

CASE STUDY: FORTRESSIQ, LUMEVITY, AND
HIGHMARK HEALTH

Innovation Team Gets Smarter About Process Automation and Optimization

AI-Powered Process Discovery Tech Scales Up
Analysis, Minimizes Disruption and Gaps in Insight

Doug Henschen
Vice President and Principal Analyst

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AT A GLANCE

Highmark Health, the Pittsburgh-based healthcare giant, has pursued innovation and organizational agility over the last four years by developing an internal transformation and consulting team called thinkUP. By early 2021, thinkUP leaders recognized that they needed to scale up and enhance their analysis of business processes. They also wanted to avoid the disruptions and data collection delays associated with conventional process discovery approaches.

The team turned to FortressIQ, recently acquired by Automation Anywhere, for its artificial intelligence (AI)-powered Process Intelligence cloud service. The product quickly and unobtrusively captures and analyzes process data from the desktops of workers without changing or disrupting their work. A key to the selection of FortressIQ was its ability to gather data in compliance with Highmark Health's stringent standards for protecting the privacy of protected health information (PHI) and personally identifiable information (PII).

FortressIQ proved invaluable in scaling up and improving the analysis of two high-scale internal Highmark Health processes, as detailed in this case study. Clearly and accurately understanding a process is the first step toward more effectively automating repetitive manual tasks and optimizing processes for greater efficiency and better outcomes.

In July 2021, Highmark Health launched Lumevity, a new subsidiary formed to commercialize thinkUP capabilities and expertise. Lumevity helps businesses across all industries transform in ways that drive direct financial benefits, improve quality, and increase employee engagement. FortressIQ's process discovery technology is among the tools that Lumevity will utilize in its process automation and process optimization work.

AT A GLANCE

Problems

- Executives sought a process discovery tool that would be easy to use and not require changes to existing systems.
- Leaders wanted to avoid the unscalable, disruptive approach of hiring process analysts to monitor workers, document processes, and spot potential automations and optimizations.
- Highmark Health required that the technology comply with its stringent standards for protecting PHI and PII.

Solutions

- FortressIQ Process Intelligence was chosen in large part because it unobtrusively monitors worker desktops, using AI to spot opportunities for automation and optimization.
- FortressIQ's data masking capabilities enable analysts to identify and redact privacy- and security-sensitive data.

Benefits

- The solution captures more data and documents processes far more accurately than the incumbent approach of assigning process analysts to shadow workers and document work steps.
- In the first project, finished in eight weeks, the team spotted opportunities to automate, eliminate duplication of effort, and reengineer one system to ensure 80% utilization for all users.
- For a second process, also completed within eight weeks, the solution spotted opportunities to automate 70% of the work.

Business Themes



Data to Decisions



Future of Work



Technology Optimization

THE COMPANY

Highmark Health's businesses include Highmark Inc., one of America's largest Blue Cross Blue Shield insurers; a growing regional hospital and physician network; and subsidiaries that offer dental solutions, reinsurance solutions, population health management, and technology solutions.

Highmark Health has advanced its technology solutions and expertise over the last four years via thinkUP, an internal innovation, transformation, and optimization initiative and consulting team. thinkUP selected FortressIQ and its cloud-based Process Intelligence service as a supporting technology for process automation and optimization in early 2021.

The technology quickly proved its worth, streamlining two significant process discovery and process mining projects that revealed opportunities for automation and optimization. The technology gathered massive amounts of data for analysis without requiring changes to systems and without disrupting workers or changing their work habits.

Highmark Health (and subsidiary Lumevity)

- **Headquarters:** Pittsburgh, Pennsylvania
- **2020 Operating Revenue:** \$18 billion
- **No. of Employees:** More than 35,000
- **Industry:** Healthcare, including health insurance plans, regional hospital and physician networks, dental solutions, reinsurance solutions, population health management, and technology solutions
- **Subsidiary:** Lumevity was launched in 2021 to help businesses achieve large-scale transformation by eliminating inefficiencies, creating new revenue opportunities, enabling employees to do innovative work, and delivering enhanced outcomes for customers. Lumevity is leveraging the real-world experience of thinkUP, a Highmark Health innovation, transformation, and optimization team.

Among the leaders involved in the selection process was Leslie Carter, vice president of Automation Solutions and Enablement at Highmark Health subsidiary Lumevity. The implementation of FortressIQ Process Intelligence was spearheaded by Gurunathamoorthy (Guru) Venkatasubbu, who reports to Carter as Lumevity's director of Automation Solutions Innovation and Strategy.

Highmark Health formed Lumevity in July 2021, drawing on the technology prowess and talent of thinkUP. This new business is focused on helping businesses across all industries transform in ways that drive direct financial benefits, improve quality, and increase employee engagement. Lumevity is pursuing large-scale transformation projects aimed at "eliminating inefficiencies, creating new revenue opportunities, enabling employees to do innovative work, and delivering enhanced outcomes for customers," according to Lumevity's launch press release. FortressIQ Process Intelligence is among the tools Lumevity will utilize in its pursuit of innovation, process automation, and optimization projects.

THE CHALLENGES

When organizations contemplate process improvement, it all starts with developing a thorough understanding of the “as is” process and then developing plans for the improved “to be” process that will take advantage of automation, optimization, and breakthrough innovation. But that first step—developing an understanding of existing processes and spotting opportunities for improvement—is fraught with challenges.

The old-school approach of process discovery is to hire and assign process analysts to sit alongside workers, ask questions, take notes, and gather data on individual work steps and all end-to-end processes. It’s a manual process that’s hard to scale, because it’s inherently labor-intensive and, thus, costly. It’s also a disruptive approach, crimping the productivity of workers as they try to describe what they do to process analysts. Then there’s the question of whether workers are altering their usual way of working, possibly omitting certain activities while under the watchful eye of the analysts.

These and other challenges have led to the development of process mining and process discovery technologies. Process mining focuses primarily on the systems that power processes, capturing data from application and event logs to map and model the digital handoffs within processes. Process discovery focuses on the human interactions with systems, identifying the work steps that power the process, that span the digital gaps between systems, and that handle exception conditions not addressed by systems.

The promise of process mining and process discovery tools is that they can do a better job of accurately capturing processes and work steps as they really are. Relying on technology to map and model systems interactions and capture data and document work steps, these tools promise better, deeper process analysis while also being less obtrusive, in the case of process discovery, to workers and the business.

By 2020 the thinkUP team had mastered the use of robotic process automation (RPA), robotic desktop automation (RDA), natural-language processing (NLP), and optical character recognition (OCR) technologies, but it still relied on process analysts to discover and document processes.

Executives knew that the organization needed some kind of process discovery tool to speed and scale up their automation and optimization work. In late 2020, they launched a selection process, having agreed on seven product requirements:

1. Is easy to set up and use, with minimal disruption to the business
2. Ensures broad process discovery and process validation
3. Provides in-depth data and process analysis
4. Delivers comprehensive reporting
5. Produces process design documents to guide automation and transformation efforts
6. Ensures the security of PHI and PII
7. Is a cost-effective option

THE SOLUTION

Highmark Health's thinkUP team sized up seven process discovery and process mining offerings against the seven criteria it had established for its selection process. A few candidates were dismissed outright, because they required internal changes to claims processing, enrollment processing, and other systems in order to capture data. Other candidates were dismissed due to cost considerations. Data security was the biggest differentiator for Highmark Health and a key reason that the thinkUP team selected FortressIQ Process Intelligence, in February 2021.

The Technologies

- FortressIQ Process Intelligence for AI-powered process discovery and analysis
- Blue Prism, Microsoft Power Automate, and Macro Express for robotic process automation and desktop automation
- Google Tesseract for optical character recognition

“FortressIQ was the only tool, out of the seven we evaluated, that had a feature that could mask any type of data,” explains Carter of Lumevity. “Our focus was on PHI and PII, the simplicity of setup, and the detailed process analysis as well as the cost of implementation.”

In terms of ease of deployment, FortressIQ is a cloud service that relies on software-based sensors installed on worker desktops. The sensors capture all keystrokes and mouse clicks at the most granular level. Employees are aware of the monitoring and often embrace it in order to reduce manual work. Analysts can identify any data that appears on worker screens that must be masked and, thus, is not captured during process analysis. FortressIQ’s technology uses AI-based machine vision to power the analysis. The technology automatically recognizes process patterns, identifies repetitive work steps that are ripe for automation, and spots exceptions and overlaps that might be eliminated via process optimization.

Regarding ease of use, each process analyst who uses FortressIQ Process Intelligence requires about one week of online self-paced consultative training on how to deploy the technology; mask data; and document, analyze, and report on processes.

As for the workers who participate in processes, the technology is nonintrusive, which avoids disruption and doesn’t change work steps in any way. The thinkUP project leaders were transparent and informed employees about the use of the technology for process analysis.

“We were very sensitive to ensure employees understood the process mining objectives, because the technology captures their keystrokes,” Carter says. “We explained that the purpose of the projects was to try to free them to do less manual work, and we informed them that we were pursuing insights that could lead to them doing more value-add work using their skill sets.”

A key benefit of FortressIQ’s technology-based monitoring of processes is that it provides a wealth of data and comprehensive reporting on processes and supporting work steps. It makes a huge difference when compared with manual monitoring and process discovery carried out by analysts.

During the first project using FortressIQ, the thinkUP team captured data on the activities of 15 people, monitoring three groups of five workers over the course of two weeks each. Had it used

the legacy manual approach, Highmark Health would have relied on one process analyst to observe and take notes on the activities of two workers over the course of one week each. The difference was reflected not only in the scale of the data collected but also in the accuracy of capturing worker activities as they really happen.

“When you’re conducting process mining activities manually, someone whom you’re observing is going to say, ‘I do steps A, B, C, D, and E,’” Carter explains. “When you capture data on 15 workers over a two-week period, you recognize that there are also steps F, G, H, I, and W. The tool helped us identify the other tasks people are performing to get the work done that we would not have seen through the old approach.”

Although the selection of FortressIQ Process Intelligence was straightforward for the thinkUP team, the choice also had to meet the requirements of the Highmark Health IT, compliance, legal, and infrastructure security teams. The review was very thorough, particularly when it came to PHI and PII.

Between Highmark Health’s legal and compliance teams, more than 130 questions had to be answered. It was a challenge that FortressIQ helped meet by establishing a team that included a customer-success director who responded to the technical, legal, and compliance inquiries.

“When you’re conducting process mining activities manually, someone whom you’re observing is going to say, ‘I do steps A, B, C, D, and E.’ When you capture data on 15 workers over a two-week period, you recognize that there are also steps F, G, H, I, and W.”

— Leslie Carter, Vice President, Automation
Solutions and Enablement, Lumevity

THE IMPACT

Once Highmark Health’s technology approvals were in place, work got under way, using FortressIQ to assess three processes. As noted above, the thinkUP team used FortressIQ to monitor 15 employees doing benefits coding. The analysis captured more than 450,000 data points—far more data across more employees than could have been gathered through manual process discovery.

The technology not only gathers more data across more process participants but also captures processes as they really are, spotting exception conditions that human analysts might miss. All of that information fueled deep, comprehensive data-driven analysis.

Highmark Health managers immediately recognized a disparity in the data collected on interactions with the benefits systems. Managers had assumed that employees were spending about 80% of their time in the benefits system, but they learned from FortressIQ that some employees were spending much more time in Microsoft Word documents and Microsoft Excel, because the data wasn't captured appropriately within the system.

FortressIQ revealed that the benefits system needed to be updated to eliminate exceptions that required manual work steps in Word, Excel, and other tools outside of that system. The thinkUP team recognized that it could use OCR to scan unstructured textual information and increase utilization for all employees.

More significantly, FortressIQ uncovered opportunities to automate manual work steps and eliminate duplication of effort for all employees. These findings were truly powerful, in that more than 200 workers are involved in the benefits coding process, so the efficiencies gained via automation and optimization will be magnified. What's more, these hundreds of workers will see the most repetitive and rote aspects of their jobs automated, freeing them to focus on work that truly demands their skills and human aptitudes.

The thinkUP assessment of the benefits coding process took eight weeks, during July and August 2021. Soon afterward a new project was launched involving a second process: auditing functions within a risk and governance unit. Once again, the project was completed within eight weeks.

"The second project provided recommendations for reengineering the process and specifically where we could automate and to what extent we could automate the process," says Lumevity's Venkatasubbu. "FortressIQ's technology also gave us recommendations on what kind of additional intelligence capabilities we could apply, such as OCR and natural-language processing." Overall, the analysis yielded insights into automating as much as 70% of the risk and governance process examined, according to Venkatasubbu.

FortressIQ Process Intelligence delivers insights in the form of data, Power BI-based reports, and process design documents that help guide recommended automations and optimizations. “It shows you how many applications were involved, how many systems, the number of transactions, and the number of days of analysis,” Venkatasubbu explains. “If it captures 50,000 events, it will show how they were split between each process and work step. If there is any deviation in the way people are performing a process, it shows what was consistent and where differences emerged. It also shows the peak volumes.”

At this writing, in early 2022, the thinkUP team was already under way on a third project, discovering and analyzing dental claims processing. FortressIQ Process Intelligence has emerged as an indispensable tool for thinkUP and the Lumevity consulting business.

THE TAKEAWAYS

Building on its four-year history of driving internal innovation, automation, and optimization projects, Highmark Health’s thinkUP team quickly learned about the value of process discovery technology and, specifically, of FortressIQ Process Intelligence. Although the system provides a wealth of data and analyses, coupled with robust reporting capabilities via integration with Power BI, Venkatasubbu cautions that it’s still up to business and process analysts to interpret and decide how to change processes based on the data and insights these tools provide.

“Process discovery gives us lots of information, but we need to navigate the data to understand what it’s saying,” he explains. “That’s where the people whom we train on the tool need to make sure they mine the data based on what was asked and can bring it into the Power BI reporting format.”

The thinkUP team also quickly learned—through one false start attempting to assess a very small-scale process—that it’s not appropriate to use process discovery technology in some cases. That lesson, which is closely aligned with thinkUP’s experience in automating processes, revealed that FortressIQ’s Process Intelligence—and likely any other technology-based discovery approach—excels when the process meets the following criteria:

1. Involves repetitive manual steps
2. Involves three or more people
3. Is frequent, occurring at least five times per month
4. Involves at least 50 transactions per week
5. Involves a combination of structured and unstructured information, suggesting that there's a need for human interpretation and/or data entry

THE RECOMMENDATIONS

It's essential to automate repetitive manual work, eliminate overlaps, and optimize wherever possible. Such efforts not only maximize productivity but also make jobs more attractive and fulfilling, because they eliminate repetitive, rote work best handled by computers. These initiatives also free workers to use their highest skills where humans have advantages over machines: handling complexity, contextual interpretation, and variability, for example.

Befitting the lessons learned by Highmark Health, Constellation Research encourages organizations to recognize that there are really two distinct phases in process improvement initiatives: diagnosis and treatment. Just as physicians have turned to technology—in the form of sophisticated tests and diagnostic imaging—to make sure they have an accurate and holistic diagnosis, so, too, should business and process analysts consider the use of process discovery technologies.

The danger in rushing ahead with process automation and optimization “treatments” based on cursory manual discovery or, worse, management assumptions and conjecture, is that the process will not have been accurately and comprehensively diagnosed. As Highmark Health recognized by using FortressIQ, technology and data-driven analysis often reveal surprises that can make a dramatic difference in where and how you should automate and optimize a given process.

Doug Henschen

Vice President and Principal Analyst

Doug Henschen is a vice president and principal analyst at Constellation Research Inc. focusing on data-driven decision-making. His Data to Decisions research examines how organizations employ data analysis to reimagine their business models and gain a deeper understanding of their customers. Data insights also figure into tech optimization and innovation in human-to-machine and machine-to-machine business processes in manufacturing, retailing, and services industries.

Henschen's research acknowledges the fact that innovative applications of data analysis require a multidisciplinary approach, starting with information and orchestration technologies; continuing through business intelligence, data visualization, and analytics; and moving into NoSQL and big data analysis, third-party data enrichment, and decision-management technologies. Insight-driven business models and innovations are of interest to the entire C-suite.

Previously, Henschen led analytics, big data, business intelligence, optimization, and smart applications research and news coverage at *InformationWeek*. His experiences include leadership in analytics, business intelligence, database, data warehousing, and decision-support research and analysis for *Intelligent Enterprise*. Further, Henschen led business process management and enterprise content management research and analysis at *Transform* magazine. At *DM News*, he led the coverage of database marketing and digital marketing trends and news.

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Organizational Highlights

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- Experienced research team with an average of 25 years of practitioner, management, and industry experience.
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