DUXEL

by Medaya

AI FOR AN **INTELLIGENT MEDICAL SUPPLY** CHAIN

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THE
CHALLENGE

WHEN **MEDICINES** RUN SHORT, **PATIENTS** PAY THE PRICE.

Drug shortages are far more than mere logistical hiccups; they create a ripple effect of detrimental consequences throughout the healthcare system. They are one of the most urgent challenges in global healthcare today:

01
Delayed treatments

and reliance on inferior therapeutic substitutions.

02
Extended hospital stays

Place additional strain on healthcare systems.

03
Escalating costs

Hospitals pay 16–30% more for alternatives when shortages strike.

04
Time wasted

Pharmacists and clinicians spend 8–9 extra hours per week1 managing shortages.

1 : FDA, 2020. Drug Shortages: Root Cause and Potential Solutions, s.l.: https://www.fda.gov/media/131130/download?attachment.

MEETING THE
CONSEQUENCES

When critical medications become scarce, patient treatments are frequently delayed, leading to prolonged suffering and potentially worsening medical conditions. In many cases, healthcare providers resort to inferior or less effective substitutions, which can compromise patient outcomes and necessitate longer recovery periods.

Drug shortages have a great impact on patient care,

59% | Delay of Care.[2]

34% | Suboptimal Treatment.[2]

35% | Cancellation of Care.[2]

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FACING
THE IMPACT

This often translates to increased patient hospital stays, placing an additional burden on healthcare facilities and resources. Ultimately, the cumulative impact of these issues results in significantly elevated healthcare costs, as hospitals grapple with inefficiencies, extended care requirements, and the need to source alternative, often more expensive, treatments. These results are devastating: higher operational costs, increased workload on staff, and—most importantly—**negative impacts on patient care.**

Drug Shortages Cost Hospitals $230 Million Annually[3]

A University of Chicago study analysed purchasing data from **1,800 hospitals** during shortages of **20 critical drugs.**

The study estimated an additional **$230 million per year** in costs.

These costs were largely driven by **premium drug pricing and overtime labour.**

3 : FOX, E., 2014. Drug Shortages: A Complex Health Care Crisis. Mayo Proceedings, 89(3), pp. 361-373

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THE ROOT
CAUSES

BEHIND EVERY **SHORTAGE** LIES A **BROKEN SYSTEM**

From outdated inventory practices to regulatory hurdles and weak forecasting, the healthcare supply chain is reactive when it needs to be proactive. The healthcare supply chain is frequently characterised by its reactive nature, struggling to keep pace with dynamic demands and unforeseen challenges. **This inherent lack of proactivity stems from several deep-rooted issues:**

Outdated inventory practices:
This leads to either overstocking (wasted resources, expired products) or understocking (impact on patient care, critical shortages). Many facilities lack real-time visibility due to manual tracking or disparate digital solutions, making accurate forecasting nearly impossible.
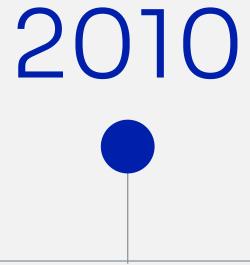
Regulatory hurdles:
Stringent regulations concerning product quality, storage, distribution, and patient safety are time-consuming and costly to navigate, often leading to delays and hindering the implementation of new, more efficient processes. Changes in regulations without adequate lead time or clear communication further disrupt the supply chain.

Weak forecasting capabilities:
The inability to accurately predict demand for medical supplies, pharmaceuticals, and equipment leads to a perpetual cycle of crisis management. This can be due to a lack of sophisticated analytical tools, insufficient historical data, or an inability to effectively integrate information from various departments and external factors.
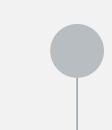
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The City of Riyadh conducted a study that highlighted: [4]

2010

2017

41% of hospitals re-adjusted budget plans due to additional expenditures caused by shortages.

9% of prescriptions were not dispensed due to shortages

17% of pharmacists cancelled practice improvements to deal with shortage problems.

2016

3 : Al-Aqeel SA, Al-Salloum HF, AbanmyNO, Al-ShamraniAA."Undispensed prescriptions due to drug unavailability at a teaching hospital in Saudi Arabia". Int J Heal Res.2010;3(4):213-216

THE SYSTEM IS **BROKEN** BUT **IT DOESN'T** HAVE TO BE.

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03 **INTRODUCING DUXEL**

INTRODUCING
DUXEL

A STEP TOWARDS **CERTAINTY,**

Duxel is an **AI-powered SaaS platform and intelligent assistant** designed to transform healthcare supply chain management in the GCC and MENA regions.

What It Is: Intelligent, data-driven software that empowers healthcare providers, pharmacies, and distributors.

How It Works: By blending real-time clinical updates with historical data, Duxel generates predictive insights that guide smarter decisions.

Why It Matters: Duxel moves healthcare from reactive responses to proactive planning—ensuring medicines and supplies are available when and where they're needed.

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KEY
FEATURES

Your AI Assistant for Smarter Supply Decisions

Unlike conventional tools that merely chronicle past events, Duxel transcends the limitations of historical record-keeping. It doesn't simply document what has occurred; it **proactively anticipates the future.**

01

**Intelligent
Shortage Alerts**

Early warnings for supply risks, enabling preventive action.

02

**Intelligent
Expiry Tracking**

Automated expiry monitoring to cut waste and protect patient safety.

03

**Predictive
Forecasting**

AI models that project future inventory needs and recommend optimisation strategies.

04

**Shipment Tracking &
Rescheduling**

Real-time visibility and flexibility to reschedule disrupted shipments. Value Proposition

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INTRODUCING
DUXEL

A CERTAINTY THAT **SAVES LIVES**

The forward-thinking capabilities embedded allow Duxel to move beyond reactive analysis, enabling users to gain insights into potential developments and make informed decisions with a predictive edge.

For Healthcare Providers

More efficient operations, reduced costs, and improved resource allocation.

For Pharmacists & Clinicians

Elimination of 8–9 wasted hours per week on shortage management, giving time back to patient care.

For Patients

Peace of mind knowing that critical treatments are available without interruption.

For Decision Makers

Data-backed insights that enhance planning, reduce costs, and strengthen resilience in healthcare systems.

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Feature/Package	Assure (Light) Great for small teams	Predict (Core) Mid-Size Organizations	Prescribe (Elite) Great for small teams
Annual Subscription	OMR 94K/Year	OMR 96K/Year	OMR 179K/Year
No. of Users	Up to 10 users	Up to 20 users	Up to 20 users
SKUs supported	Up to 2,000	Up to 4,000	Up to 4,000
Stores Supported	1	Up to 3	Up to 3
Customer Support	24/7 support		
Business Consultant	Dedicated Consultant for training & launch		
Data Science Support	X	✓	✓
Scientific Publication Support	✓	✓	✓
Installation Fees	$59K (One-time payment)		

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OUR STORY

The Challenge

The Root Causes

Introducing Duxel

Product Packages

Our Story
Story
Values

The Minds
Driving Certainty

Medaya & Duxel

The Duxel Difference

Contact us

DUXEL

OUR
STORY

BORN FROM **HEALTHCARE**,
BUILT WITH **INTELLIGENCE.**

Duxel was born from the lived experiences of healthcare professionals across MENA who saw the ripple effects of shortages—**delayed treatments, soaring costs, and wasted clinician hours.**

They partnered with AI and deep-tech experts to design an intelligent solution bridging **frontline healthcare needs with predictive technology.**

This vision grew into **Medaya**, the founding company behind Duxel—established to take this mission further and create future-ready healthcare solutions, with Duxel as its flagship innovation.

THE VISIONARY
COMPANY **BEHIND DUXEL**

Medaya is a healthcare technology company founded in the GCC by professionals with deep expertise in health-**care delivery, pharmaceuticals, and digital transformation.** The company was created to solve systemic challenges in healthcare supply chains and build resilient, intelligent systems that improve care across the region.

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OUR VALUES

01
Integrity

Building trust through transparency and ethics

02
Innovation

Anticipating tomorrow's needs, not just reacting to today's

03
Collaboration

Working with providers, governments, and industry leaders

04
Patient–Centricity

Placing patients at the heart of every solution

05
Resilience

Ensuring continuity of care in every circumstance

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THE MINDS
DRIVING CERTAINTY

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> **The Minds
> Driving Certainty**
> Leadership

Medaya & Duxel

The Duxel Difference

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OUR
LEADERSHIP

Together, we're creating not just a product, but a **movement toward resilient healthcare** ecosystems. And, ensures that Duxel delivers not just technology—but **transformational impact.**
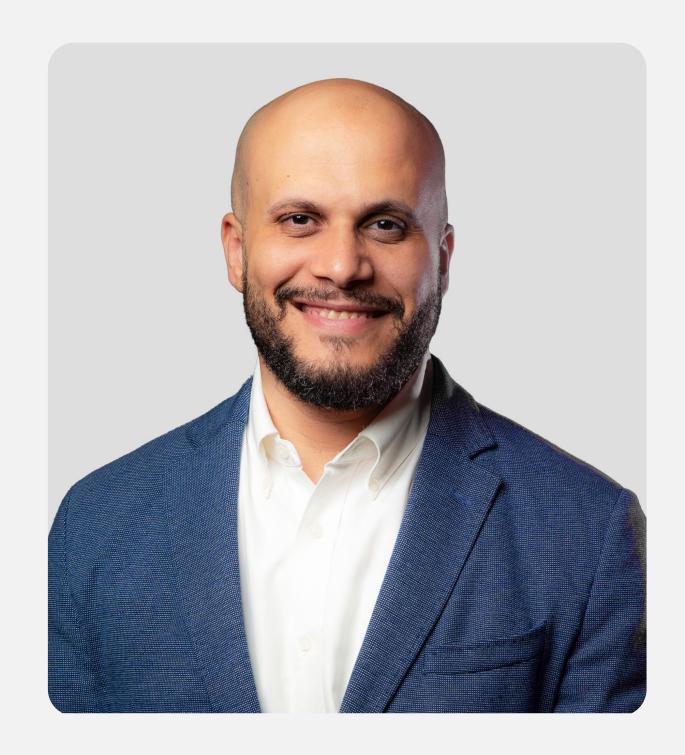
Our leadership brings together:

Healthcare & Clinical Practice
Grounded in patient-focused realities

AI & Data Science
Building adaptive, predictive algorithms

Supply Chain Expertise
Delivering practical, scalable solutions
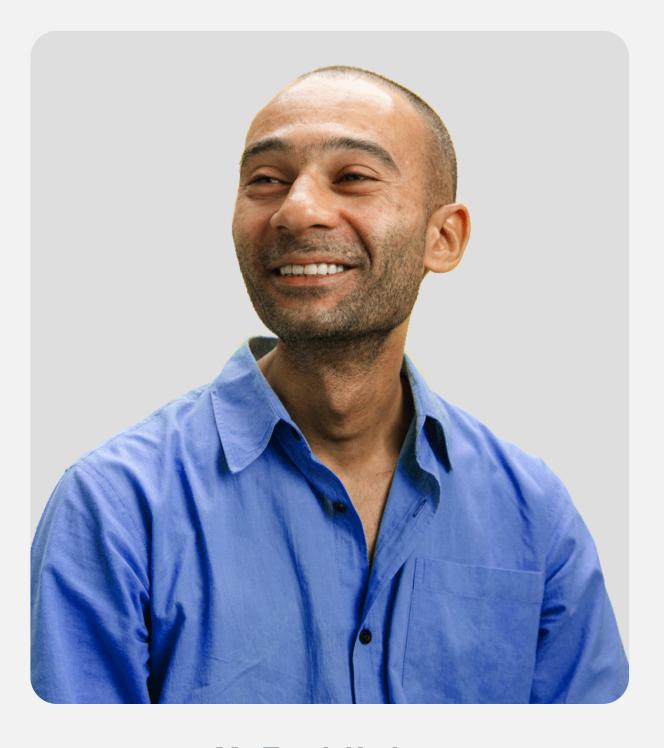
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Healthcare & Clinical Practice

AI & Data Science

Supply Chain Expertise

Dr. Mohamed Akl

Founder

Eng. Mohamed Nabil

Co-Founder

Mr. Tarek Kadour

Founder

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MEDAYA & DUXEL
A SHARED PURPOSE

TOWARDS **SEAMLESS CARE**

Medaya is not just the parent of Duxel—it is the engine powering its mission. Duxel embodies Medaya's purpose by transforming supply chains into proactive, seamless care systems.

VISION

A future where pharmaceuticals and medical supplies flow seamlessly from source to patient without interruptions or waste

MISSION

To empower healthcare decision-makers across the MENA region with predictive insights, enabling better resource management, saving lives, and improving patient outcomes

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THE DUXEL DIFFERENCE

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**The Minds
Driving Certainty**

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> **The Duxel Difference**
> The Duxel Difference
> How Duxel Stands Apart

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THE DUXEL
DIFFERENCE

LOOKING **FORWARD,**
WHILE OTHERS **LOOK BACK**

Unlike conventional supply chain tools that rely only on static, historical datasets, **Duxel fuses real-time clinical updates with historical data** to anticipate shortages, reduce waste, and empower smarter decisions.

Traditional tools leave providers reacting after the fact. Duxel shifts the paradigm from **reactive management** to **proactive intelligence**.

HOW DUXEL STANDS APART

Aspect	Traditional Tools	Duxel (AI-Powered)
Approach	Reactive, manual, siloed, based on records	Proactive, predictive, blending clinical updates with historical datasets
Inventory Visibility	Manual counts, periodic updates, prone to errors	Real-time visibility with automated reconciliation and predictive alerts
Error & Waste Risk	High — expiry oversight, phantom stock, mismanagement	Reduced waste — expiry tracking + predictive shelf-life insights (up to 50% lower unnecessary stock)
Forecasting Accuracy	Limited, based only on historical usage	20–30% improved accuracy with AI-driven forecasting models
Staff Productivity	Pharmacists/clinicians spend 8–9 hrs weekly managing shortages	Time returned to care — automated tasks free up staff time (up to 65–75% efficiency gains)

HOW DUXEL
STANDS APART

Aspect	Traditional Tools	Duxel (AI-Powered)
Cost Efficiency	Higher overheads from overstock, expiry, and labour	Supply cost reduction of 10–15%, ROI as high as $1→$3.8–$6.3 saved
Scalability	Rigid infrastructure, limited to specific stores	Scalable across facilities — clinics, hospitals, and national systems
Automation Level	Low — requires constant human intervention	High alerts, rescheduling, forecasting, and optimisation powered by AI
Supply Disruption Prediction	Minimal foresight — alerts arrive after disruptions	Advanced foresight — predicts risks before they impact availability
Strategic Insight	Siloed, backwards-looking data	Forward-looking intelligence — actionable insights for procurement, budgeting, and policy-level decisions

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CONTACT US

Your Next Step Toward **Seamless Care**

Join us in building healthcare systems that are **predictive, resilient, and patient-first.** We are open to **pilots, collaborations, and strategic investment opportunities.**

Duxel – AI for an Intelligent Medical Supply Chain

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Thank **You**