HIRC Resiliency Badge Program

Overview & Assessment Guide

Contents

HIRC Resiliency Badge Program

Objective

To establish & operationalize a new healthcare industry standard — the "Resiliency Badge" — as an evidence-based assessment that evaluates the maturity of a supplier's resiliency at a product category level. The Badge is intended to serve as both an assessment of resiliency and an impetus for the industry to increase supply chain resiliency.

Primary objectives:

- To establish a standard for healthcare supply chain resiliency
- To enable providers to more readily select suppliers with demonstrated resiliency
- To enable suppliers to better compete on the merits of resiliency
- To mitigate risk of supply disruption in the US healthcare supply chain

Secondary objectives:

- Motivate suppliers to increase their resiliency
- Advance supplier maturity
- Increase supply chain resiliency at an industry level to strengthen patient care

Value Proposition

The Badge has been designed to offer distinct value to healthcare providers and suppliers, which will be amplified over time through increased adoption.

For Providers

The Badge will promote (i) *standardized evidence* of operational resiliency of strategic trading relationships, (ii) *confidence* that suppliers have the capability to *deliver critical products reliably*, and (iii) *efficiency* by not having to investigate and gather data independently.

For Suppliers

The Badge will enable suppliers to (i) *differentiate* in the marketplace with proof of resiliency, (ii) demonstrate *strengths and innovations*, (iii) enable efficiency by reducing one-off data requests, and (iv) *identify opportunities* for future growth.

Program Philosophy

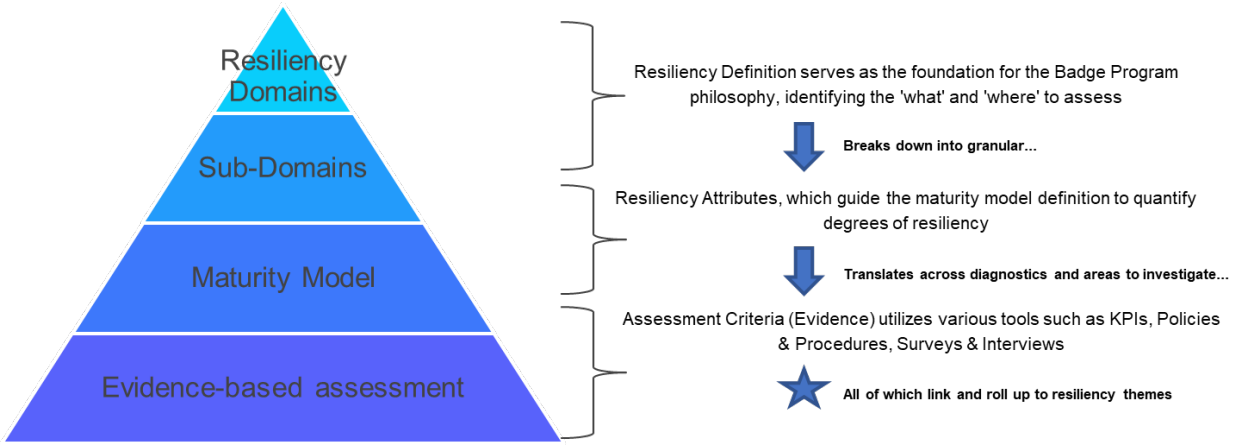
Program Approach

The Badge is a robust inside-out assessment with a focus on identifying a supplier’s strengths & opportunities for improvement/optimization. Thus, the Badge will drive growth and sustain differentiation, aligned to a supplier’s processes, capabilities, innovations and strengths.

The Badge has taken a collaborative, facilitative approach to the development of the program, integrating significant SME feedback captured through multiple channels.

For assessment, the Badge takes a self-contained, independent approach to data to ensure privacy, security and confidentiality, while maintaining an appropriate level of visibility.

The Badge is broken down by distinct layers to define and guide the badging, development and assessment process; these layers and their interactions are illustrated below.



Resiliency Definition

A definition of Resiliency is the grounding point for the Badge and guided the selection of assessment criteria. Based on a review of academic literature, we have defined Resiliency as:

"The adaptive capability of the supply chain to detect, anticipate, respond to, and recover from disruptive events by maintaining transparency and continuity of operations at the agreed upon service level, with high levels of communication and influence over structure and function."

Resiliency Attributes

Selection of assessment criteria is driven by the impact of the artifacts on the resiliency attributes outlined below. This approach fosters a holistic & agnostic perspective of resiliency.

Attribute	Impact
Agility/Responsiveness	Agile supply networks are capable of more rapid response to changed conditions.
Visibility	Increasing the visibility of demand information across the supply chain reduces risk
Flexibility/Redundancy	Resilient processes are flexible and can change quickly. Flexibility enables a manufacturer to respond efficiently to dynamic market changes. A hybrid flexibility/ redundancy approach can drive increased supply chain resilience

Structure and Knowledge	Knowledge, understanding & design of supply chain structures-both physical and informational-are important elements of supply chain resilience
Reduction of Uncertainty, Complexity & Reengineering	Reduction of uncertainty can directly improve supply chain resilience by improving the overall response of the supply chain. Reduction of complexity through business process reengineering initiatives can further streamline this response.
Collaboration	Collaborative partnerships help to manage supply chain risks and disruptions effectively in a coordinated manner.
Integration of Operational Capabilities & Transparency	For resilient supply chains, an integrated environment that provides end-to-end interaction of orders, inventory, transportation and distribution facilitates supply chain transparency and responsiveness.

Resiliency Domains & Sub-Domains

Resiliency is categorized into Domains and Sub-Domains to represent a function-focused, competency-driven framework for the Badge. Definition and Attributes identify impact and relevance, while Domains and Sub-Domains drive greater focus on capabilities. The primary structure of the Badge is built upon the Domains and Sub-Domains as illustrated below.

1. Demand Planning	2. Inventory Management	3. Logistics	4. Supply Chain Visibility	5. Supplier Management	6. Risk Management & Contingency Planning	7. Operational Health	8. Market
1.1 Demand Sensing	2.1 Target Inventory Levels & Safety Stock Management	3.1 Warehouse (Storage and Receiving) Management	4.1 Extended Supplier Collaboration & Communication	5.1 Supplier Performance Management	6.1 Enterprise Risk Management Strategy & Practices	7.1 Financial Stability (Vitality, Margin)	8.1 Market Conditions
1.2 Demand Variability Management (Forecast Accuracy)	2.2 Lead Time Management	3.2 End To End Network Design	4.2 Tracking & Tracing Management	5.2 Quality Management	6.2 Business Continuity and Mitigation Planning	7.2 Performance Metrics and Management	8.2 Market Stability
1.3 Collaborative Planning across BUs	2.3 Capacity Management	3.3 Carrier and Vendor Management	4.3 Extended Supply Chain Mapping	5.3 Supplier Geographic Concentration	6.3 Risk Identification and Awareness*	7.3 Process Efficiency Management & Critical Product Workflows	8.3 Market Share
1.4 Demand Agility	2.4 Stockout & Backorder Management		4.4 Supplier Fulfillment Performance	5.4 Supplier Selection & Qualification Processes	6.4 Third-party Risk Management Practices And Standards	7.4 Automation & AI Implementation	8.4 Intellectual Property
1.5 Channel Strength	2.5 Redundancy, Optionality, & SKU Rationalization			5.5 Technology & Data Integration	6.5 Supply Chain Event Monitoring	7.5 Data Governance and Management	
	2.6 Enterprise-wide Inventory Transparency				6.6 Product Recalls	7.6 HR//Labor Sufficiency	

Assessment & Scoring

Assessment and Scoring leverages a Scoring Rubric, comprising of various assessment diagnostics, and a Maturity Model, which serves as a quantifiable understanding of competency and capability.

Qualitative and quantitative scoring are based on the respective Resiliency Attributes and Maturity Model. The intention of this approach is to elevate and assess the Resiliency Attributes with the appropriate relative importance, while maintaining a competency-focused view.

Maturity Model

The maturity model is a framework for measuring an organization's maturity at the overall and business function level; maturity is defined as a measurement of the capability for consistent performance and continuous improvement in a particular discipline or competency.

A 3-level maturity model has been developed as part of the Badge: *(1) Less than Acceptable, (2) Acceptable / Sufficient* and *(3) Outperforming*.

Scoring Rubric

Structure & Development

The Scoring Rubric is comprised of various assessment diagnostics across domains & sub-domains; the diagnostics include qualitative and quantitative scoring components. These diagnostics were developed by leveraging the significant supply chain expertise available through our Badge partners, HIRC SMEs, and industry stakeholders. The Resiliency Definition and Attributes were used as an additional layer to define assessment criteria and diagnostics.

Key Elements: Maturity Model, Resiliency Attributes, & Resiliency Importance

While the aligned maturity score for each diagnostic is determined using the Maturity Model, the impacted Resiliency Attributes are identified for each diagnostic and leveraged to normalize the scores and highlight which diagnostics are relevant for specific policies, questions, and KPIs. Additionally, the Resiliency Importance has been identified for each diagnostic to further elevate the contribution of relevant diagnostics to the final assessment.

The intention of this approach is to maintain a balance between the number of Attributes impacted and the overall Resiliency Impact across diagnostics. These elements (Maturity Model, Resiliency Attributes, Resiliency Importance) are leveraged together to compute the Overall Assessment Grade for each diagnostic, which is then summarized at the Domain and Sub-Domain levels for the overall Resiliency Badge assessment.

Diagnostic Components

The Scoring Rubric uses the following types of diagnostics for the assessment of Resiliency:

- Key Performance Indicators (KPIs): Relevant KPIs will be analyzed for each domain and sub-domain, quantifying the supplier’s performance

- Policies and Procedures (SOPs): Documented guidelines that govern processes will be studied, to determine process-level Resiliency, coverage of potential risks and disruption scenarios, and areas for further growth or improvement
- Survey Questions: Through surveys, qualitative feedback from stakeholders will be collected to gain insights into process efficiency, challenges, and opportunities
- Interview Guides: In-depth interviews with managers and key personnel will reveal valuable perspectives on process execution, challenges, and continuous improvement, and highlight success stories and lessons learnt from the supplier's past experiences

Assessment & Scoring

Each diagnostic is assessed using the Maturity Model and is awarded a Maturity Score aligned with one of the three levels of the Maturity Model (on a scale of 0-3, 3 being the highest score). The impact of the Resiliency Importance, Resiliency Attributes and Sub-Domain Weight are multiplicatively combined into an Overall Resiliency Impact for each diagnostic.

An illustrative example is provided below:

Impact - Resiliency Importance (A)	Impact - Resiliency Attributes (B)	Impact - Sub-Domain Weight (C)	Overall Resiliency Impact (Priority) (D)	Maturity Score (E)	Overall Assessment Grade (F)
0.25	0.57	0.60	0.09	2	0.17

$For\ any\ diagnostic\colon D = A \times B \times C\ (based\ on\ the\ factors\ explained\ in\ the\ previous\ section)$
$F = D \times E\ (based\ on\ an\ assessment\ of\ alignment\ with\ the\ three\ levels\ of\ the\ Maturity\ Model)$

The (D) Overall Resiliency Impact multiplied by the maximum (E) Maturity Score of 3 indicates the ceiling of the (F) Overall Assessment Grade for that diagnostic. The (D) Overall Resiliency Impact modifies the contribution of each diagnostic and normalizes the Maturity Scores.

When aggregating to the Domain and Sub-Domain levels, the Overall Assessment Grade is calculated as the sum of the diagnostic-level (F) Overall Assessment Grades divided by the sum of the diagnostic-level (D) Overall Resiliency Impacts. This represents a weighted average of the Maturity Score for a Domain/Sub-Domain, utilizing the Overall Resiliency Impact as the weightage factor. Extending the example shown above:

$$For\ any\ Domain/Sub\text{-}Domain\colon Overall\ Assessment\ Grade\ F_{D\ or\ SD} = \frac{\sum F}{\sum D} = \frac{\sum D \times E}{\sum D}$$

For the Domain vs. Sub-Domain layers, this represents a weighted average of the Sub-Domain Overall Assessment Grades, utilizing the Sub-Domain Overall Resiliency Impact as the weightage factor. This has been demonstrated below:

$$For\ any\ Domain: Overall\ Assessment\ Grade\ F_D = \frac{\sum D \times E}{\sum D} = \frac{\sum (D \times E)_{SD1} + \sum (D \times E)_{SD2} + \cdots}{\sum D}$$

$$= \frac{\sum (D \times E)_{SD1}}{\sum D} + \frac{\sum (D \times E)_{SD2}}{\sum D} + \cdots$$

$$= \left\{\frac{\sum (D \times E)_{SD1}}{\sum D} \times \frac{D_{SD1}}{D_{SD1}}\right\} + \left\{\frac{\sum (D \times E)_{SD2}}{\sum D} \times \frac{D_{SD2}}{D_{SD2}}\right\} + \cdots$$

$$= \left\{\frac{\sum (D \times E)_{SD1}}{D_{SD1}} \times \frac{D_{SD1}}{\sum D}\right\} + \left\{\frac{\sum (D \times E)_{SD2}}{D_{SD2}} \times \frac{D_{SD2}}{\sum D}\right\} + \cdots$$

$$= \left\{F_{SD1} \times \frac{D_{SD1}}{\sum D}\right\} + \left\{F_{SD2} \times \frac{D_{SD2}}{\sum D}\right\} + \cdots, where\ \sum D = D_{SD1} + D_{SD2} + \cdots$$

Thus, this approach enables a seamless transition across the Domain, Sub-Domain, and diagnostic layers, both theoretically and mathematically. It also results in a stronger contribution from more relevant and numerous diagnostics to their respective Sub-Domain, Domain, and Overall Badge layers.

Assessment Outcomes

Through the scoring structure and process outlined above, the Badge Assessment yields Assessment Grades at the diagnostic, Sub-Domain, Domain, and Overall levels. These Grades are transformed into Resilience Maturity Levels and Badges Awarded at the Sub-Domain, Domain, and Overall levels using the respective thresholds outlined below:

Assessment Outcome		
Overall Assessment Grade	**Resilience Maturity Level**	**Badge Awarded**
0 or Null	Unassessed	Unassessed
< 1.75	Less than Acceptable	No Badge Awarded
>= 1.75 and < 2	Acceptable/Sufficient	Bronze
>= 2 and < 2.5	Acceptable/Sufficient	Silver
>= 2.5	Outperforming	Gold

Trimming & Refinement

The Scoring Rubric was developed as a comprehensive superset of diagnostics and then trimmed down in layers as explained below:

Layer 1: Resiliency Importance and Sub-Domain Sentiment

Represents a combination of (i) the importance and relevance of each diagnostic, and (ii) the SME sentiment across sub-domains as captured through Mural session and Pulse Survey votes. Only diagnostics with High or Medium Importance *and* Sub-Domain Sentiment above a selected threshold (*0.6 on a normalized scale of 1*) were retained.

Layer 2: Core Team Feedback

Represents the assessment of the project core team on whether a diagnostic is to be retained or not. If the core team did not unanimously agree to keep or drop a diagnostic, the following additional criteria were considered:

- Sub-Domain Sentiment – Keep if exceeds threshold (*0.7 on a normalized scale of 1*)
- Domain/BU – Keep if Domain/BU is more relevant to resiliency based on SME Feedback
- Pilot Participant Feedback – Keep if pilot participants unanimously agree to Keep or at least one pilot participant marks the diagnostic as critical.

If two of the three criteria above indicated that a diagnostic is to be retained, this layer was marked as Keep for that diagnostic. Specific diagnostics were also tagged for detailed review.

Please note that these criteria are only used as tiebreakers for a small minority of diagnostics, representing a weak signal in this layer when compared to the actual Core Team Feedback; stronger signals of SME Feedback are represented in the following layers.

Layer 3: Super SME Keep/Drop Tag

Represents the aggregation of the diagnostic-level Keep/Drop tagging performed by Super SMEs across participating organizations. Diagnostics with over 60% of the responses indicated as Keep were retained.

Layer 4: Super SME Critical Tag

Represents the aggregation of the diagnostic-level Critical tagging performed by Super SMEs across participating organizations. Diagnostics with over 10% of the responses indicated as Critical were retained.

Composite Keep/Drop: Combining the Layers

If 3 or more of the Layers above indicated that a diagnostic is to be retained, it was flagged as Keep. If exactly 2 Layers indicated that a diagnostic is to be retained, it was flagged as Review. If Layer 2 (Core Team Feedback) is marked as Review and at least one other Layer indicated Keep, the diagnostic was flagged as Review. In all other cases, the diagnostics were flagged to be Dropped.

Layer 0: Sub-Domain Elimination

Following the initial trimming, specific Sub-Domains with too few or unimpactful questions were identified and eliminated; this Layer overrides the Composite Keep/Drop based on the preceding 4 layers and has focused the Rubric on Sub-Domains with a substantive number of impactful diagnostics.

Below is the list of sub-domains identified to be dropped as part of this layer.

Sub-Domains to drop
Automation and AI Implementation
Financial Stability (Profitability, Margin)
Intellectual Property
Market Conditions
Market Share
Demand Sensing
Technology and Data Integration
HR / Labor Sufficiency
Enterprise - Wide Inventory Accuracy
Data Governance and Management
Quality Management

Refinement

After the trimming process was completed, the Rubric was reviewed again, with a greater focus on diagnostics tagged as *Keep* and *Review*; de-duplication and refinement was executed to consolidate overlapping diagnostics and further enhance the resiliency focus of the selected diagnostics. A final review was then performed by the Core Team to catch any potentially important outliers that may have been dropped before presentation for approval and ratification.

Domains: Outline & Resiliency Criteria

The suppliers will be assessed on eight (8) domains encompassing different organizational functions, competencies and processes, thus ensuring a holistic and complete assessment. Each domain is further broken down into various sub-domains, each focusing on a specific element of that domain. Additionally, resiliency criteria were developed as guiding questions to broadly indicate a supplier's resiliency at the domain and sub-domain level.

An outline of each domain and sub-domain, and their resiliency criteria, are provided below.

1. Demand Planning

Demand planning serves as the bedrock for a resilient healthcare supply chain. This strategic process involves forecasting future demand and devising actionable plans to meet it effectively. The Badging Program recognizes its significance in reducing supply chain disruptions, optimizing inventory levels, and satisfying customer expectations, particularly in the ever-changing healthcare landscape.

1.1 Demand Sensing

Resiliency in demand sensing refers to a company's ability to quickly and accurately sense changes in customer demand and market trends, enabling them to respond effectively and efficiently.

Resiliency Criteria:

1. Early Market Trend Identification: How efficient are the processes to identify emerging market trends, including shifts in consumer preferences, industry developments, and competitive landscape changes?
2. Demand Pattern Analysis: How prepared is the organization to analyze the industry's historical and current demand patterns to detect shifts, spikes, or changes in buying behavior?

1.2 Demand Variability Management (Forecast Accuracy)

Resiliency in demand variability management refers to a company's ability to effectively manage and respond to fluctuations in customer demand while maintaining high forecast accuracy. A resilient organization employs robust methodologies to measure and improve forecast accuracy, allowing them to optimize inventory levels, production schedules, and supply chain responsiveness.

Resiliency Criteria:

1. Demand Forecast Accuracy: How prepared is the organization in terms of the accuracy of demand forecasts?
2. Dynamic Replenishment: How well does the organization respond to sudden shifts in demand, ensuring stock availability without overstocking?
3. Collaboration and Communication: How effectively do different departments collaborate to share insights on demand variability, allowing for timely adjustments?

1.3 Collaborative Planning across BUs

Resiliency in collaborative planning across business units refers to a company's ability to foster effective communication, coordination, and alignment between different business units to optimize planning and decision-making. A resilient organization encourages cross-functional collaboration, enabling seamless information sharing and joint efforts in developing integrated business plans.

Resiliency Criteria:

1. Integrated Forecasting: How well does the organization take inputs from different BUs to create a holistic and accurate forecast?
2. Cross Functional Alignment: How prepared is the organization in terms of adopting a coordinated approach to achieve organizational goals?
3. Resource Optimization: How efficient is the organization in terms of collaborating on resource allocation to minimize bottlenecks across BUs?

1.4 Demand Agility

Resiliency in demand agility refers to a company's ability to respond rapidly and effectively to changing market dynamics and customer demands. A resilient organization can adjust its operations, production, and supply chain in real-time to accommodate fluctuations in demand and mitigate disruptions.

Resiliency Criteria:

1. Scalability: How prepared is the organization in terms of scaling it’s operations up or down depending on customer demand?
2. Multi-channel readiness: How efficient is the organization in terms of operating through various channels to respond seamlessly to changing customer demand?

1.5 Channel Strength

Resiliency in channel strength refers to a company's ability to maintain robust and reliable distribution channels to ensure the efficient flow of products from manufacturers to end customers. A resilient organization has strong channels in place to reach customers, manage inventory, and respond effectively to disruptions.

Resiliency Criteria:

1. Market Penetration: How well does the organization increase it’s reach by ensuring presence in various channels?
2. Channel Performance Metrics: How efficiently does the organization optimize the use of different channels by assessing their performance metrics?
3. Optimal Channel Mix: How well does the organization find a balance between direct and indirect sales channels to achieve the best balance between reach and control?

2. Inventory Management

Inventory management is a fundamental pillar of a robust supply chain. This strategic process involves planning, organizing, and controlling the flow of inventory within a business. The Badging Program recognizes its significance in cushioning against supply chain disruptions and satisfying customer expectations in an ever-changing dynamic healthcare industry.

2.1 Target Inventory Levels and Safety Stock Management

Resiliency in target inventory levels and safety stock management refers to a company's capability to adapt swiftly to evolving market conditions and demand fluctuations while maintaining optimal inventory levels for operations, thus avoiding or minimizing the impact of stockouts and overstocking. A resilient company employs well-defined strategies and tools to determine target and safety inventory levels based on data-driven insights from a variety of factors including, but not limited to, demand forecasting and supplier performance analysis. Resilience in this sub-domain empowers a company to maintain a competitive edge by efficiently aligning inventory with demand, staying adaptable to market changes, and fostering a robust and optimized supply chain that can withstand unpredictable challenges.

Resiliency Criteria:

1. Demand Volatility: How well can inventory levels and safety stock absorb sudden changes in demand patterns, ensuring consistent product availability even during unforeseen demand fluctuations?
2. Effective Communication and Coordination: How efficient is communication and coordination among different departments and stakeholders involved in inventory management?
3. Contingency Planning and Risk Assessment: How prepared is the organization for potential risks and disruptions by having well-defined contingency plans and risk assessment strategies that include adjustments to inventory levels and safety stock?
4. Collaboration with Suppliers: How efficient is the organization in terms of collaboration and partnerships with key suppliers to minimize variability in lead time and establish mutually beneficial strategies, such as shared safety stock agreements or flexible replenishment options, to enhance resilience?

2.2 Lead Time Management

Resiliency in lead time management pertains to a company's capacity to efficiently handle variations and uncertainties in lead times for procuring raw materials, components, or finished goods. A resilient organization implements strategies and processes to monitor, analyze, and mitigate lead time fluctuations, ensuring the supply chain remains agile and responsive.

Resiliency Criteria:

1. Lead Time Reduction: How well does the organization optimize lead times through process improvements, supplier relationships, or technology adoption, resulting in faster inventory replenishment and reduced exposure to supply disruptions?
2. Lead Time Variability Minimization: How efficiently does the organization implement strategies to minimize lead time variability, ensuring a more predictable and consistent supply chain that reduces the need for excess safety stock?

3. Supplier Collaboration for Lead Time Improvement: How prepared is the organization in terms of collaborating closely with suppliers to jointly work on lead time reduction initiatives, enhancing overall supply chain efficiency and agility?
4. Real-time Lead Time Tracking: How efficient is the organization in terms of implementing systems to monitor lead times in real time, allowing for proactive adjustments to inventory levels and safety stock as lead times change?

2.3 Capacity Management

Resiliency in capacity management refers to a company's ability to adapt and respond effectively to changes in demand while maintaining optimal utilization of its production and operational capabilities. A resilient organization employs robust methodologies to measure and enhance its capacity planning, enabling it to balance capacity constraints with fluctuating customer demand.

Resiliency Criteria:

1. Capacity Flexibility: How well does the organization develop strategies to adapt production and distribution capacities quickly in response to changing demand or unexpected disruptions, ensuring efficient inventory replenishment?
2. Resource Optimization: How efficient is the organization in terms of optimizing the utilization of available resources (e.g., manufacturing equipment, warehouse space) to ensure efficient and effective production and distribution of inventory?
3. Cross-Functional Collaboration: How prepared is the organization to foster collaboration between different departments, such as operations, sales, and production, to align capacity management with inventory needs and market trends?
4. Scenario Planning for Capacity: How well does the organization develop scenarios and models that assess how different capacity utilization levels impact inventory management, enabling proactive decisions?

2.4 Stockout and Backorder Management

Resiliency in stockout and backorder management refers to a company's capability to effectively handle situations where inventory levels fall below the desired threshold, leading to stockouts or backorders. A resilient organization employs proactive strategies to mitigate the impact of stockouts and backorders, ensuring continuity of supply chain operations and maintaining customer satisfaction.

Resiliency Criteria:

1. Stockout Reduction: How well does the organization minimize stockouts by maintaining appropriate levels of safety stock and adjusting target inventory levels based on historical demand patterns and future projections?
2. Backorder Minimization: How well does the organization minimize backorders by efficiently allocating available inventory to fulfill outstanding orders and optimizing replenishment strategies?
3. Real-time Stock Monitoring: How efficiently does the organization implement systems to continuously monitor stock levels and anticipate potential stockouts or backorders, allowing for timely corrective actions?

4. Customer Impact Mitigation: How prepared is the organization in terms of reducing the impact of stockouts and backorders on customer satisfaction through proactive communication, order prioritization, and alternative fulfillment options?
5. Order Visibility: How well does the organization provide customers with accurate and up-to-date information on product availability, expected delivery times, and potential delays due to stockouts or backorders?
6. Root Cause Analysis: How well does the organization conduct analyses of stockouts and backorders to identify root causes, enabling the implementation of preventive measures and process improvements?

2.5 Redundancy, Optionality and SKU Rationalization

Resiliency in redundancy, optionality, and SKU rationalization refers to a company's ability to build a flexible and adaptive supply chain that can withstand disruptions, uncertainties, and changing market conditions. A resilient organization strategically employs these practices to optimize resource allocation, streamline inventory management, and enhance overall supply chain performance. Redundancy in the supply chain involves having backup plans and alternative resources in place to mitigate risks and disruptions. Optionality, on the other hand, focuses on providing various possibilities and alternatives to respond quickly and effectively to changes in customer demands or market dynamics. SKU rationalization is the process of optimizing the product portfolio by eliminating underperforming or redundant SKUs.

Resiliency Criteria:

1. Portfolio Optimization: How well does the organization assess the product portfolio to identify overlapping or redundant SKUs, streamline offerings for greater efficiency, segment customer demand to identify priority SKUs and allocate resources accordingly, ensuring stock availability for high-demand items?
2. Dynamic Sourcing Strategies: How prepared is the organization in terms of agile sourcing strategies that enable quick shifts between suppliers or regions to capitalize on cost savings or mitigate supply chain disruptions?
3. Diversified Vendor Base: How well does the organization cultivate relationships with multiple vendors for key products to have backup options in case of supplier-related disruptions?
4. Critical Component Backup: How efficiently does the organization identify critical components or materials and establish redundant supply sources to mitigate the risk of disruptions caused by single-source dependency?

2.6 Enterprise-Wide Inventory Accuracy

Resiliency in enterprise-wide inventory accuracy underscores an organization's capability to navigate the dynamic landscape of inventory management with precision and adaptability. It encompasses the capacity to uphold accurate and up-to-date records of inventory levels, locations, and movements across the entire scope of operations, ensuring alignment between physical stock and digital data. Such resiliency empowers a company to make informed decisions, optimize resource allocation, and maintain operational continuity, even in the face of evolving market conditions and unforeseen disruptions.

An organization that prioritizes resiliency in enterprise-wide inventory accuracy implements robust policies, procedures, and technological solutions to uphold the integrity of inventory data. This involves the integration of advanced inventory management systems, leveraging technologies like barcoding, RFID, or real-time tracking, to capture and update inventory information across the supply chain network. Such systems not only enhance accuracy but also enable real-time visibility, enabling proactive responses to fluctuations in demand, supply chain disruptions, or changes in customer preferences.

Resiliency Criteria:

1. Shrinkage/Scrap Reduction: How efficiently does the organization reduce the loss of value due to missing, obsolete or unusable inventory?
2. Root Cause Analysis for Discrepancies: How well does the organization investigate and address the root causes of inventory discrepancies to prevent recurring inaccuracies?
3. Real-time Inventory Monitoring: How prepared is the organization in terms of implementing systems and processes to continuously track inventory levels in real time, providing accurate and up-to-date information for effective decision-making?

3. Logistics

Logistics serves as the backbone of the healthcare supply chain, encompassing a range of interconnected processes that govern the efficient movement of products and materials. In the dynamic healthcare landscape, a robust logistics strategy is essential to meet customer demands, minimize lead times, and optimize inventory levels.

3.1 Warehouse (Storage & Receiving) Management

Resiliency in Warehouse (Storage & Receiving) Management is crucial for the healthcare industry to ensure efficient and effective handling of inventory, optimize storage capacity, and respond promptly to changing demand patterns. A well-functioning warehouse management system enhances supply chain agility, reduces lead times, and minimizes disruptions during receiving, storage, and order fulfillment processes.

Resiliency Criteria:

1. Accurate Record Keeping: How well does the organization ensure accurate and timely recording of received goods to maintain an up-to-date inventory database?
2. Space Allocation: How efficiently does the organization allocate storage space for received goods?
3. Timely Processing: How prepared is the organization in terms of processing incoming shipments promptly to prevent congestion and maintain an efficient flow of goods?
4. Quality Inspection: How efficient is the organization in terms of inspecting incoming goods for quality and conformity to established standards before acceptance into inventory?

3.2 End-to-End Network Design

End-to-End Network Design plays a pivotal role in establishing a resilient and efficient healthcare supply chain. It involves the strategic planning and optimization of the entire network, including sourcing, production facilities, distribution centers, transportation routes, and inventory deployment. A well-designed network ensures cost-effectiveness, responsiveness to demand changes, and enhanced supply chain resiliency.

Resiliency Criteria:

1. Transportation Strategy: How efficient is the organization in terms of optimizing delivery times and minimizing transportation costs?
2. Network Flexibility: How flexible is the organization in terms of quickly adapting to shifts in market conditions or disruptions?
3. Resource Utilization: How well does the organization optimize the utilization of resources to minimize waste and reduce operational costs?

3.3 Carrier & Vendor Management

Carrier & Vendor Management plays a crucial role in building a resilient healthcare supply chain. It involves strategically selecting and managing carriers and vendors to ensure a reliable and efficient flow of goods and services. A well-designed carrier and vendor management process enhances supply chain responsiveness, minimizes disruptions, and fosters long-term partnerships.

Resiliency Criteria:

1. On-Time Performance: How well does the organization ensure on-time performance by its carriers and vendors to prevent disruptions to production and customer fulfillment?
2. Transparency and Communication: How well does the organization collaborate with the carriers and vendors to keep track of shipment status, delays, and any potential issues?
3. Cost Efficiency: How prepared is the organization in terms of collaborating with vendors and carriers to find cost effective solutions while maintaining product quality and service levels?

4. Supply Chain Visibility

Supply chain visibility is the foundation of a resilient healthcare supply chain. It involves the ability to monitor, track, and access relevant data and information across the entire supply chain network.

4.1 Extended Supply Chain Mapping

Resiliency in extended supply chain mapping refers to a company's ability to create a robust and interconnected supply chain network, encompassing suppliers, manufacturers, distributors, and other stakeholders, to optimize visibility and response to supply chain disruptions. A resilient organization establishes comprehensive supply chain mapping, enabling effective risk assessment, rapid identification of vulnerabilities, and strategic decision-making to enhance supply chain resiliency.

Resiliency Criteria:

1. Risk Assessment and Management: How well is the organization prepared to identify potential risks across the extended supply chain and develop mitigation strategies to minimize their impact?
2. Communication and Collaboration: How prepared is the organization in terms of fostering strong relationships with all partners in the supply chain?
3. Flexibility and Agility: How adaptable is the organization to changing circumstances, to respond to disruptions?

4.2 Extended Supplier Collaboration & Communication

Resiliency in Extended Supplier Collaboration & Communication refers to a company's capacity to foster strong relationships and seamless information exchange with suppliers, leading to enhanced supply chain visibility and adaptability. Supplier collaboration and communication play a crucial role in mitigating supply chain disruptions, optimizing inventory levels, and achieving customer satisfaction, especially in the ever-changing healthcare landscape.

Resiliency Criteria:

1. Clear Communication Channels: How well established are the organization's communication channels and are there specific communication protocols in place for crisis situations?
2. Technology Integration: How efficient is the organization in using technology platforms to enable seamless sharing of information with all of its supply chain partners?

4.3 Tracking & Tracing Management

Resiliency in tracking & tracing management refers to a company's ability to efficiently monitor and manage the movement of goods and products throughout the supply chain, ensuring visibility and traceability at every stage. A resilient organization implements robust tracking & tracing methodologies to accurately monitor the location and status of shipments, enabling timely responses to any disruptions or delays.

Resiliency Criteria:

1. Real-Time Monitoring: How well has the organization incorporated real time monitoring technologies to continuously track the location, condition, and status of goods as they move through the supply chain?
2. End-to-End Visibility: How well established is the organization's ability to track and trace products and materials across the entire supply chain, from raw materials to finished goods?

4.4 Organizational Fulfillment Performance

Resiliency in fulfillment performance refers to a company's ability to ensure timely and reliable fulfillment of customer orders, even in the face of changing market dynamics and supply disruptions. A resilient organization can effectively manage its supplier network, optimize production schedules, and maintain supply chain visibility to meet customer demands and mitigate any fulfillment challenges.

Resiliency Criteria:

1. On-Time Delivery: How efficient is the organization in terms of meeting customer expectations and delivering products within the stipulated time?
2. Communication: How well does the organization communicate with its suppliers to keep on track to meet customer expectations, and also with its customers to inform them about any potential delays?

5. Supplier Management

Supplier management serves as a vital pillar of a resilient healthcare supply chain. This strategic process involves effectively managing relationships with suppliers to secure the timely delivery of high-quality materials and components.

5.1 Supplier Performance Management

Supplier Performance Management Resiliency refers to a company's ability to effectively manage and monitor the performance of its suppliers, ensuring that they meet the required standards and deliver products or services in a consistent and reliable manner, even in challenging and uncertain situations.

Resiliency Criteria:

1. Risk Assessment and Mitigation: How well does the organization assess the risk associated with its suppliers and does it have mitigation strategies in place?
2. Communication and Collaboration: How transparent is the communication of the organization with its suppliers and does their responsiveness enhance agility?

5.2 Quality Management

Quality Management Resiliency refers to a company's ability to maintain consistent and high-quality products or services while effectively managing and mitigating risks related to quality in dynamic and uncertain supply chain environments.

Resiliency Criteria:

1. Quality Control and Inspections: How well does the organization do in terms of inspecting whether quality standards are being met?
2. Employee Training and Development: How well prepared is the organization in terms of upskilling employees to adapt to unexpected quality issues and make informed decisions?

5.3 Supplier Geographic Diversity

Resiliency in supplier geographic diversity refers to an organization's capacity to mitigate risks associated with over-reliance on suppliers concentrated in specific geographic regions. A resilient supplier management strategy ensures a well-diversified supplier base, reducing the vulnerability to localized disruptions or market shifts. By strategically sourcing from suppliers in various regions, a company can buffer against supply chain disruptions caused by natural disasters or geopolitical events.

Resiliency Criteria:

1. Geographic Planning: How prepared is the organization in terms of geographic coverage?
2. Redundancy Planning: How prepared is the organization in terms of having multiple suppliers available to supply inputs and not being reliant on just a few?

5.4 Supplier Selection & Qualification Processes

Resiliency in supplier selection & qualification processes involves establishing robust procedures to identify, assess, and onboard suppliers that align with the organization's strategic objectives and quality standards. A resilient supplier qualification process ensures that suppliers meet stringent criteria related to product quality, financial stability, regulatory compliance, and ethical practices. By carefully vetting potential suppliers, organizations can reduce the risk of partnering with unreliable or non-compliant vendors.

Resiliency Criteria:

1. Supplier Evaluations: How thorough is the organization in terms of choosing its suppliers?
2. Risk Assessments: How efficient is the organization in assessing their prospective supplier’s risks, resilience strategies and contingency plans?

5.5 Technology & Data Integration

Resiliency in technology & data integration pertains to an organization's capability to seamlessly integrate supplier-related data across various technological platforms and systems. A resilient supplier management system harmonizes data from different sources, including ERP systems, supplier portals, and analytics tools, to create a holistic and real-time view of supplier performance. By streamlining data integration, organizations can make informed decisions based on accurate and up-to-date supplier information. A robust technology infrastructure enhances collaboration and communication with suppliers, enabling efficient sharing of critical information such as inventory levels, production status, and demand forecasts.

Resiliency Criteria:

1. Real-Time Data Visibility: How effective is the organization in terms of ensuring real time access to order status?
2. Data accuracy: How well prepared is the organization in terms of minimizing errors in the data?

6. Risk Management and Contingency Planning

Risk Management and Contingency Planning is a crucial determinant of a healthcare organization's success and competitiveness. By focusing on key sub-categories, the Badging Program aims to assess and enhance the organization's resilience.

6.1 Enterprise Risk Management Strategy & Practices

Enterprise Risk Management (ERM) strategy and practices are critical components of building a resilient healthcare supply chain. ERM involves identifying, assessing, and mitigating risks that could potentially disrupt operations, impact patient safety, and affect overall business performance. A robust ERM framework enables healthcare organizations to proactively address risks, make informed decisions, and maintain continuity during turbulent times.

Resiliency Criteria:

1. Risk Assessment & Management Strategy: How effectively does the organization assess and manage risks to align with its strategic objectives and long-term sustainability?
2. Risk Response & Recovery Framework: Does the organization have a well-structured framework in place for responding to unexpected disruptions and facilitating a swift recovery to minimize operational downtime?

6.2 Business Continuity and Mitigation Planning

Business Continuity & Mitigation Planning is an essential pillar of a resilient healthcare supply chain. It encompasses strategies and procedures aimed at anticipating and preparing for potential disruptions and crises, ensuring the continuity of critical operations, and mitigating the impact of adverse events. A robust business continuity plan enables healthcare organizations to swiftly respond to disruptions, safeguard patient welfare, and maintain supply chain efficiency and resilience.

Resiliency Criteria:

1. Business Continuity Planning: To what extent has the organization developed and tested business continuity plans to ensure the uninterrupted operation of critical functions during various disruptions?
2. Business Continuity Training: Are employees consistently trained to execute business continuity plans and equipped with the knowledge and skills needed to respond effectively to disruptions?
3. Disruption Mitigation, Response & Recovery Planning: How thoroughly does the organization plan for mitigating, responding to, and recovering from disruptions specific to its industry and operations?

6.3 Risk Identification and Awareness

Risk Identification & Awareness is a crucial component of a resilient healthcare supply chain. It involves the systematic process of identifying potential risks and vulnerabilities within the supply chain and raising awareness among stakeholders to foster proactive risk mitigation. By recognizing and understanding risks, healthcare organizations can implement targeted strategies to enhance supply chain resilience and reduce the impact of disruptions.

Resiliency Criteria:

1. Risk Identification & Awareness: What measures does the organization take to foster a culture of risk identification and awareness among its employees?
2. Risk Assessment & Impact Mitigation: How comprehensive and systematic is the organization's approach to assessing and mitigating the impact of identified risks on its operations and goals?

6.4 Third-party Risk Management Practices and Standards

Third-Party Risk Management Practices & Standards are vital for maintaining a resilient healthcare supply chain. As organizations rely on external partners, suppliers, and vendors, it becomes crucial to identify, assess, and mitigate risks associated with these third parties. Effective third-party risk management ensures that potential disruptions and vulnerabilities are addressed, reducing the impact on the supply chain and safeguarding the overall business operations.

Resiliency Criteria:

1. Third-party Risk Management Strategy/ Approach: To what extent does the organization have a strategic approach to identify, evaluate, and manage risks associated with its third-party relationships?
2. Third-party Risk Management SOPs: Are standardized standard operating procedures (SOPs) in place to ensure consistent and effective management of third-party risks?

6.5 Supply Chain Event Monitoring

Supply Chain Event Monitoring is a critical aspect of maintaining a resilient healthcare supply chain. It involves the real-time monitoring and tracking of events, disruptions, and incidents that may impact the supply chain's efficiency and stability. By proactively identifying and responding to these events, organizations can mitigate risks, minimize disruptions, and enhance overall supply chain resiliency.

Resiliency Criteria:

1. Supply Chain Monitoring & Cadence: How does the organization monitor its supply chain to proactively identify vulnerabilities and disruptions, and what is the regular cadence for such monitoring?
2. Event/Incidence Response Planning: Does the organization have well-documented response plans in place for various types of events or incidents, ensuring a timely and coordinated response?
3. Root Cause Analysis for Events/Incidences: After experiencing events or incidents, how rigorously does the organization conduct root cause analysis to identify underlying issues and prevent recurrence?
4. Continuous Improvement from Events/Incidences: What mechanisms are in place to ensure that lessons learned from past events or incidents are used to drive continuous improvement in resilience and risk management?

6.6 Product Recalls

Product Recalls are a critical aspect of ensuring the safety and quality of healthcare products within the supply chain. A well-structured product recall process is essential for promptly identifying and removing potentially defective or unsafe products from the market. By efficiently managing product recalls, healthcare companies can protect consumers, maintain regulatory compliance, and safeguard their reputation.

Resiliency Criteria:

1. SKU Criticality Classification: How are the organization's products or SKUs classified based on their criticality to its business operations and revenue?
2. Recall Preparedness Planning: How well-prepared is the organization for product recalls or similar critical events, and are there detailed preparedness plans in place?
3. Recall Response Framework: Is there a clear and structured framework for coordinating and executing recall response activities when necessary?
4. Recall Communication Planning: How does the organization plan and execute communication strategies during product recalls or similar incidents to protect its reputation and address customer concerns effectively?

7. Operational Health

Operational health is a crucial determinant of a healthcare organization's success and competitiveness. By focusing on key sub-categories, the Badging Program aims to assess and enhance the operational capabilities to thrive in the dynamic healthcare industry.

7.1 Financial Stability

Financial Stability and Profitability Margin are crucial aspects of evaluating the overall health and resilience of a healthcare company's supply chain. A financially stable organization with strong profitability margins can better withstand economic fluctuations, invest in innovative technologies, and ensure continuous supply chain operations to meet customer demands effectively.

Resiliency Criteria:

1. Financial Risk Management: How effectively does the organization identify and manage financial risks, including market fluctuations and economic uncertainties, to safeguard its financial stability?
2. Working Capital Management: What strategies and practices does the organization employ to optimize working capital, ensuring it has the necessary resources to operate efficiently and withstand economic challenges?
3. Expense and Investment Optimization: To what extent does the organization optimize its expenses and investments to maintain financial resilience while pursuing growth opportunities?

7.2 Performance Metrics and Management

Performance Metrics and Management are fundamental components of assessing the efficiency and resilience of a healthcare company's supply chain. Through a well-defined set of key performance indicators (KPIs) and robust management practices, organizations can continuously monitor and optimize supply chain operations to meet performance objectives, enhance customer satisfaction, and drive sustainable growth.

Resiliency Criteria:

1. KPI Selection & Definition: How well-defined and relevant are the Key Performance Indicators (KPIs) chosen by the organization to monitor its performance and make informed decisions during disruptions?
2. Technology Integration for Real-Time Reporting: Does the organization leverage technology to integrate real-time reporting systems that provide timely insights for agile decision-making in dynamic business environments?
3. Data Collection & Integrity: How robust are the organization's data collection processes, and what measures are in place to ensure data integrity and accuracy, especially during turbulent periods?
4. KPI Ownership & Accountability: Do employees and teams within the organization take ownership and demonstrate accountability for achieving KPIs, particularly when facing adversity?

7.3 Process Efficiency Management & Critical Product Workflows

Process Efficiency Management & Critical Product Workflows are essential components of a resilient healthcare supply chain. Efficiently managing critical product workflows ensures the smooth and optimized movement of essential healthcare products throughout the supply chain. This involves process mapping, workflow design, and continuous improvement initiatives to streamline operations and eliminate bottlenecks.

Resiliency Criteria:

1. Process Mapping: How well-documented and understood are the organization's key processes, and how does this clarity contribute to adaptability and resilience?
2. Critical Product Identification & Management: Has the organization identified and prioritized critical products or services, and how effectively are these managed to ensure continuity during disruptions?
3. Process Bottleneck Identification & Contingency Planning: Are there mechanisms in place to identify process bottlenecks, and does the organization have contingency plans to address these bottlenecks in crisis situations?

7.4 Automation and AI Implementation

Automation & AI Implementation is a pivotal element in establishing a cutting-edge and agile healthcare supply chain. By leveraging advanced technologies like robotics, artificial intelligence, and machine learning, organizations can streamline operations, reduce manual interventions, and enhance decision-making processes. An effective automation and AI strategy leads to improved productivity, reduced costs, and increased overall supply chain efficiency.

Resiliency Criteria:

1. Automation in Supply Chain Visibility/Monitoring: To what extent does the organization utilize automation for enhanced visibility and monitoring of its supply chain, enabling rapid response to disruptions?
2. Automation/AI in Operational Planning: How does the organization leverage automation and AI in its operational planning to adapt quickly to changing circumstances and optimize resource allocation?

7.5 Data Governance and Management

Data Governance and Management is a crucial aspect of ensuring the resilience and competitiveness of a healthcare organization. A robust data management strategy safeguards data integrity and ensures confidentiality as well as availability.

Resiliency Criteria:

1. Data Security/Confidentiality: How does the organization ensure data security and confidentiality, particularly in the face of cybersecurity threats and data breaches?
2. Data Quality/Integrity: What measures are in place to maintain the quality and integrity of data, and how does this contribute to informed decision-making during crises?
3. Data Stewardship/Ownership: Is there a clear framework for data stewardship and ownership within the organization, ensuring responsible data management and governance?

7.6 HR/Labor Sufficiency

HR/Labor Sufficiency is an essential aspect of ensuring the resilience of a healthcare organization. HR/Labor Sufficiency ensures the optimization of recruitment strategy, training strategy and working conditions provided. A robust labor management strategy protects against unforeseen risks and enhances the productivity of all organizational processes.

Resiliency Criteria:

1. Training & Upskilling: How does the organization invest in training and upskilling its workforce to adapt to evolving challenges and technologies?
2. Resource Utilization: How efficiently does the organization utilize its resources, and what steps are taken to optimize resource allocation, especially in turbulent times?
3. Workplace Conditions & Safety Measures: To what extent does the organization prioritize workplace conditions and safety measures to protect its employees and maintain operational resilience, especially in adverse conditions?

8. Market

The healthcare industry operates within a dynamic and constantly evolving market environment. Factors such as regulatory changes, technological advancements, consumer preferences, and global events can significantly impact market conditions. By evaluating these key sub-categories, we provide a comprehensive assessment of your organization's market position and potential risks.

8.1 Market Conditions

Market Conditions Analysis is a crucial element in maintaining a resilient healthcare supply chain. By continuously monitoring and assessing market conditions, organizations can proactively respond to changing dynamics, customer demands, and emerging trends. A robust market conditions analysis helps ensure supply chain agility, competitiveness, and adaptability in an ever-evolving healthcare landscape.

Resiliency Criteria:

1. Market Intelligence: How well does the organization identify market trends & dynamics to update demand forecasts and production plans, and maintain their supply chain's capability to absorb disruptions?
2. Pricing Analytics: How well and for what horizon does the organization analyze upstream and downstream pricing for integration into business planning, and how is any predicted impact mitigated?

8.2 Market Stability

Market Stability Assessment is a vital aspect of ensuring a resilient healthcare supply chain. By monitoring and evaluating market stability, organizations can identify potential risks, uncertainties, and disruptions that may impact supply chain operations. A comprehensive analysis of market stability helps companies develop robust strategies to maintain continuity, optimize resource allocation, and make informed business decisions.

Resiliency Criteria:

1. Risk Assessment and Mitigation: How well does the organization assess the risk associated with market uncertainties and disruptions, and does it have mitigation strategies in place?
2. Scenarios & Simulations: Does the organization assess & simulate risk/disruption scenarios, and simulate potential interventions & mitigations for decision-making?

8.3 Market Share

Market Share Analysis is a critical component of evaluating the competitiveness and resilience of a healthcare organization within its industry. By assessing market share, companies can gauge their position in the market relative to competitors and identify opportunities for growth and improvement. A comprehensive market share analysis enables organizations to make informed strategic decisions, optimize market penetration, and enhance overall supply chain performance.

Resiliency Criteria:

1. Competitor & Market Analytics: How well does the organization assess the market and competitor positions to inform/simulate decision-making, during supply chain disruption events and otherwise?
2. Market Interaction: How well does the organization identify areas of collaboration and competition, based on the prevailing market/supply chain conditions and competitor positions?

8.4 Intellectual Property

Intellectual Property (IP) Management is a crucial aspect of ensuring the resilience and competitiveness of a healthcare organization. Intellectual property encompasses patents, trademarks, copyrights, and trade secrets that are critical assets for driving innovation, protecting unique ideas, and maintaining a sustainable advantage in the market. A robust IP management strategy safeguards proprietary knowledge, fosters creativity, and promotes a culture of innovation.

Resiliency Criteria:

1. IP Development: How well does the organization foster product & process innovation to generate new IP, develop new products and improve process efficiency/efficacy?
2. Patent Portfolio Management: How well does the organization deploy its existing IPs through production and licensing to maintain a competitive advantage, and does it have strategies and processes in place to defend any IP threats/infringements?

