SAS has the proven track record to support your organization in its quest to deliver AI-powered health care. We work with thousands of public and private health care organizations in countries around the world, and our experience includes delivering award-winning solutions that benefit stakeholders across every aspect of health care: payers, providers, researchers, policymakers and patients.

Learn more about **SAS in the health care sector.**

SAS software is also widely used in health care and life sciences research. For a selection of prominent and timely research publications powered by SAS, see **https://www.sas.com/en/scientific-publications.html.**

A platform that empowers you

SAS Viya is a cloud-native data and AI platform, enabling organizations to scale cost-effectively, increase productivity and innovate faster, backed by trust and transparency. Viya makes it possible to integrate teams and technology – enabling all users to work together successfully, connecting all aspects of the data and AI life cycle, and helping turn critical questions into trusted decisions.

Our **SAS Health** solution, built on the **SAS Viya** platform, is an end-to-end solution for data integration, data management, automation and analytics. Together, they enable health care organizations to become more patient-centric and build health systems that work for everyone by helping to:

- Simplify health data management and accelerate analytic discovery.
- Access analytic insights faster, whether your users prefer to code or use a low-code/no-code environment.
- Make transparent and explainable decisions in governed, regulated environments.
- Drive enhanced patient care and outcomes, improved clinical experience and optimized cost management and resources.

Cloud-native technology you can scale

As a cloud-native platform, Viya gives you the agility you need. You can start small with a handful of users for your first AI projects and scale up to support thousands of physicians, patients or other stakeholders as your AI strategy gains momentum.

A study by The Futurum Group, a respected independent technology research firm, compared Viya to several leading competitor analytics platforms, including both proprietary and open source technologies.

The results demonstrate that Viya is uniquely capable of delivering data and analytics at a scale that will meet the needs of even the largest health systems:

SAS Viya was **30x faster** than all competitors tested across all cases.

SAS Viya produced the same results for **86% lower cost** than competitors.

SAS Viya is **4.6x more productive** than competitors.

Real-world results with SAS Viya

Health Care Provider, Europe

Automates safety reporting processes, **reducing workload by 50%** and **achieving 95% accuracy** in identifying safety triggers.

Health System, North America

Enhances data-driven decision making, operational efficiencies and the **quality of care** provided to patients through AI.

Department of Health Services, North America

Tracks influenza data across the state by unifying multiple flu surveillance sources into one user-friendly dashboard, **improving flu tracking and response**.

Health Insurance Company, North America

Analyzes historic claims data and demographic and financial data to build personalized care pathways to optimize outcomes, **reduce costs for individuals** and manage the resource burden on the health care system.

Research Center, Europe

Uses machine learning algorithms in research to combine unique biomarkers with clinical and demographic information about patients to support clinical decision making for **effective and efficient diagnosis** of preeclampsia.

Cancer Center, Europe

Optimizes **personalized cancer care pathways** and workforce management by integrating data from multiple sources and making data available in real time.

Department of Health Services, North America

Generates dashboards that provide insight into patient care, caseloads and finances **across 26 health centers and four acute care hospitals**.

07
About the research

The Economist Impact report, “Reimagining the future of public sector productivity,” is supported by in-depth interviews with experts from academic institutions, government bodies, non-governmental organizations and international multilateral institutions. The survey findings are based on responses from 1,550 public sector employees across 26 countries, including 729 respondents who work in public health or hospitals and health systems. The report’s qualitative insights are based on in-depth interviews with experts. The report includes recommendations to help stakeholders pursue ambitious but realistic improvements in service delivery.

About SAS

SAS is a global leader in data and AI. With SAS software and industry-specific solutions, organizations transform data into trusted decisions. SAS gives you THE POWER TO KNOW®.

SAS helps health care organizations make better use of their data to increase quality of care, improve patient outcomes and deliver greater value. We want you to be able to use your data to make decisions confidently, explain those decisions to stakeholders and run more resourcefully.

Discover how **SAS Viya for Health Care** and **SAS Health** uses data and AI to reveal new insights and transform processes to create efficient health systems.

Learn more about **AI in the health care sector with SAS**.

To contact your local SAS office, please visit: **sas.com/offices**