



# Drivers for Change and Comparing Visions for the Future Clinical Supply Chain

Alongside advances in clinical trials, the clinical supply chain is also poised to evolve, but which specific drivers for change will lead to success in the future? To gather diverse perspectives and encourage thought-provoking discussions, the Global Clinical Supplies Group (GCSG) held unique workshop sessions titled “**Industry Evolution – A Vision of the Clinical Supply Chain in the Next Decade**” as part of the 2023 European Knowledge Forum in Athens, Greece.

These workshops delved into critical drivers like automation, data-driven forecasting, and agile manufacturing, aiming to identify the most promising pathways for future clinical supply chain optimization. By harnessing insights from industry leaders, researchers, and technology innovators, the sessions aimed to unlock transformative solutions for a future-proof clinical supply chain.

This white paper provides an overview of the sessions and shares themes of the collective responses from approximately 80 participants across different segments, spanning large pharma, emerging biotech, and industry.

## **Industry Evolution – A Vision of the Clinical Supply Chain in the Next Decade**

### **MODERATORS:**

- **Eric Deschamps** Senior Director, Integration Pharma Services Group, ThermoFisher Scientific
- **Manishaa O’Brien** Senior Director, Business Development, Marken

### **ATTENDEES:**

Two full sessions were facilitated, each with around 40 attendees that represented a wide range of companies and experience.

## Setting the stage with the history of clinical trials

To set the scene and reflect on the strides made in clinical trials throughout history, the moderators shared a timeline of clinical trials, from the first known recorded “trial” where a military leader compared diet types in 500 B.C., to the scurvy study of seafarers by James Lind in 1747 and the first randomized curative trial in 1943.

The moderators then discussed how clinical trials continue to evolve as drug development sponsors incorporate more patient-centric practices, improve personalized medicines and incorporate more advancements, such as artificial intelligence (AI) and DNA/gene mapping. They also highlighted how the supply chain keeps pace with these changes by continuously innovating and implementing tracking and traceability systems, new platforms, and automation technologies.

## Learning about the latest drivers in the industry

After preparing attendees to think about future technologies, advancements, and the potential journey ahead for clinical trials and the supply chain, moderators wanted to hear from them.

“We arranged these sessions to bring people at GCSG together,” said Eric Deschamps, session co-moderator and Senior Director, Integration Pharma Services Group, ThermoFisher Scientific. “In our everyday work, we may be competitors, but with GCSG, it’s a safe and open environment. We’re here for people to discuss best practices, talk about their challenges, and share thought leadership. We help people feel they are part of this community.”

“The people attending GCSG include those new to the industry to others with 15 or more years of experience,” explained Manishaa O’Brien, session co-moderator and Senior Director, Business Development, Marken. “Everyone at the event represents different segments of pharma and industry. We wanted to connect them together to learn about what is happening in their business and trends most important to them.”

To collect a wide range of viewpoints and discern common themes, people were divided into groups based roughly on their years of work experience in the industry.

With a light-hearted approach, these groups were named:

<b>New Kids</b> (0-3 years)	<b>Frequent Flyers</b> (4-9 years)	<b>Gold Members</b> (10-14 years)	<b>Part of the Furniture</b> (15+ years)
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The groups were kept balanced with about 10 participants in each category, and roles were assigned for a presenter, scribe, and timekeeper. Groups were given 15 minutes to discuss the same three topics and five minutes to present their thoughts back to the entire group. This next section shares their documented talking points and summarizes responses across both sessions, along with commentary from the moderators gathered afterward.

## **Topic 1: What are the drivers for supply chain change/evolution for your group (e.g., challenges, efficiencies, cost, risk)?**

### **External, unexpected events**

COVID-19, political changes, new diseases, wars and unexpected global events were mentioned by both the New Kids (0-3 years) and Frequent Flyers (4-9 years). The Gold Members (10-14 years) and Part of the Furniture (15+ years) didn't mention these events as drivers.

“In my observations, the more experienced groups seemed a bit more relaxed about the pandemic,” said Manishaa. “Perhaps their lesson learned was to be flexible, agile and ready to adapt, because at the end of the day, you've still got to get the drug to the patient.”

### **Technology/data**

All groups mentioned technology as a driver in some iteration. This included AI, integrated systems, real-time data collection for studies, and automation.

“We noticed that the Frequent Flyers and Gold Members were really keen on having systems talking to one another and enabling a more seamless, integrated, and automated process,” said Manishaa.

### **Patients**

Both the New Kids and Part of the Furniture mentioned Direct-to-Patient (DTP) shipments and all groups mentioned patient-related drivers, such as personalized medicine and recruitment rates.

“This does not surprise me as patient-centricity is a key mantra for so many pharmaceutical companies these days. The COVID-19 pandemic prompted us to think about new ways to deliver to patients, often times in remote locations,” said Eric.

### **Diversity and Inclusion**

While diversity was not mentioned by the New Kids in the first topic, it was mentioned as a success factor in the second topic of the exercise. All other groups mentioned diversity as a driver, with the Part of the Furniture group also mentioning empathy and being fair and equitable.

### **Sustainability/Climate**

Sustainability and/or the environment was mentioned by all groups. The New Kids specifically mentioned the concept of zero waste and environmental costs and factors while both the Frequent Flyers and Gold Members mentioned the climate. It was clear that all groups were thinking about the importance of a sustainable supply chain and how to reduce the impact on the climate.

### **Timing/speed/operations**

All groups mentioned either speed or timeline as a driver. The two more seasoned groups, Gold Members and Part of the Furniture, added efficiency, while Part of the Furniture also included agility and scalability to further define the topic.

“The term ‘COVID speed’ is often used when we didn’t think we could go any faster,” explained Eric. “How quickly we package label, distribute, and get drug to patients is now the new expectation. Related to both technology/data and speed, I also noticed that a lot of groups were discussing how to best conduct, gather or share information quickly when we’re not depending on human beings. Information may be loaded in multiple servers, whether it’s sponsor or vendor side, and we need to determine how to get answers faster.”

### Budget/cost

The economy, overage, cost, and budget were mentioned as drivers across all groups. These have long been historical drivers and it appears that they will continue to be drivers in the future as well.

### Visibility

The visibility of supply chain and end-to-end visibility were mentioned by the New Kids and Gold Members, respectively. This can be thought of as part of the transparency in tracking inventory throughout the product lifecycle as well as the overall visibility of the supply chain’s role in advancing clinical trials.

### Other drivers

Additional drivers mentioned included: centralization/globalization, flexibility, regulatory/ethics, stakeholder management, and the retention of people within the industry, which is discussed later in topic 2.

Table 1: “What are the drivers for supply chain change/evolution?” categorized by themes and groups.

Common themes:	New Kids (0-3 years)	Frequent Flyers (4-9 years)	Gold Members (10-14 years)	Part of the Furniture (15+ years)
Event-related	COVID-related market events External influences – political, etc.	Unexpected global events New diseases Wars		
Technology/Data	AI Integrated system support – scalable to new types of trials	Technology	Technology (new ideas based on changing needs)	AI Digitization/tech System company integration Real-time data collection for study Accurate, validated data New modalities Automation Technological development

Common themes:	New Kids (0-3 years)	Frequent Flyers (4-9 years)	Gold Members (10-14 years)	Part of the Furniture (15+ years)
<b>Patients</b>	Patient-specific meds (cell and gene therapies) and inventory costs Personalized medicine Decentralized clinical trials and Direct to Patient (DTP)	Patient population Demographics	Patient need Increased patient interaction Market access	DTP Recruitment rates
<b>Diversity and Inclusion</b>		Diversity	Diversity	Diversity, inclusion and belonging Empathy Fair and equitable
<b>Sustainability/Climate</b>	Sustainability Zero waste Environmental factors and costs	Environment; Global climate and environment changes	Climate Sustainability	Sustainability
<b>Timing/Speed/Operations</b>	Speed	Timelines	Increased speed to market Increased efficiency	Speed and agility Efficiency, scalability
<b>Budget/Cost</b>	Environmental factors and costs	Economy	Less overage, less cost	Budget
<b>Visibility</b>	Visibility of supply chains		End-to-end visibility	
<b>Other</b>		Centralization/globalization	Flexibility Regulatory/ethics	Stakeholder management People and retention

## Topic 2: What does your group need to be successful in 2033?

After the groups brainstormed on drivers for change, they then used those as inspiration for how they envisioned success in 10 years. The themes that emerged somewhat mirrored the drivers but had more specifics about execution.

### Systems integration and technology and data

Related to the technology and data drivers, all groups except for the Frequent Flyers mentioned integrated systems as a success factor for the future. The Frequent Flyers mentioned global collaboration and automation, which could also be related to technology and data. Access to accurate, validated, and real-time data was also viewed as a key component for success.

### Diversity

Diversity was a frequently mentioned driver in topic 1 and both the New Kids and Part of the Furniture mentioned it as a factor for being successful in the future. The Part of the Furniture group further defined this by specifying more diversity in terms of patient recruitment.

“One attendee shared how their company is leveraging mobile units to reach locations where they could potentially attract patients that may not normally enroll in a clinical trial. This strategy highlighted an innovative approach to reach a broader and more diverse population,” shared Manishaa.

### Supply chain talent

Related to embracing diversity from a different angle, the New Kids and Gold Members mentioned the need for diversity of talent and personnel in the industry; the Gold Members also added gender equality.

### Harmonization and regulations alongside partnerships and collaborations

The topic of uniform regulations, harmonization, and simplification were mentioned by all groups except for the Frequent Flyers. The overall theme of leveraging partnerships and collaborations as well as unifying regulations also appeared to echo across the groups.

“Attendees value their time together at GCSG events as it allows them to share best practices and learn about the latest regulatory legislations, their impact on clinical trials and how best to address these,” said Manishaa.

### Improved speed, cost, access and investment

Several factors for success used comparative adjectives, such as faster and better. This includes shorter trial life, cheaper trials, more flexibility, faster enrollment, less trial failure, more studies, and expanded geographical reach. Specific areas were noted, such as access/availability to a product, growth in personalized medicine as well as more investment in rare diseases.

Table 2: “What does your group need to be successful in 2033?” categorized by themes and groups.

Common themes:	New Kids (0-3 years)	Frequent Flyers (4-9 years)	Gold Members (10-14 years)	Part of the Furniture (15+ years)
<b>Systems integration</b>	Appropriate integrated systems		Better integrated/ seamless systems/ platforms (no Excel spreadsheets)	Systems that talk to each other System company integration
<b>Technology/Data</b>	Tech adoption; Access to same data across the ecosystem	Automation		Technology advancements Visibility to real-time data Accurate validated data
<b>Diversity</b>	Diversity			Alternative ways for patient recruitment and retention, more diversity
<b>Supply chain talent</b>	Talent (hire the right people and retain them) and diversity		Gender equality and diverse personnel population	
<b>Harmonization</b>			Harmonization	Simplification, harmonization, efficiency
<b>Regulations</b>	Uniform regulations			Appropriate, harmonized regulation (two-way communication)
<b>Partnerships/ Collaborations</b>	Collaboration across groups	Global collaboration	Strength in partnerships	
<b>Speed/Cost</b>	Faster and more flexible Cost/waste	Shorter trial life Getting to market quicker Cheaper trials		
<b>Improved studies/ Access</b>	Faster enrollment Good product access globally Product availability	More studies More patient-centric trials More investment in rare disease Fewer trial failures	Growth in personalized medicines	Expand geographical reach

Common themes:	New Kids (0-3 years)	Frequent Flyers (4-9 years)	Gold Members (10-14 years)	Part of the Furniture (15+ years)
Other		Supplying drugs/ equipment to patient on time, quality, regulated	Adaptive Less stigma about mental health issues Better patient education Continued learning Carbon neutral	Governance strategy Flawless execution

**Topic 3: Develop a Supply Chain evolution Road Map Timeline**

With timelines spanning the 10 years between 2023-2033, the teams then had a few minutes to place a few selected drivers or success factors along a timeline and discuss when they imagined these changes could realistically take place.

Table 3: Timelines from 2023 to 2033.

	2023 to 2027	2028	2029 to 2033
New Kids	Right talent Early access (info) across systems Integrated systems Apply AI learning	AI – protocol development Reduced waste and reduced cost Evolution of clinical labelling and packaging Patient data security VR (Virtual Reality) DTP	Automation Global collaboration DTP with drones Patient/doctor interface Zero waste (efficient management) Carbon neutral transport No more sick patients
Frequent Flyers	Patient-centric trials with diversity, inclusion, equity AI evolution replacing current technology System interfaces Digital supply chain Automation Geographical expansion Real-time patient data collection	Simplification, harmonization, efficiency Agility Perfecting cell and gene therapy Personalized medicines Harmonization of DTP regulations	Labeling/QR codes Optimization of technologies Partnering with regulatory bodies Drones



	2023 to 2027	2028	2029 to 2033
<b>Gold Members</b>	Strengthen partnerships and harmonization (e.g., regulations, processes, etc.) Sustainability	No clinical labeling requirement Personalized medications	80% DTP Patient-centric supplies
<b>Part of the Furniture</b>	Diversity Regulations Accurate data Governance strategy	Tech Product availability Access globally System company integration Flawless execution (throughout)	Uniform/harmonized regulations Reduced cost/waste

“In terms of the timeline exercise, I noticed the newest groups in the industry were thinking about drone technology, which may be considered a generational difference. At the other end, people that had been in the industry longer were focused on the more static topics that have been challenging for a long time,” said Manishaa.

While each session was only an hour, including the presentation, team exercise and group discussion, the conversations and connections felt valued by attendees, and many people continued their conversations during the networking breaks.

“I think the overarching theme for me is there’s always something new to learn, a hurdle to manage, a different approach, or new strategy to consider,” said Eric.

“After the event, many attendees expressed their appreciation for the opportunity to interact and learn from one another. They found significant value in sharing insights with peers and gaining knowledge from the upcoming generation of clinical supply professionals,” shared Manishaa.

To continue the momentum, the GCSG planning team is already looking ahead at the GCSG 2024 European Knowledge Forum in Malta, October 15-17. They hope to schedule another interactive session and promote additional knowledge sharing among attendees.