fruiSCE

Value Stream Mapping

- *Value stream mapping (VSM) is defined as a lean tool that employs a flowchart documenting every step in the process. Many lean practitioners see VSM as a fundamental tool to identify waste, reduce process cycle times, and implement process improvement.*

- *VSM is a workplace efficiency tool designed to combine material processing steps with information flow, along with other important related data.*

- *VSM is an essential lean tool for an organization wanting to plan, implement, and improve while on its lean journey. VSM helps users create a solid implementation plan that will maximize their available resources and help ensure that materials and time are used efficiently.*

- ASQ.ORG

Shaik Abdul Khadar

History of Value Stream Mapping (VSM)

- Value Stream Mapping (VSM) originated from the Toyota Production System in Japan. Toyota used VSM to visualize, analyze, and improve workflows, which became essential to Lean Manufacturing.

- Over time, VSM's success in manufacturing led to its adoption across various sectors like healthcare, IT, and supply chains, as organizations recognized its power to streamline processes and eliminate waste.

- Initially used to understand and reduce inefficiencies in production lines, VSM is now adapted for diverse environments, providing a visual approach to process improvement.

- Today, VSM is a key component of Lean and Six Sigma methodologies, empowering companies globally to optimize value delivery.

Why Value Stream Mapping (VSM)?

- VSM provides a *visual overview of all steps* involved in creating and delivering a product or service. This comprehensive view helps teams pinpoint inefficiencies, bottlenecks, and waste within processes.

- By *identifying non-value-added activities*, VSM enables organizations to focus on actions that directly benefit the customer, leading to streamlined operations, reduced costs, and increased customer satisfaction.

- Beyond immediate improvements, VSM fosters a *culture of continuous improvement*, aligning cross-functional teams around common goals and creating a proactive approach to problem-solving.

Shaik Abdul Khadar
www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

Overview of Value Stream Mapping (VSM)

Overview and Definition

Value Stream Mapping (VSM) is a visual methodology that diagrams all steps needed to produce a product or deliver a service. It helps teams identify every activity in the workflow, dividing them into value-added (activities that contribute directly to customer satisfaction) and non-value-added (wasteful or redundant) steps.

By mapping each step, VSM captures cycle time (time to complete each step), lead time (total time to fulfill an order), inventory levels, wait times, and more. This detailed data provides a full picture of material and information flow throughout the process.

Purpose, Benefits, and Applications

VSM's primary objective is to highlight inefficiencies and waste in a process, making it possible to create a targeted plan for streamlining operations and improving quality. This aligns the workflow more closely with customer needs, enhancing value and efficiency.

Although initially a manufacturing tool, VSM has evolved for use across industries—healthcare, supply chain, IT, and service sectors. It serves as a foundation for Lean improvement initiatives, making it valuable for any organization seeking continuous improvement, customer-focused processes, and streamlined operations.

Shaik Abdul Khadar
www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

fruiSCE

How to Do Value Stream Mapping (VSM)

Steps to Start

Select a Product or Service Family: Identify the product or service line you want to map. Focusing on a single, representative process family ensures that the VSM remains clear and actionable.

Assemble the Right Team: Include representatives from all relevant functions—production, quality, logistics, etc.—who understand each step and can contribute insights into current workflows and bottlenecks.

Define Scope and Boundaries: Determine the start and endpoint of the process being mapped, whether it's a single production line or an entire supply chain.

First Step is to do Current State VSM!

Mapping Process

Data Collection: Gather data for each step, including cycle time, lead time, inventory levels, and any wait times. Observing processes in real time can provide accurate insights. *Use pencil and notebook to write along with any additional information.*

Draw the Map: Begin by mapping the **current state**, including each process step, material and information flow, and key data points. Use standard VSM symbols to represent each element (processes, inventory, transport, etc.).

Identify Waste: Highlight areas of non-value-added activities and inefficiencies. These are opportunities for improvement and are often the focus for creating a future state map.

fruiSCE

Current State Value Stream Mapping

Purpose and Importance

Snapshot of Existing Processes: The current state VSM provides a clear visual of the current workflow, showing each step, material flow, and information flow from start to finish.

Identify Bottlenecks and Waste: This map helps teams observe where delays, excess inventory, and inefficiencies exist. It creates a baseline for comparison with future improvements.

Data Foundation: Gathering accurate data (cycle time, lead time, inventory, wait times) is essential for a realistic picture of current operations, setting a strong foundation for planning.

Steps for Mapping the Current State

Observe and Document: Walk through the entire process, documenting each step, the time taken, and any waiting periods. Collect data firsthand to ensure accuracy.

Map Material and Information Flow: Show the movement of materials and information between steps. Use standard VSM symbols to represent each component (e.g., process boxes, inventory triangles, arrows for flow).

Highlight Non-Value-Added Activities: Mark steps that don't directly add value for the customer (such as wait times, excess inventory), as these are primary targets for future improvement.

Shaik Abdul Khadar
www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

Brainstorming for Improvements Based on Current State VSM

Purpose of Brainstorming in VSM Context

Analyze Current State Insights: Using the current state VSM, teams can identify bottlenecks, delays, and wasteful steps that need improvement, focusing specifically on areas with non-value-added activities.

Cross-Functional Input for Deeper Insights: Involving representatives from different departments (production, quality, logistics) allows for a comprehensive view of potential improvements, as each function may offer unique insights into specific process challenges.

Differentiate Quick Wins vs. Strategic Changes: Brainstorming helps categorize ideas into quick, easily implemented fixes and longer-term changes, creating a balanced improvement plan.

Techniques and Tips for Effective Brainstorming

Root Cause Analysis for Key Pain Points: Using the "5 Whys" or Fishbone Diagram, identify the underlying causes of inefficiencies shown in the current state VSM, ensuring that proposed changes target the root issues.

Focus on Reducing Non-Value-Added Steps: Review areas of waste or redundancy highlighted in the VSM, and brainstorm specific actions to reduce or eliminate these steps, like reducing wait times or minimizing excess inventory.

Document Ideas and Set Priorities: Capture all brainstorming ideas, then prioritize them based on feasibility, cost, and potential impact. This will shape the goals for the future state VSM, directing focus toward realistic and impactful improvements.

fruiSCE

Future State Value Stream Mapping

Purpose and Vision of Future State Mapping

Designing an Ideal Workflow: The future state VSM represents an optimized version of the current process, focusing on eliminating identified wastes and improving efficiency based on brainstorming outcomes.

Align with Strategic Objectives: The future state map is created with organizational objectives in mind, such as reduced lead time, improved product quality, or enhanced customer satisfaction, ensuring alignment with *strategic goals/objectives*

Goal Setting: Define specific targets, like reducing cycle times, minimizing wait times, and increasing value-added activities, to give a clear direction for the future state. *This should be in alignment with the Strategy.*

Beware: If you misalign future state with the strategy, then you will mess up whole exercise and end up into a bigger problem.

Steps to Create the Future State Map

Incorporate Improvement Ideas: Use prioritized ideas from the brainstorming phase to adjust the process flow, reduce non-value-added activities, and streamline material and information flows.
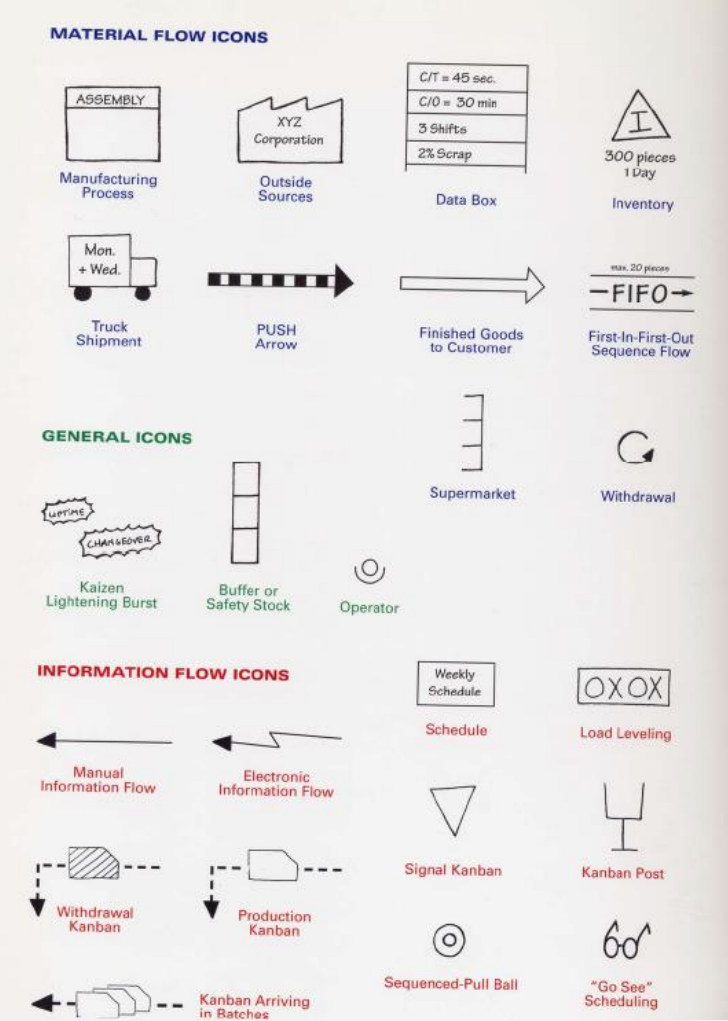
Visualize Optimal Flow: Design the future state with a smooth, waste-free flow of materials and information, minimizing bottlenecks and delays. Include standard VSM symbols to illustrate the improved process clearly.

Establish KPIs for Success: Identify key performance indicators (KPIs) that will help measure the success of the future state map. These might include reduced lead time, improved cycle efficiency, or reduced inventory costs.

Shaik Abdul Khadar
www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

VSM Icons

Icon	Description
Process Box	Represents a specific process or activity
Inventory Triangle	Indicates inventory or storage points
Transportation Arrow	Shows material flow between steps
Information Flow (Dashed Arrow)	Represents information flow between processes
Kaizen Burst	Highlights immediate improvement opportunities
Supplier Icon	Symbol for external suppliers
Customer Icon	Symbol for customers receiving products/services
Wait Time	Shows delays or waiting periods in the process
Value-Added Activity	Indicates value-adding activities to the product
Non-Value-Added Activity	Marks non-value-added steps to identify waste
Takt Time	Represents the pace needed to meet demand
Cycle Time	Time for completing one activity step
Lead Time	Total time from start to end of the stream
Work In Process (WIP)	Indicates items in progress but incomplete
Changeover Time	Time to switch from one task or setup to another
Batch Size	Number of units produced per run or batch

Picture from::
Learning to See
Mike Rother &
John Shook

Shaik Abdul Khadar

www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

Terminology

Cycle Time (CT): The time it takes to complete one process step or activity.

Lead Time (LT): Total time taken from the start to the end of the value stream, including value-added and non-value-added steps.

Takt Time: The rate at which products need to be completed to meet customer demand.

Value-Added Activities: Activities that directly add value to the customer or product.

Non-Value-Added Activities (Waste): Activities that do not add value, such as waiting times, excessive movement, or overproduction.

Work In Process (WIP): Items that are in progress but not yet completed.

Changeover Time: Time required to switch from one task, product, or process setup to another.

Kaizen Burst: A symbol used to highlight specific opportunities for immediate improvement.

Throughput Time: Time it takes for a single unit to move through the entire value stream from start to finish.

Inventory: Materials or products in storage or waiting to be processed, represented by triangles in VSM.

Information Flow: Movement of information within the process, often shown by dashed arrows.

Supplier and Customer Icons: Represent external entities supplying or receiving products or services.

Batch Size: Number of units produced or processed in one cycle or run.

Production Lead Time: Total time for production from the beginning to the end of the manufacturing process.

Process Time: Actual time spent on each specific activity within the value stream, excluding waiting or idle time.

Process Box: A symbol used to represent individual activities or steps within the VSM.

Transportation Arrow: Shows movement of materials between steps or processes.

Uptime: Percentage of time a process is operational and available for production.

Queue Time: Time that items or information spend waiting to be processed.

Sample VSMs

A Current-State Value Stream Map

A Future-State Value Stream Map
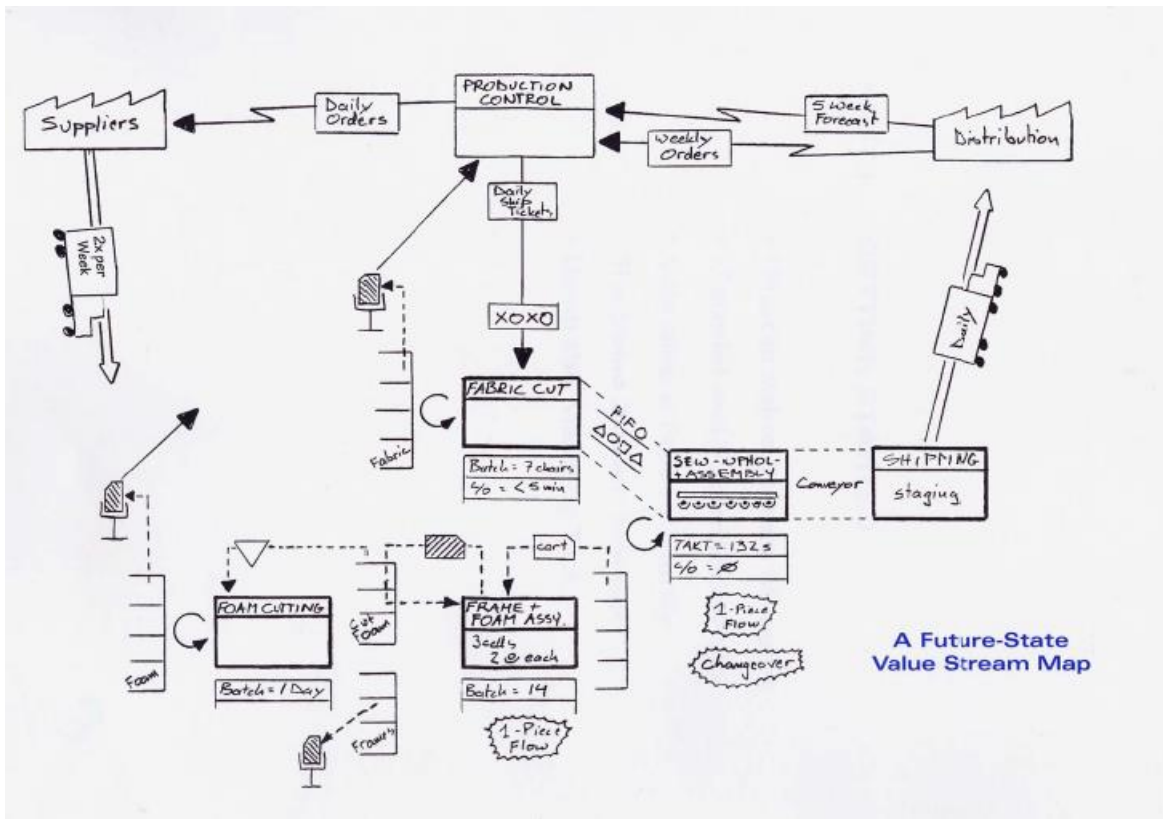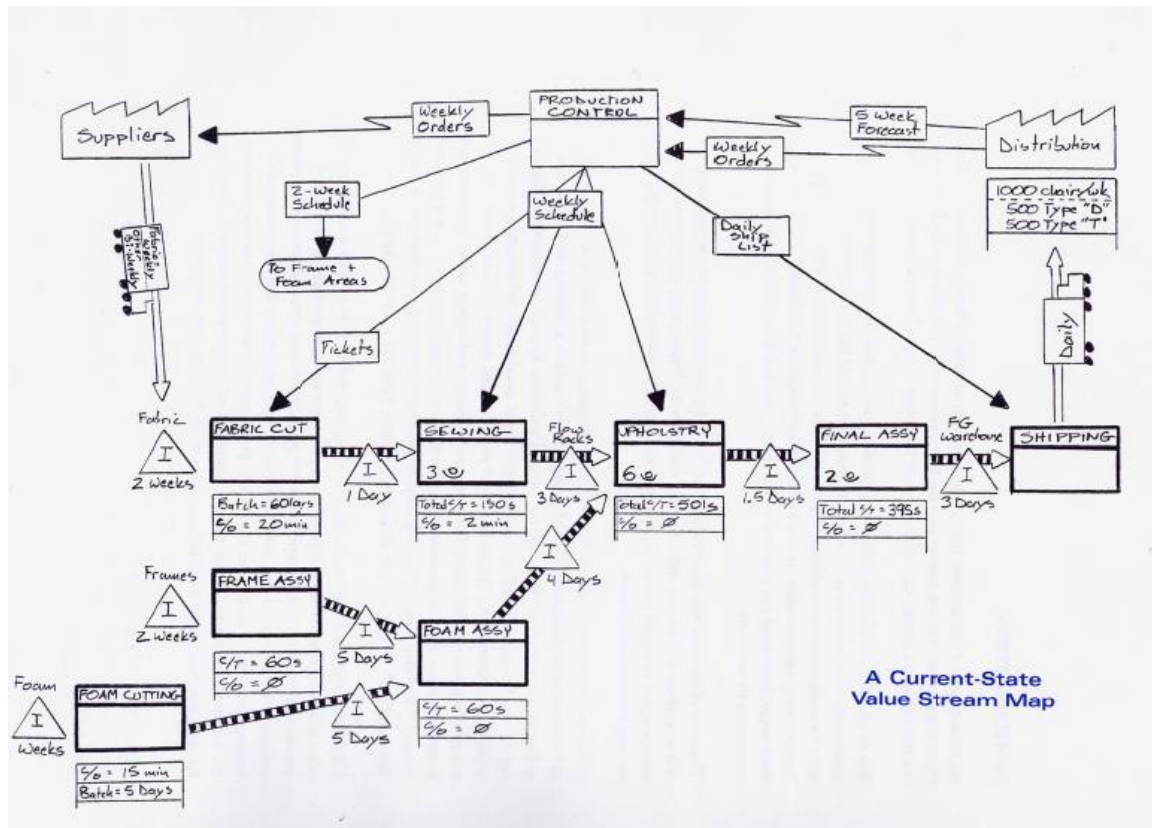
Picture from::
Learning to See, Mike Rother & John Shook

Implementing Improvements

Developing an Action Plan

Translate Future State into Action: Break down the future state VSM into specific, actionable steps. Each improvement should have a clear task, responsible team members, and a timeline.

Prioritize Based on Impact and Feasibility: Start with "quick wins" that offer immediate benefits, and then phase in more complex changes. This phased approach ensures smooth implementation without overwhelming resources.

Set Milestones and Checkpoints: Establish milestones to track progress on each improvement. Regular check-ins help ensure that the implementation stays aligned with the planned future state.

Change Management and Continuous Monitoring

Engage Stakeholders Early: Effective change requires buy-in from all levels. Communicate the benefits of the changes and involve teams in the transition to the future state.

Monitor and Adjust: Implement KPIs identified in the future state to monitor the success of each change. Be prepared to make adjustments based on ongoing feedback and performance metrics.

Encourage Continuous Improvement: Use lessons learned to refine the process and inspire a culture of ongoing improvement. Even after implementing the future state, regular assessments can reveal further optimization opportunities.

fruiSCE

Implementing Improvements

Improvement Plan Draft

#	Improvement Project	Description	Start Date	End Date	Owner	Milestones	M1	M2	M3	M4	M5	M6	M7	M8
P1	Reduce Wait Time in Production Line	Implement workflow adjustments to reduce waiting periods in production.	2024-12-01	2025-02-28	Production Team	Reduce wait time by 20%	■	■	■					
P2	Optimize Inventory Management	Improve inventory tracking to maintain optimal levels and reduce excess stock.	2024-12-15	2025-03-15	Inventory Management	Maintain inventory at optimal levels		■	■					
P3	Streamline Material Flow in Assembly	Modify material flow to minimize handling and increase efficiency.	2024-12-22	2025-03-31	Logistics Team	Reduce material handling time by 15%			■	■				
P4	Implement Quality Check Automation	Automate quality checks at critical stages to reduce manual inspection time.	2025-01-05	2025-04-15	Quality Control	Complete automation setup				■	■	■		
P5	Reduce Lead Time in Supply Chain	Collaborate with suppliers to decrease lead times in the supply chain.	2025-01-12	2025-04-30	Supply Chain Team	Achieve 10% reduction in lead time			■	■				
P6	Enhance Cross-Functional Communication	Set up weekly cross-functional meetings to improve coordination and decision-making.	2025-01-19	2025-05-15	Project Management Office	Complete setup of weekly meetings				■	■	■	■	■

Sample Plan

Implementing VSM for the Entire Supply Chain

Expanding VSM Beyond Individual Processes

End-to-End View: Applying VSM across the entire supply chain gives a comprehensive look at material and information flow, from suppliers to customers, identifying waste at every stage.

Key Components: Include all major touchpoints, such as raw material sourcing, production, warehousing, transportation, and distribution. This holistic approach ensures the entire supply chain is aligned toward delivering maximum value to the customer.

Challenges in Cross-Functional Mapping: Implementing VSM at a supply chain level may reveal complexities, such as cross-functional dependencies and data inconsistencies. Addressing these challenges requires thorough collaboration and clear data sharing protocols.

While extending VSM to supply chain, pay special attention to Supply Chain Planning Processes….

Steps for Implementing Supply Chain VSM

Gather Cross-Functional Teams: Bring together teams from each stage of the supply chain (procurement, production, logistics, distribution) to provide a complete picture and ensure that improvements are feasible across functions.

Map Current and Future State Supply Chain: Start by mapping the current end-to-end flow, highlighting delays, redundancies, and non-value-added activities. Develop a future state that optimizes flow and aligns with strategic goals.

Measure and Adjust: Define KPIs for each stage of the supply chain, monitor progress against these metrics, and adjust the process as necessary. Continuous improvement is key to sustaining a lean, efficient supply chain.

Help from Supply Chain Expert is a better option….

Shaik Abdul Khadar
www.fruisce.com | www.datalabsindia.com | sak@datalabsindia.com | +91 7799798333

Key Tips for Successful Value Stream Mapping

Best Practices for Effective VSM

Strategic Alignment: Make sure to align any process improvements to the Strategy. Prioritize the optimization initiatives that gives best results for strategic objectives.

Involve Cross-Functional Teams: Include team members from each relevant area to capture a comprehensive view of the process. This collaboration brings diverse insights and ensures all aspects of the workflow are addressed.

Focus on Customer Value: Always align improvements with what the customer values. Prioritizing activities that add direct value ensures VSM efforts support business goals and customer satisfaction.

Keep the Map Simple and Clear: Use standard VSM symbols and avoid overcomplicating the map. A straightforward, well-organized VSM makes it easier to identify key improvement areas.

Common Pitfalls to Avoid

Neglecting Non-Value-Added Activities: Don't overlook minor wasteful steps; even small inefficiencies add up over time. Mark all non-value-added activities for potential improvement.

Failing to Set Measurable Goals: Define clear KPIs to measure success. Without specific goals, it's challenging to track progress or gauge the impact of changes.

Overlooking Continuous Improvement: VSM is not a one-time exercise. Regularly revisit and update your VSM as processes evolve and new inefficiencies emerge. This continuous improvement mindset helps maintain efficiency and adaptability.

Prioritization is the key: Make sure you prioritize if you have too many optimization opportunities. Sometimes we can live with minor inefficiencies and take up big opportunities to improve

Reach me if you need help….

datalabs INDIA
EMPOWER DATA | ACCELERATE PERFORMANCE

A business leader and expert in building and managing complex supply chain organizations with experience in designing and deployment of strategy, planning, and operations. Overall profit and loss responsibility, lead large and diversified teams, and manage transformations. Drive global programs and projects, roll-out strategic initiatives, build corporate competencies and provide strategic direction. A strategist and expert in strategy execution, supply chain excellence, digital transformations, business process re-engineering, performance management, operations strategy, and ERP implementations.

EXPERIENCE

- Strategy Formulation & Strategy Execution
- Supply Chain Strategy, Planning, & Operations
- Business Planning, Forecasting & Budgeting
- Manufacturing Excellence
- Business Process Re-Engineering/Management
- Enterprise Resource Planning & EPM
- Supply Chain Execution Systems (WMS, MES, TMS, GTM,DP,CT, SCO)
- Project Management & PMO
- AI/ML & IIoT
- Organizational Transformations

Shaik Abdul Khadar
CEO & Principal Consultant
Data Labs India Solutions Pvt. Ltd
Hyderabad, INDIA
sak@datalabsindia.com
+917799798333

INDUSTRIES
- Agri Food
- Mining
- Automotive
- FMCG
- Manufacturing
- Logistics
- Government
- Retail

CERTIFICATIONS
- BSC Certified Graduate
- PMP
- CPIM
- LSSBB
- EPM (IBM PA)
- ERP
- Explaining Strategy

- Middle East, Africa, India
- 30+ Years

SOLUTION ARCHITECT

fruiStrategy

fruiSCE