



Barbara Salami VP of Digital at Moderna on new capabilities

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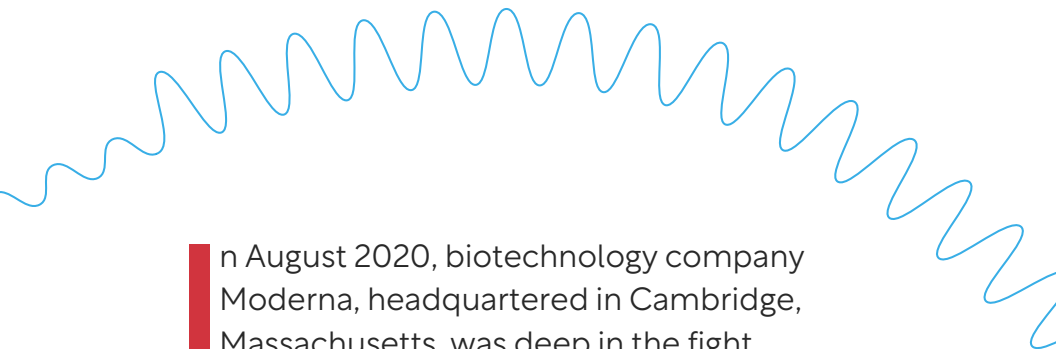


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BARBARA SALAMI
VP OF DIGITAL
AT MODERNA
ON **NEW**
CAPABILITIES



Moderna developed a vaccine against COVID-19 in record time and the company's digital infrastructure played a critical role; Barbara Salami explains how



In August 2020, biotechnology company Moderna, headquartered in Cambridge, Massachusetts, was deep in the fight against COVID-19. While the company harnessed the power of digital in driving its clinical innovation, it recognised that it also needed to build a powerful digital ecosystem to enable its global commercialisation goals.

It was at this time that Barbara Salami joined Moderna as Vice President of Digital for Commercial, to help build the company's digital for commercial capability.

"I started my career as an engineer, however I pivoted into other areas that have gotten me to where I am today. Looking back, I am glad that I wasn't afraid to be vulnerable, stayed curious and open minded," explains Salami, who is also a mother of three. "I was excited to join Moderna. I was drawn to the challenge and opportunity of having a green field to build a future-ready digital platform that will be second to none in our industry and a yardstick for other industries. I knew it wasn't going to be easy. Nearly two years in, we are beginning to see value created from the foundations of the work that we have done so far. It is early days, but very exciting. One of my biggest lessons on this digital acceleration journey is that technology is not enough to deliver value. The organisation needs to be clear on the why. Technology enablement needs to be coupled with







Barbara Salami VP of Digital at Moderna on new capabilities

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“Being unapologetically relentless and bold with room to fail and pivot fast is important for any organisation”

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VP, DIGITAL FOR COMMERCIAL,
MODERNA

a solid strategy, committed business partnership, robust change management, correct processes and a very deliberate approach to how we think about engaging with customers.”

Moderna was founded in 2010 and is focused on mRNA technology, which carries instructions across the body, instructing cells what to do. The company is fully committed to delivering on the promise of mRNA science for patients everywhere.

“Our platform has a huge opportunity to go beyond COVID-19 to transform how we deliver medicine to the world across multiple modalities and therapeutic areas – such as immunology, virology and rare diseases among others. The opportunities are limitless.”

In Salami’s role as VP of Digital for Commercial, she is accountable for:

- Creating a frictionless and inclusive experience for external stakeholders
- Delivering digitisation and simplification of business operations
- Building an automated intelligence engine to power understanding of performance, drive recommendations and personalise

“We are obsessed about reducing friction and making it easy for our external stakeholders who already have to navigate a complex ecosystem of wellness and healthcare,” says Salami. “We want to make

EXECUTIVE BIO

BARBARA SALAMI



TITLE: VP, DIGITAL FOR COMMERCIAL

LOCATION: UNITED STATES



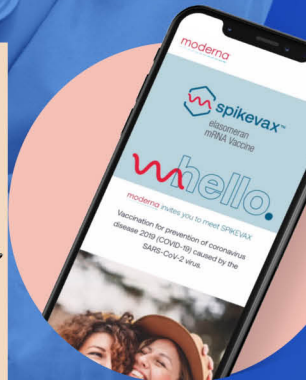
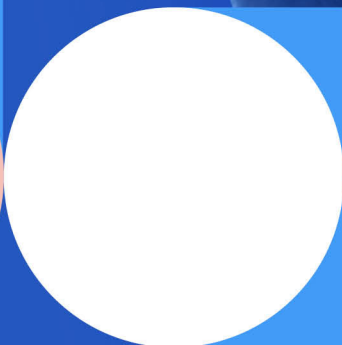
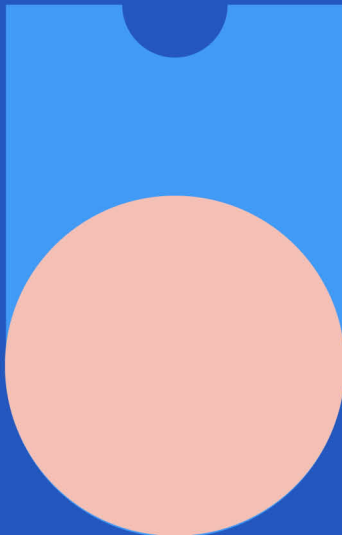
Barbara Salami is the VP of Digital for Commercial at Moderna, where she leads digital transformation for Moderna's new commercial organisation. She is accountable for building digital experiences and digitisation of business processes globally.

Prior to joining Moderna, Barbara worked at GSK, Shire, BMS, AstraZeneca and Aetna among others.

Barbara holds an MBA from Pennsylvania State University and a BS in Biomedical Engineering from Drexel University.

A tech-geek at heart and an advocate for STEM, she enjoys empowering young girls to explore STEM programs/careers. Her passion for STEM led her to co-found StemDragons, a program designed to teach K-8 kids the fundamentals of coding.

Barbara and her husband have three children who keep them on their toes.



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“Apply Digital has been our strategic digital partner since the beginning. Their bold strategies and scalable engineering capabilities continue to impress and deliver true digital transformation to our fast-growing, global organization.”

Barbara Salami

VP, Digital for Commercial, Moderna

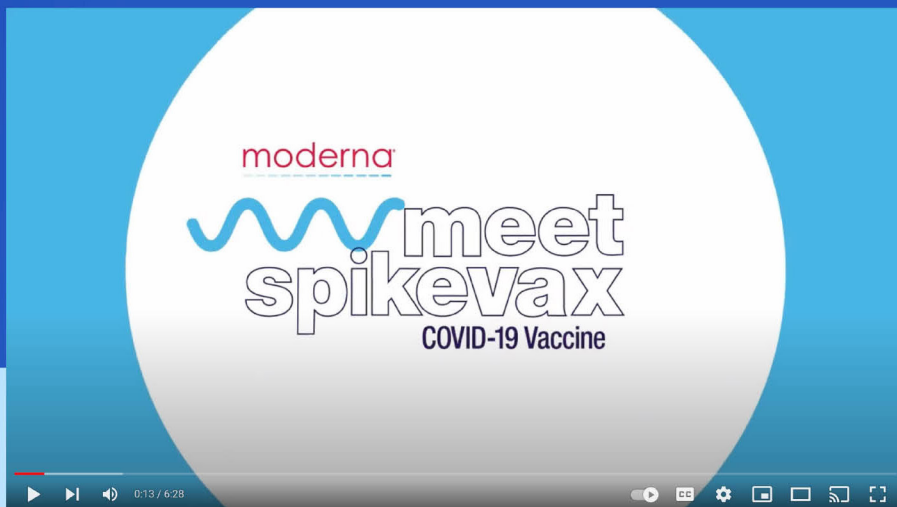
To meet new challenges exposed by COVID-19, Moderna and Apply Digital partnered. Moderna's main request of Apply Digital was to educate consumers and healthcare professionals on the mRNA platform's capabilities.

"We supported the transformation of Moderna from a pre-commercial biotech company, through to a leading global, digitally-enabled commercial organisation," explains Frank Pedersen, Managing Director at Apply Digital. "We took our methodology, rooted in a deep understanding of customers and their needs, and delved into Moderna's main target audiences. The insights from that work informed the direction we took to build a number of digital products."

Apply Digital partnered with Moderna to architect a digital technology infrastructure according to 'MACH principles' – Microservices, API-first, Cloud-native and Headless – future-proofing a scalable digital ecosystem.

Frank Pedersen believes that what attracted Moderna to Apply Digital was their experience with digital transformation and large-scale platform builds of digital ecosystems across various categories.

"The ability of Apply Digital to take everything from the beginning stages of research and defining the strategy – all the way through to design and engineering, and, ultimately, the optimisation of the platform – was very attractive to Moderna," says Pedersen.



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The results of Apply Digital's work with Moderna


When Apply Digital started working with Moderna back in 2020, it was in advance of the emergency approval of the Moderna COVID vaccine. Since then, Apply Digital has created and launched a number of digital experiences targeted to consumers as well as HCPs.

"We created a digital tool for vaccine administrators and HCPs to guide them, resulting in a significant reduction of wasted vials and call center wait times."

At Moderna there is a saying: 'This is just the beginning'. Although the past two years have been a whirlwind of activity, Moderna's digital ecosystem is still growing.



**Hundreds of millions
of individuals across
the world have been
vaccinated with
Moderna's COVID-19
vaccine.**



it easy for consumers and their caregivers to inform their decisions and get access to our medicines. We are committed to healthcare providers who make sure that they offer their patients the best advice and care for healthier lives. We also want to support governments who are keen on providing health security for their citizens. In the same token, we must make it easier for our employees to do their jobs and digitise.”

Being relentless and bold at Moderna

“Being relentless and bold is a way of life at Moderna. You instantly feel this energy here. In Moderna mindsets, we describe this as acting like owners, pushing past possible and questioning conventions,” she says. “I came from other organisations where you would imagine a lot of cool ideas – but it was hard to turn those ideas into reality. Moderna has really changed my perspective in terms of how far you can go when you start thinking bigger. It is no news to the world, or to anyone, what Moderna was able to accomplish. Being relentless, bold, collaborative and curious were key factors.”

In a record-breaking 42 days, Moderna went from sequence to medicine in a vial ready for human trials. In a matter of eleven months, they had a conditionally approved product designed to protect lives against COVID-19. At the time of writing, the United States has just passed one million deaths from the virus.

“Being unapologetically relentless and bold with room to fail and pivot fast is important for any organisation that wants to do great things. It is important to create psychological safety for employees to exemplify these behaviours habitually. Moderna gets that,” she says.



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Answering consumer questions and building Moderna’s digital infrastructure

“My proudest achievement was being part of the inaugural team that supported our first commercialisation opportunity for our COVID-19 vaccine. Before we knew whether the vaccine would pass the final test, we began preparation. I had just started my journey at Moderna and immediately partnered with an amazing team of visionaries

and problem solvers (also known as my colleagues) across many functions to align on a clear strategy and execution plan. Everyone came ready to roll their sleeves up. Many of us were one-person teams at the time and had to wear multiple hats. At the time, we were a little over 700 employees in total. We had to operate with dynamic range, toggling between strategy and execution as needed. We didn’t have all the answers. There were no examples of others who had walked this path before us. The entire world was experiencing the pandemic at the same time. Decision making was quick. We pivoted fast as we learnt more - which felt like hourly. It was the best form of collaboration that I had ever experienced in my entire career.”

Salami knew that they had to improve the digital infrastructure at Moderna. There was no question.

“We strive to make it easy for patients and caregivers to get the help they need, to support healthcare providers with additional tools for better patient care and

for governments who want to ensure health security for their citizens. As a digital first organisation, we must be obsessed about our stakeholders and deliver the most meaningful and delightful experiences. Ultimately, if we do not get it right for patients, we have failed. We learnt from health care providers and consumers alike that they wanted an easy way to learn more about mRNA and our vaccine, contact us and have their questions resolved. It was super important to address these needs. Consequently, we went into action to enable what we described as a minimum delightful experience,” said Salami.

Within six weeks, Moderna had a contact centre up and running, web experiences built, digital apps that required cross-platform integrations in operation and a foundational analytics tracking framework implemented, among other things.

“There are many other great things that Moderna has done,” says Salami. “Being able to be part of that is something I will never forget.”

Using data and AI to create an exceptional customer experience at Moderna

Moderna is in the early stages of its commercial journey and digital is a core strategic enabler. The digital ambition is to create frictionless and impactful experiences for our stakeholders globally. This is an area where the life sciences industry continues to fall short. Salami understands that this is no small feat but is confident that if any company can do it in life sciences, it will be Moderna. Beyond the goal of delivering delightful experience and solutions, she is also working on simplifying commercial operations and processes through digitisation.

“We must do both exceptionally well. However, it is not lost on me the challenge that lies ahead.”



“Technology enablement needs to be coupled with solid business partnership and the right change management”

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One of many exciting areas that her team is exploring is the digitisation of Moderna's content review and approval process. Moderna is also working with its data to create exceptional customer experiences.

"We are taking a deliberate approach in how we design, build and enable an automated intelligence engine," explains Salami. "Data is a strategic asset. We are taking both a product and data as a service approach to how we envision creating value with data and analytics at Moderna. Presently, we are laser focused on building the right data foundation from sourcing to democratisation.

The data must be highly secure, compliant and clean. These are non-negotiables."

When it comes to how Salami and her team are designing the digital platform, she says that lessons learnt from the past guided her decision on the architecture.

"We do not buy technology suites for convenience, ease of implementation or due to peer pressure. Instead, we leverage best-of-breed platforms to fit into a modular, composable and flexible framework. All platforms that are part of the customer engagement and marketing technology stack are Microservices-enabled, API-first, Cloud-based and Headless (MACH). You can think of each of the platforms in the stack as a Lego piece. If a specific platform stops meeting our needs, we can quickly pivot to another platform without significant disruption to the business. We have also been deliberate about building global components that can be leveraged everywhere. Our approach to platform architecture has also contributed to faster access to data for internal stakeholders. For example, we have real-time access to data generated by Moderna's own call centre ecosystem," said Salami.

Salami stresses the importance of partnering for scale and innovation. She does point out the need to find partners who share similar values as Moderna as well as match Moderna's pace of innovation. She is not afraid to and has stepped away from organisations service providers and strategic technology providers who have struggled on either end. Salami works with a select number of partners including Apply Digital and Salesforce.

Apply Digital is a partner who has worked with Moderna since November 2020. Headquartered in Vancouver and founded in 2016, the Apply Digital supports Moderna



“Each day, we get closer to the moment when personalised medicine will become a reality and be accessible”

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with a critical part of its ecosystem, which is the development of its web and digital experiences. “Beyond core web development, Apply Digital has also partnered with us in designing customer experience journeys and great thought partners on our technical architecture,” says Salami.

Salesforce is also an important stakeholder and partner. The company was founded in 1999 and is based in San Francisco.

“Our global customer relationship management (CRM) platform is built on Salesforce,” said Salami. “We are also working with Salesforce to build out a reimagined case management platform to support agents across the world. It has been great to learn from Salesforce about some of the cool innovations that they have matured in other industries and

brainstorm on how to bring some of those to life at Moderna. Beyond the technical aspects of our partnership, we have come together to volunteer and help underserved communities and underrepresented students to advance their STEM careers. I'm grateful for that opportunity to partner with Salesforce.”

The future of biotechnology and healthcare at Moderna

As part of its Global Public Health strategy, Moderna has committed to advancing into clinical trials a portfolio of 15 vaccine programmes targeting emerging or neglected infectious diseases. It is also advancing vaccines that address current diseases of significant impact to low- and middle-income countries.



“Having lived a better part of my life in Nigeria, empathy, inclusion and accessibility to medicine are important to me. It takes courage for any organisation to choose to leverage its resources to help citizens of the world who live in low and middle-income countries in a meaningful way. It warms my heart to see what Moderna is doing and even more so to be part of it. Each day, we get closer to the moment when personalised medicine will become a reality and be accessible to all who want it irrespective of your socio-economic status, gender and racial identity among others,” says Salami.

Moderna currently has 46 development programmes in its pipeline. Over the next year, there's going to be a keen focus from Moderna on making sure that they have the digital

infrastructure in place to continue to advance those development candidates at speed and with the highest quality.

“From the standpoint of readiness, we've done some great work in enabling the foundational platforms and technologies. I do recognise that we are still early on our journey to a future ready state,” says Salami. “We will continue to be deliberate in our choices on digital platforms and how we architect them, data ecosystem, strategic partnerships and building a high performing digital team. We need to bring our employees along with us on this journey. People make or break any digital transformation.”





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