

## Executive Summary

Founded over 30 years ago, Data Sciences International ([DSI](#)) is a global life sciences company with a strong innovation history and many dedicated employees. With rising customer expectations, increasing product complexity and growing competition, DSI's position as market leader was in jeopardy.

In January, 2017, all DSI Key Performance Indicators (KPIs) were red: All-time high lead-times; dismal on-time delivery; discontent external customers; discouraged / frustrated internal teams and our sales team was losing confidence. Recently promoted President & CEO, Kristen Knox, decided that a significant transformation was required.


Working closely with her Executive Leadership Team (ELT), along with a wide cross-section of DSI employees, our initial Strategic Improvement Plan to achieve Operational Excellence ([see February, 2017: Strategic Improvement Plan, p.2](#)) was created. Understanding lasting success requires a long-term plan ([see Future Operational Excellence Plans, p.2](#)) and a resilient foundation, we identified four critical areas needing immediate attention:

1. DSI's Culture (Values) [see DSI Values Letter, SM.1](#)
2. Increase Accountability
3. Improve Operational Performance
4. Increase New Product Adoption

With intense focus and perseverance, utilizing appropriate continuous improvement tools, involving all global DSI employees and in close collaboration with our customers and key stakeholders, we attained fantastic results. Over sixteen (16) months, we slashed our lead-times and achieved desired on-time delivery allowing our customers to perform more studies (increasing their revenue) and allowing DSI to win additional business. Our external customers are increasingly satisfied with DSI's performance. Our sales and internal teams have never been happier and more engaged.

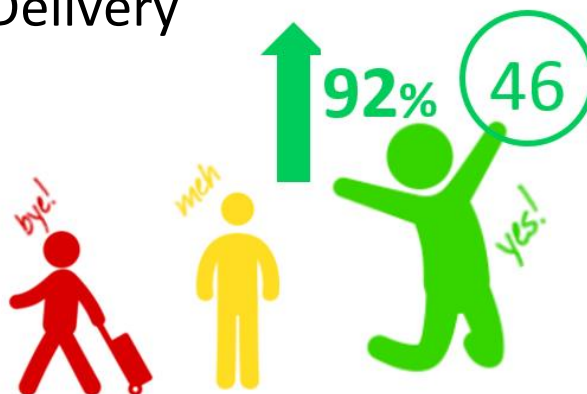
DSI's pursuit of Operational Excellence is off to a fantastic start.



>75%  
ship in <14 days  
Up by  63%



Order to  
Invoice



PASSIVES DETRACTORS PROMOTERS

Net Promoter Score (NPS)

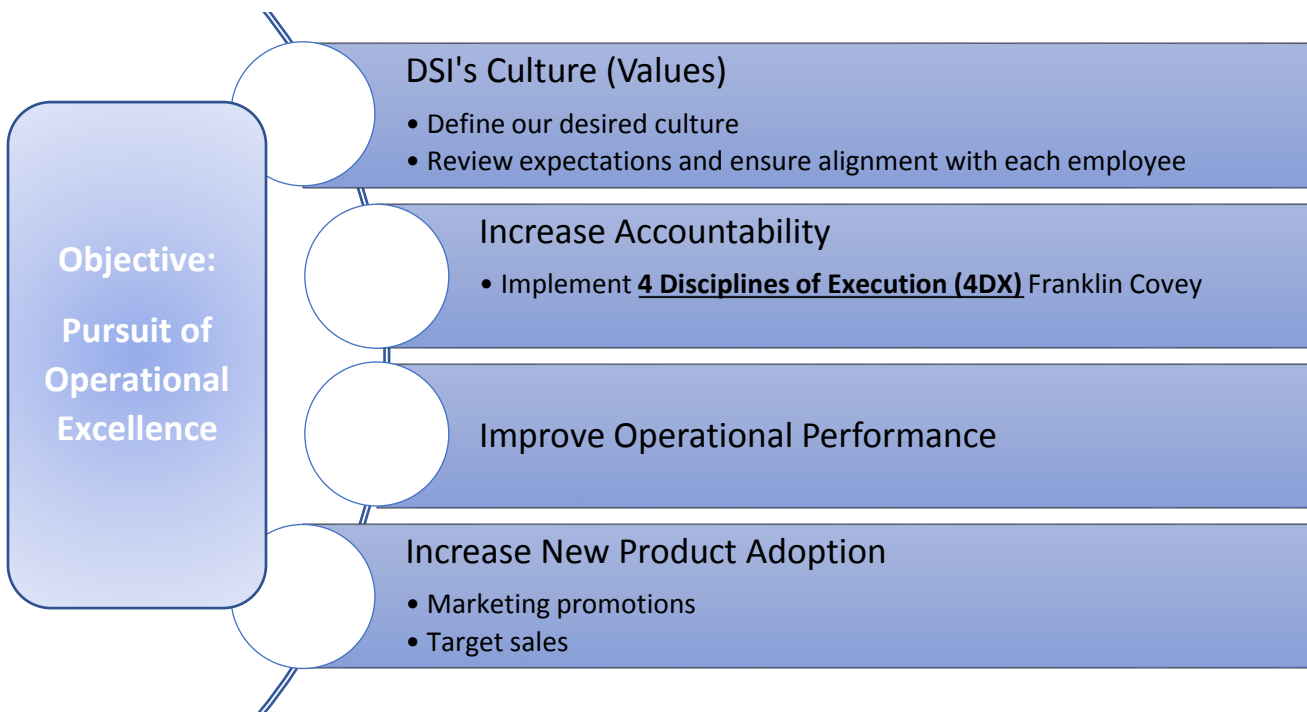
## DSI's Pursuit of Operational Excellence

*"At heart, Operational Excellence is an element of organizational leadership that stresses the application of numerous methodologies and tools, with a focus on the sustainable improvement of outstanding performance metrics. The focus of Operational Excellence goes beyond the traditional event-based model of improvement, toward a long-term change in organizational culture."* [BTOES insights](#)

With this definition, the DSI ELT identified the top four critical areas needing transformation (became our 18-month improvement strategies) and the tactics to address:

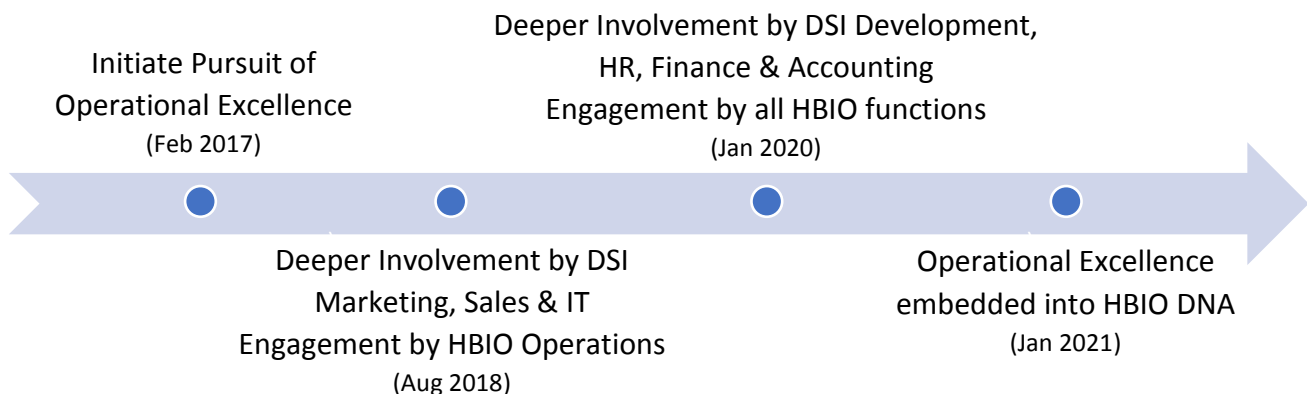
### February, 2017: Strategic Improvement Plan

Each strategy works together, building experiences and laying the groundwork as we pursue Operational Excellence (see [Future Operational Excellence Plans](#), p.2). All business functions reside at our headquarters in St. Paul, Minnesota. We have additional technical support and sales offices located throughout the world. The strategies and supporting tactics were deployed globally, throughout all of DSI. All DSI employees are involved in achieving our strategies and tactics.



### Future Operational Excellence Plans

In January, 2018, DSI was acquired by Harvard Bioscience ([HBIO](#)). Below is our preliminary timeline to deploy Operational Excellence as part of our integration. We are very proud of the results we have obtained thus far and look forward to our pursuit of Operational Excellence.



## Improve Operational Performance

While DSI Culture (Values), 4DX Implementation and Increasing New Product Adoption are critical strategies to establishing our Operational Excellence foundation and overall improvement, we will discuss our approach for Improving Operational Performance in further detail.

The Operations Team realized significant changes and a new direction were required. We began by examining our DSI Mission. We gathered feedback and collaboratively created our Operations' Mission Statement. It provides clarity and direction on what we will accomplish.

### ***DSI's Mission***

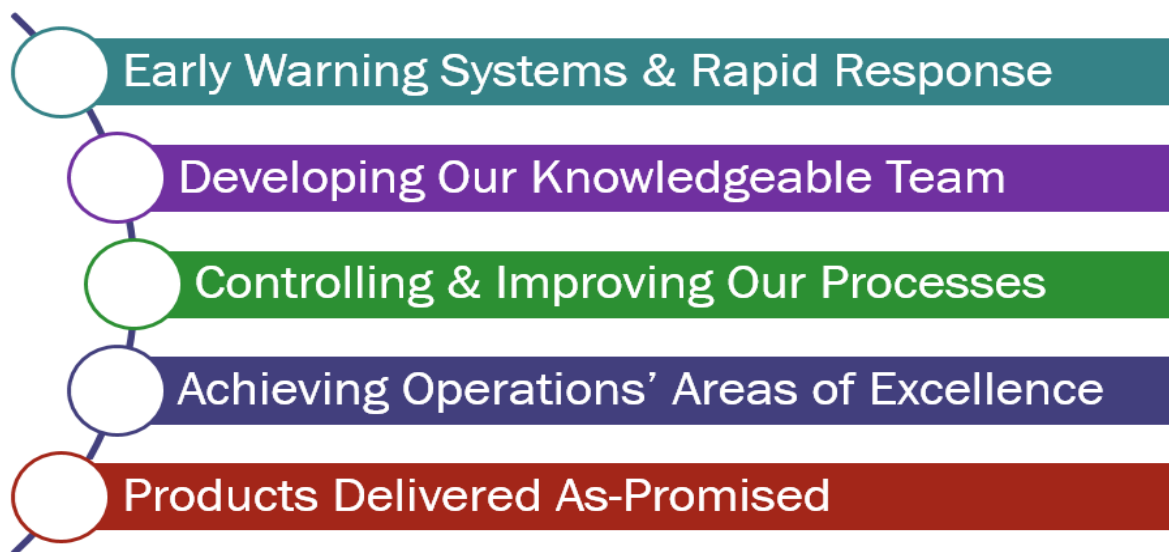
*To improve lives through technology, innovation, passion and the power of information.*

### ***Operations' Mission***

*Efficiently delivering products built by the most competent people, using optimized processes resulting in reliable products that achieve performance expectations sustained by resilient internal systems.*

This is an inspirational and directional statement to which each Operations Team member relates and all DSI employees understand. From here, we defined our Operations' Strategies. We believe these establish the foundation required to successfully accomplish our Mission and achieve Operational Excellence.

## Operations' Strategies



## Organizational Learning

Beneath each Operations' Strategy are several supporting projects. Knowing that Operational Excellence can only be realized when continuous improvement methodologies and tools are deeply engrained into our culture, we dedicated two of our Operations' Strategies to establish this foundation.

**Developing Our Knowledgeable Team** We defined the knowledge, skills and expertise required to achieve our Mission. After assessing our existing team capabilities, gaps were identified and are being closed through a combination of education, knowledge sharing and employee "upgrades."

**Achieving Operations' Areas of Excellence** We identified where the Operations Team should be the "go-to" experts within DSI. Historically, there were many areas where that was not the case, and there was an over-dependence on other teams. Needed changes are being addressed, in combination with Developing Our Knowledgeable Team.

Continuously striving towards our Mission and pursuing Operational Excellence is becoming part of our DNA.

## Operations' Improvement Project Examples

In close conjunction and coordination, utilizing appropriate continuous improvement tools, a prioritized list of projects were identified. Below are a few examples:

Issue	Improvement Project
Operations Team's expectations not clearly defined and poor team alignment	Create Key Enterprise Resource Planning (ERP) Principles document and communicate throughout DSI
Inadequate communication of issues, status and actions	Define and create needed daily, weekly and monthly performance metrics; Daily "run the business" stand-up communications meetings (actions assigned and follow-up); Weekly "ownership" stand-up communication meetings (discuss metrics, celebrate accomplishments, highlight any major issues, assign additional resources)
Customer orders "left to chance"; No forecast or visibility for planning or supply chain; Purchasing and building product based primarily on "intuition"	Define "Core Items" (represents ~70% of total revenue & ~10% of total available items to order); Define and create needed reports to ensure desired results; Develop and implement all-inclusive Sales and Operations Planning (S&OP) process
Misunderstanding of how Material Requirements Planning (MRP) demands were being driven	Modify MRP functionality (to be more transparent); Define and create needed reports to ensure desired results; Describe MRP functionality in Key ERP Principles document

As part of our celebration, we worked with our Marketing Team to create our [DSI Manufacturing Video](#), which has been a great hit internally, as well as with our customers.

## Results: Key Performance Indicators (KPIs)

The table below summarizes some of the transformational results achieved and value generated over the past sixteen (16) months. As a result of the systemic improvements that have been implemented, each KPI has established a solid trend (not just a recent "blip" – see **Highlighted Results, SM.2** for examples).

While we are pleased with our progress, many additional opportunities exist. DSI and HBIO will continue to improve in our pursuit of Operational Excellence.

Key Performance Indicators (KPIs)	Change (% or pts) / Current
<a href="#">Product Performance &amp; Reliability</a>	Improved > 350% (past 42 months)
<a href="#">HBIO Financial Results</a> (pre- to post-DSI acquisition)	Increased > 86% / \$6.50 (past 7 months)
Gross Margin	Increased + 6 pts
Operating Margin	Increased + 3 pts
Cost of Goods Sold (Scrap, Warranty)	Reduced > 14%
Open Orders (Backlog)	Reduced > 47% / 2-weeks' revenue
On-time Delivery (to promise)	Improved + 16 pts / 97%
Order to Invoice (<14 calendar days)	Improved > 63% / 75%
Finished Goods Inventory Turns	Improved > 27% / 10.7
Factory Cycle Time	Reduced > 39%
Assembly Efficiency (assemblies / hour)	Improved > 27%
Customer Net Promoter Score (NPS)	Improved > 92% / 46
Sales Team "Confidence"	Improved > 125% / 9 out of 10
Employee Engagement	Improved + 37 pts