Visionary Innovation

Global Mega Trends to 2030
Futurecasting Key Themes That Will Shape Our Future Lives
Hello,

If you are reading this note then you have made a powerful decision to focus efforts on innovation and high growth opportunities for your company. You may already be doing excellent work, or you may recognize this is an area that has been lacking for some time. Wherever you are on your journey, our team is positioned to help.

With our team of innovation experts and global network of analysts, we are a partner uniquely positioned to bring added value to you and your valued employees.

In this document you will see references to “Global Mega Trends to 2030.” We believe it is critical for organizations to have an action-based awareness of the trends and insights driving the future. Forward thinking insight will allow you to create a constant pipeline of growth opportunities and be in a position to curate your future.

We are excited to work with you and make this a reality.

Best Regards,

Richard Sear
Partner & SVP
Visionary Innovation
The Objectives of the “Global Mega Trends to 2030”

- To provide **clarity on how to effectively approach insight-based perspectives** and provide a mechanism to act

- To illustrate **core trends that will drive opportunities** over the coming ten years

- To illustrate **a suite of mechanisms** that translate trends into optimal growth potential

- To show how to embrace **trends as your innovation fuel to drive new ideation** and support existing initiatives
Trend Coverage Across Industries in the Global Mega Trends 2030 Analysis
Global Mega Trends to 2030: Futurecasting key themes that will shape our future lives, provides a comprehensive analysis of the transformative, global forces that define the future world with their far-reaching impact on businesses, societies, economics, cultures, and personal lives.

Introduction

Define Mega Trends and identify sub-trends.

Step 1: Define and Identify

Step 2: Analyze impact of Emerging Sub-trends

Step 3: Identify convergent themes

Analyze future scenarios, case examples, cross-industry implications and future market potential.

Understand how sub-trends will converge into themes that will transform social, businesses and personal lives in 2025 and 2030.

Source: Frost & Sullivan
Megatrends Convergence to Form Top 12 Transformation Themes

Our Mega Trend Universe

**CONNECTION & CONVERGENCE**
- Roadmap to 5G
- Space Connectivity 2.0
- Digital Reality
- Cyber Security
- IoT Services
  - Blockchain 2.0
  - Virtual Finance

**COGNITIVE ERA**
- Machine Learning
- Future of Computing
- Intelligent Digital Assistants
  - Future of Devices
  - Future of Social Media

**FUTURE OF RETAIL**
- Future of Physical Stores
- Automated Shops
- Personalization of Retail
- Integrated Omni-channel Marketing
  - Smart Retail

**SMART IS THE NEW GREEN**
- Smart Technologies
- Smart Factories
- Smart Cities

**SOCIAL TRENDS**
- Gen Z
- Reverse Brain Drain
- Heterogeneous Society
- She-Economy Middle Class

**NEW BUSINESS MODELS**
- Servicization
- Circular Economy
- Personalization & Customization
- Value for Money
- Sharing Economy
  - XaaS, O2O

**HEALTH & WELLNESS**
- Neutraceuticals
- Femtech
- Smart Healthcare
- Gene Therapy
  - Precision Medicine
  - Biomarker Analytics
  - Regen Med

**SMART IS THE NEW GREEN**
- Smart Technologies
- Smart Factories
- Smart Cities

**INNOVATING TO ZERO**
- Zero Vision at Work
- Carbon Neutral Cities
- Zero Target by Cities

**FUTURE TRENDS**
- New Economic Game Changers
- Future of BRICS
- Future Trade Dynamics
  - Africa as a Continent

**URBANIZATION: CITY AS A CUSTOMER**
- Mega Corridors
- Mega Cities
- Mega Regions
- Mega Slums

**FUTURE OF INFRASTRUCTURE DEVELOPMENT**
- Construction
- Autonomy
- Sustainable Materials
- Future of Smart Infrastructure
- High Speed Transit
  - Mega Projects

**FUTURE OF ENERGY**
- Decarbonization
- Decentralized Generation
- Digitization in Energy
- New Business Models

**FUTURE OF MOBILITY**
- Micro-Mobility
- Connected Cars
- EV and Infrastructure
- Sharing Economy
  - 3rd Dimension Mobility
  - Integrated Mobility
  - Future of Freight

**OUR MEGA TREND UNIVERSE**

<table>
<thead>
<tr>
<th>Top 12 Transformational Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transhumanism</td>
</tr>
<tr>
<td>Autonomous World</td>
</tr>
<tr>
<td>Connected Living</td>
</tr>
<tr>
<td>Industry 5.0</td>
</tr>
<tr>
<td>Digital Reality as Frontier Technology</td>
</tr>
<tr>
<td>Complex Needs of a Heterogeneous Society</td>
</tr>
<tr>
<td>Data as 21st Century Oil</td>
</tr>
<tr>
<td>Era of Intelligent Assistants</td>
</tr>
<tr>
<td>‘Uberization’ of Industries</td>
</tr>
<tr>
<td>Concept of ‘Zero’ World</td>
</tr>
<tr>
<td>Rise of Platform Economy</td>
</tr>
<tr>
<td>Zero Latency World</td>
</tr>
</tbody>
</table>
# Trend Definition and Hierarchy

## 1. MEGA TRENDS

Mega trends are transformative, global forces that define the future world with their far reaching impact on business, societies, economies, cultures and personal lives.

Examples include Connectivity & Convergence; Cognitive Era; Urbanization; Health, Wellness & Wellbeing, etc.

## 2. SUB-TRENDS

Sub-trends sit within a Mega Trend and define the macro level technologies, transformational shifts, capabilities, resources, demographic shifts or disruptions that enable the emergence of Mega Trends across geographies and industries.

Examples include 5G Networks, Space Connectivity 2.0, Virtual Reality, etc. Realizing the “Connectivity” Mega Trend

## 3. THEMES

Themes are strategic outcomes – created by the convergence of one or more sub-trends – that create opportunities, challenges or threats to industries, markets or companies either now or in the future.

Examples include Connected Living; Autonomous World, Data Monetization, Heterogeneous Society, Digital Reality, Transhumanism, etc.

Source: Frost & Sullivan
# Table of Contents

<table>
<thead>
<tr>
<th>Executive Summary and Key Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 10 Transformation Themes and Emerging Strategies</td>
</tr>
</tbody>
</table>

## Megatrends and Sub-trends Overview

### Megatrend 1 – Social Trends

- Taxonomy of Key Sub-trends
  - Aging Population
  - Generation Y and Millennials
  - Rise of Gen Z as a Consumer
  - Rise of Middle Class
  - Neo-Nationalism
  - Women as a Customer

- Impact and Probability Analysis for Sub-trend Levers
- 5-10 Year Opportunity Horizon
# Megatrend 2 – Connectivity & Convergence

**Taxonomy of Key Sub-trends**

- Roadmap to 5G and 6G
- Space Connectivity 2.0
- Data Monetization
- Edge Computing
- Biometrics
- Digital Reality
- Cyber Security
- IoT Services & Pervasive Sensors
- Blockchain 2.0
- Future of Virtual Finance

## Impact and Probability Analysis for Sub-trend Levers

## 5-10 Year Opportunity Horizon
# Table of Contents

**Megatrend 3 – Cognitive Era**

- Taxonomy of Key Sub-trends
  - Future of Machine Learning & Deep Learning
  - Future Computing
  - Intelligent Digital Assistants
  - Robotic Workers: Replace or Collaborate?
- Future of Social Media
- Future of Devices
- Impact and Probability Analysis for Sub-trend Levers
- 5-10 Year Opportunity Horizon
# Megatrend 4 – Smart is the New Green

## Taxonomy of Key Sub-trends

- Smart Cities
- Smart Factories

## Impact and Probability Analysis for Sub-trend Levers

## 5-10 Year Opportunity Horizon
# Table of Contents

## Megatrend 5 – New Business Models

- Taxonomy of Key Sub-trends
  - Data as a Service – Monetization Business Models
  - Crowdsourcing and Co-creation for a Social Cause
  - Circular Economy for Sustainability
  - Personalization and Customization
  - Value for ‘Many’
  - Sharing Economy (P2P)
  - Servicization – Pay as you Go
  - Everything-as-a-Service (XaaS)
  - Freemium model
  - Online-to-Offline (O2O)

- Impact and Probability Analysis for Sub-trend Levers

- 5-10 Year Opportunity Horizon
<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Megatrend 6 – Economic Trends</td>
</tr>
<tr>
<td>Taxonomy of Key Sub-trends</td>
</tr>
<tr>
<td>Next Economic Game Changers</td>
</tr>
<tr>
<td>Future of BRICS</td>
</tr>
<tr>
<td>Long term Global Economic Slowdown</td>
</tr>
<tr>
<td>Future Trade Dynamics</td>
</tr>
<tr>
<td>Africa as a Continent</td>
</tr>
<tr>
<td>Impact and Probability Analysis for Sub-trend Levers</td>
</tr>
<tr>
<td>5-10 Year Opportunity Horizon</td>
</tr>
<tr>
<td>Table of Contents</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Megatrend 7 – Innovating to Zero</strong></td>
</tr>
<tr>
<td>Taxonomy of Key Sub-trends</td>
</tr>
<tr>
<td>Zero Vision Strategies</td>
</tr>
<tr>
<td>Impact and Probability Analysis for Sub-trend Levers</td>
</tr>
<tr>
<td>5-10 Year Opportunity Horizon</td>
</tr>
</tbody>
</table>
## Table of Contents

<table>
<thead>
<tr>
<th>Megatrend 8 – Future of Infrastructure Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxonomy of Key Sub-trends</td>
</tr>
<tr>
<td>Sustainable Materials</td>
</tr>
<tr>
<td>Future of Construction Autonomy</td>
</tr>
<tr>
<td>Prefabrication and Rise of Modular Buildings</td>
</tr>
<tr>
<td>High-speed Transit – Hyperloop becomes Reality</td>
</tr>
<tr>
<td>Advanced Water Solutions</td>
</tr>
<tr>
<td>Future of Smart Infrastructure</td>
</tr>
<tr>
<td>The Big Bet on Mega Projects</td>
</tr>
<tr>
<td>Impact and Probability Analysis for Sub-trend Levers</td>
</tr>
<tr>
<td>5-10 Year Opportunity Horizon</td>
</tr>
</tbody>
</table>
### Table of Contents

- Megatrend 9 – Future of Retail
  - Taxonomy of Key Sub-trends
  - Future of Physical Stores
    - In-store Experience – Automated Shops
    - Future of Online Retail – Rise of Hypermarkets
  - Personalization of Retail
  - Ambient Commerce – Rise of Voice Commerce
  - Smart Retail – AR, VR, Sensors and Biometrics
- Impact and Probability Analysis for Sub-trend Levers
- 5-10 Year Opportunity Horizon
## Table of Contents

**Megatrend 10 – Future of Energy**
- Taxonomy of Key Sub-trends
  - Decarbonization
  - Decentralized Generation
  - Digitization in Energy
  - New Business Models
  - Climate Control
- Impact and Probability Analysis for Sub-trend Levers
## Table of Contents

**Megatrend 11 – Health, Wellness and Well-being**

- Taxonomy of Key Sub-trends
  - Rise of Nutraceuticals
  - Femtech: The Future of Women’s Healthcare
  - Future of Smart Healthcare (AI, Digital Reality, Ambient Commerce)
  - Gene Therapy
  - Precision Medicine
  - Business Model Evolution: Leveraging New Niches
  - Biomarker Analytics
  - Regen Med

**Impact and Probability Analysis for Sub-trend Levers**

**5-10 Year Opportunity Horizon**
<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Megatrend 12 – Urbanization: City as a Customer</strong></td>
</tr>
<tr>
<td>Taxonomy of Key Sub-trends</td>
</tr>
<tr>
<td>Mega Cities</td>
</tr>
<tr>
<td>Mega Corridors</td>
</tr>
<tr>
<td>Mega Regions</td>
</tr>
<tr>
<td>Mega Slums</td>
</tr>
<tr>
<td><strong>Impact and Probability Analysis for Sub-trend Levers</strong></td>
</tr>
<tr>
<td><strong>5-10 Year Opportunity Horizon</strong></td>
</tr>
</tbody>
</table>
# Table of Contents

**Megatrend 13 – Future of Mobility**

- Taxonomy of Key Sub-trends
  - Micro-mobility Solutions
  - Ride Hailing, Car Sharing and Ride Sharing
  - Integrated Mobility Solutions
  - Connected Cars
  - Electric vehicles and Infrastructure
  - Dynamic EV Charging
  - Future of Freight Deliverables
  - 3rd Dimension Mobility (Flying Cars)

- Impact and Probability Analysis for Sub-trend Levers

- 5-10 Year Opportunity Horizon

- Top 12 Transformational Themes Emerging from Mega Trends and Sub-trends

- Legal Disclaimer
Example Snapshots
Taking Advantage of Insights
Three Primary Ways to Leverage Our Analysis

### Three Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy Stand-Alone Report Analysis</td>
<td>Some clients choose to purchase the report as a stand-alone analysis. Whilst not recommended, the analysis does include guidance on trend prioritization as well as market-based analysis. We have also included a tool to allow teams to look at the trends and ideate for relevance.</td>
</tr>
<tr>
<td>Analysis + Action (recommended)</td>
<td>In this option, Frost &amp; Sullivan would discuss workshop options and tools that can be applied to the Global MT to 2030 Analysis. These may include a design thinking approach or others, but would be developed in collaboration with YOU to fit your company’s culture and creative strengths. The goal is translating the analysis to ACTION. One day sessions and Two day provided.</td>
</tr>
<tr>
<td>Analysis + Consulting</td>
<td>Based on discussions, it may be determined that the best path forward is for the VIG team to lead a Futurecasting project with more focused research in key areas that result in 2030 trend and strategy recommendations. Here our focus is to ensure the trends are integrated into your organization in a way that creates growth and momentum toward your organizational goals.</td>
</tr>
</tbody>
</table>

**Investment:**
- **Buy Stand-Alone Report Analysis:** $10,000
- **Analysis + Action (recommended):** 1 Day $30,000, 2 Day $45,000
- **Analysis + Consulting:** $TBD
“Frost & Sullivan ran a one-day strategy workshop with Procter & Gamble to help our New Business Creation teams to understand the developing personal mobility market. The workshop consisted of Frost & Sullivan professionals presenting and informing us of the evolving opportunities across the industry value chain and then facilitating group plenary sessions to explore potential opportunities in this market. We found the information provided very insightful, strategic and tailored to our needs and appreciated the facilitation skills and tools used in the workshop, which helped us achieve our goals. We plan to be engaging with Frost & Sullivan in the future on other areas of interest.”

Chief Innovation Catalyst
Proctor & Gamble

“In corporate finance, we need to spot potential winners and groom them until they are ready for capital market exercises. Along with the development process, big value can be created when the candidate of our choice is ready. The question is how to spot winners. We either search for companies who already emerge as the top player in their field or look for companies who have yet to move to that league but with potential to expand. It is always rewarding to groom latter group of companies as the return is huge. Your Mega Trends provides a good framework for us to understand the trend and to spot potential winners who are operating in those spaces. That is why I find the guide very useful and relevant”.

Managing Director
Genesis Capital
What Our Clients Say

“The session from Frost & Sullivan was an amazing illustration of how much we can still do given the future ahead. Just getting this many people to see a clear vision was a task in itself, never mind providing actionable ideas for us! Super job”
CEO – Global Fortune 500 Transportation Company

“What a session! The feedback from the first phase was really positive with all team members really getting on board and embracing it. This was down to your engaging work and facilitation expertise that really brought out the knowledge from your team as well as ours. We look forward to continuing the project work over the next few months.”
VP Marketing – Fortune 100 Manufacturer

“Interesting to see F&S view on upcoming Mega Trends and how they got there, really someone who has a solid idea where we need to go.”
CMO, Global Fortune 500 Semiconductor Company

“Real and tangible trends with a logical story backing them up, brilliant presentation.”
CIO – Global Fortune 100 IT Company

“Really value the thought leadership and insights on socioeconomic macro trends to assess the implications for business and technology. I will be connecting with Frost & Sullivan again.”
CSO – Global Fortune 100 Networking Company

“Intriguing ideas on Mega Trends, Mega Cities, I had a chance to discuss with Frost & Sullivan after and how they can help push us farther. Brilliant insight that is highly actionable”
CMO – Global Fortune 500 Networking Company
The future can seem overwhelming, we understand. There are so many pressures from all angles, shareholders, owners, managers, yourself. But one thing is undeniable, the future will happen. It cannot be ignored.

We also know the future happens faster than you think, anyone that has children knows that truth. So we are left with only one option. If we are to have influence over our future we must investigate it, learn and take action, this is the only way to provide you and your company with the option to choose a path, whether to watch and wait, or lead.

Consider therefore that this is one of the most important activities in your company, it is your insurance policy, your growth engine. As such you must build the optimal engine and fill it with the optimal fuel.

Our team lives for this, we thrive on it and look forward to working with you as you take your future to the next level.
Have Questions? We Have Answers.

Richard Sear
Partner & Senior Vice President: Visionary Innovation

(210) 849 3944
rsear@frost.com