

A hand holding a white pen is visible on the right side of the image, pointing towards a complex network diagram. The diagram consists of numerous nodes (small circles) connected by thin lines, forming a web-like structure. The nodes are colored in shades of blue, white, and purple. The background is a blurred image of a person in a light-colored shirt, suggesting a professional or academic setting. The overall aesthetic is clean and modern, with a focus on technology and data.

FORESIGHT



DIGITALIZATION IS THE WAY FORWARD

Athina Kanioura

EVP, Chief Strategy & Transformation Officer



Hello R&D!

Since I joined PepsiCo last fall, I've been focused on finding ways to leverage technologies and build capabilities to help PepsiCo win and thrive in the market. Digitalization is the way we'll do this. Over the past several months, I've had the pleasure of meeting many of you and have come away impressed with your digital strategy and vision to become a virtual-first R&D powerhouse.

Of course, digital transformation does not happen overnight. We are looking at all aspects of how digitalization can help us achieve our goals - it is not just about

getting the right data into the right systems, or even applying digital capabilities to generate new insights. While these efforts are fundamental, people and culture are critical components to any successful transformation effort. Luckily, in R&D, we have some of the most talented scientists and thought leaders here at PepsiCo.

With your partnership, I believe the future is bright. I look forward to the journey ahead. Together, we can digitally transform PepsiCo and become Faster, Stronger, Better!





TREMENDOUS GOOD COMES FROM COLLABORATION, TECHNOLOGY & SCIENCE

RENE LAMMERS

Chief Scientific Officer

"Science may set limits to knowledge, but should not set limits to imagination"

-Bertrand Russell

I've always enjoyed this quote by the British philosopher and mathematician, Bertrand Russell. For all of us in R&D, it accurately summarizes how our work can change PepsiCo for the better, just through our imagination. If we dream big, it only motivates us.

As we strive to deepen our organizational knowledge, our end goal is

to ultimately win in the marketplace, through differentiating capabilities like digitization. This is what makes us stand out from the competition, giving us world-class designation. When you read through an issue of EDGE, you get to see your colleagues doing just that, fulfilling our digitization goals as outlined in the Digital Strategy.

As an R&D organization, we've adopted new ways of working, then implemented them globally. This is, by no

means, a small feat. It is, however, a testament to the tremendous good that comes from collaboration, technology and science. Just think, we're just getting started. Because of you, billions of lives around the world will be positively impacted. That's something to get excited about!

When you read through this issue, here are thoughts for you to consider:

- Are we advancing science and technology?
- Are we being bold in our pursuits?
- Are we enabling a culture of experimentation and learning?
- Are we celebrating success?
- How well are we collaborating, externally and internally?

We are living in a time that our children and our grandchildren will be studying and remembering for decades to come. How fortunate we are to be working in science, technology and research! As I've said, its our opportunity to impact lives for the better.

I look forward to sharing these moment with you.





James Yuan

Sr. Director - Data Science & Analytics

Virtual Development is the New Norm of R&D Innovation

It's imperative in the all-digital ecosystem, our experiences are going to be driven by digital experiences. We will provide more personalized experiences to our consumers and customers to bring more smiles. We will innovate with virtual-first driving force and that'll be our new norm of working and Virtual Development will be our digital ecosystem.

So what's it like with Virtual Development as our new norm? Let's image 5 years from now, it's 2026. Imagine Market Insight predicts healthy premium beverage with super fruit will lead the trend, this information feeds into our product intelligence model to predict Dragonfruit flavor will be the hit and suggest 3 top flavors from 500+ available variances. Our product developers use AI-based flavor creation model to project potential flavor attributes and run simulation model to create optimal combinations in the beverage's matrix, and identify our best opportunity is green tea. Then process engineers and packaging engineers conduct computer modeling and virtual experimental design to come up with best process/packaging option for the new beverage, then Marketing run the simulation to virtually test product market performance and consumer feedback; and results are great.

So commercial engineers run the simulation model to identify the best manufacturing facilities to make the product, and logistics analyst runs the simulation model to find the best channel to deliver products to consumers' hands. All above activities are completed in virtual environment in one business day. This is not a fantasy, but a vision we have for our digital transformation journey, and Virtual Development is the critical enabling capability to achieve our vision.

To be clear, virtual development is not to replace our physical lab activities, but to make our SME's to be more efficient and effective because they will test much fewer variants to reach the finish line.

Also want to address the **importance of us**, the people in this digital ecosystem.

Good AI or simulation models need good data and good data needs humans in the loop to identify and tackle the most challenging scientific problems. So when we talk about 3 foundational elements to build digital ecosystem: People, Process and Technology; People will always be first, and we will be together to lead the change and accomplishing our digital vision!



Don't Miss These 3 Videos:

- ▶ **R&D Virtual Development Executive Summary**
- ▶ **Beverages - R&D Virtual Development Vision**
- ▶ **Foods - R&D Virtual Development Vision**



