

Step-by-Step

A guide to
implementing the SEA
Roadmap

Why?

- ➔ The aerospace and defense industry is migrating to high speed production
- ➔ This migration changes the requirements for suppliers
- ➔ Suppliers can't afford to solve delivery problems with inventory
- ➔ Suppliers can't afford to solve quality problems with inspection

What?

- ➔ Build a competitive business that delivers 100% on-time, 0 PPM quality, with shorter lead times
- ➔ Build a business that does all that and is very profitable
- ➔ Use that achievement to compete and win more market share, more business, and more profitable business

How?

- Follow this easy to use step-by-step guide to implementing the SEA Roadmap as hundreds of aerospace suppliers have already done
- Gain more visibility and more opportunities to compete for new business

The SEA Roadmap

- The Roadmap is intended as a framework for guiding and categorizing all continuous improvement efforts. It is primarily owned and improved by the Supplier Advisory Committee of SEA. It is targeted to small and mid-size production suppliers.

	Stage One Stabilization	Stage Two Integration	Stage Three Sustaining
Leadership & Culture	1.1.1 Strategic Planning Process 1.1.2 Leadership Communication Process 1.1.3 Organizational Performance Review Process 1.1.4 Continuous Improvement Management Process 1.1.5 Workforce Development Integration Process	1.2.1 Supply Chain Integration Process	1.3.1 New Product Startup Process
Workforce Development	2.1.1 Job Skills & Cross-Training Certification Process	2.2.1 Continuous Improvement Process	
Operational Excellence	3.1.1 Kaizen Process 3.1.2 6S Visual Workplace Process 3.1.3 Quick Changeover/SMED Process	3.2.1 Material Management Process 3.2.2 Production Planning Process 3.2.3 Development Process	
Business Results	4.1.1 Inventory Turns 4.1.2 Sales/Employee 4.1.3 On-Time Delivery 4.1.4 Parts per Million		4.3.1 Process Maturity 4.3.2 Quick Ratio

The SEA Roadmap

- The left side are the three tracks plus business results. Each track contains a group of one or more processes that you must establish in your company. Each business result is an industry-standard metric used for tracking your progress.

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The SEA Roadmap

- There are three stages across the top. The first, stabilization is the foundation for SEA's overall intent - to create integrated supply chains. Although you may assign process owners to all of these 15 processes, we recommend that you start and substantially mature the Stage One processes before moving on to Stage Two and Three.

	Stage One	Stage Two	Stage Three
	Stabilization	Integration	Sustaining
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The SEA Roadmap

- Stage Two consists of the establishment of an integrated supply chain effort. Working with your suppliers on projects that integrate value streams, reduce lead times and cycle times, reduce cost, and improve overall service to your customer.

	Stage One	Stage Two	Stage Three
	Stabilization	Integration	Sustaining
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The SEA Roadmap

- In Stage Three you will establish the process that supports the long term sustainability of the model by standardizing how you establish new products.

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The SEA Roadmap

- Finally, the Business Results track will have you develop a scorecard that will be used to track your overall improvement efforts and communicate to the outside world that your company is serious about improvement.

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The SEA Roadmap

- This is a simplified view of the purpose of each of the roadmap stages and tracks.

	Stage One	Stage Two	Stage Three
	Stabilization	Supply Chain Integration	Sustainability
Leadership & Culture	Establish high-performance leadership system	Focus on supply chain integration	Focus on new product startup
Workforce Development	Establish workforce development system	Implement process control	
Operational Excellence	Accelerate sustainable lean performance improvements	Accelerate flow production	
Business Results	Establish industry-standard performance metrics	Show measureable improvement	Demonstrate reduced risk

Roadmap

- Just like anything, a journey of 1,000 miles begins with a single step. So begin this effort by establishing Stage One.

	Stage One	Stage Two	Stage Three
	Stabilization	Integration	Sustaining
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Roadmap

		Standardize Five Leadership Practices	Standardize One Workforce Practice	Standardize Three Operational Processes	Standardize and Track Four Metrics	Stage Three Sustaining
Leadership & Culture	1.1.1 Strategic Leadership 1.1.2 Leadership Practices 1.1.3 Organizational Culture 1.1.4 Continuous Improvement 1.1.5 Workforce Development	✓	1.2.1 Supply Chain Process			1.3.1 New Product Startup Process
Workforce Development	2.1.1 Job Skills & Cross-Training		2.2.1 Continuous Improvement Process			
Operational Excellence	3.1.1 Kaizen 3.1.2 6S Visual Management 3.1.3 Quick Changeover	✗	3.2.1 Material Management Process 3.2.2 Production Planning Process 3.2.3 Development Process			
Business Results	4.1.1 Inventory 4.1.2 Sales/Employee Productivity 4.1.3 On-Time Delivery 4.1.4 Parts per Million	✓				4.3.1 Process Maturity 4.3.2 Quick Ratio

Step One

- ➔ Step One
- ➔ Visit suppliers who have improved their operations profitably
- ➔ The Benchmark Site Visit schedule for SEA is published on SEA's website [here](#)
- ➔ Get your key managers together and develop a vision of your company using what you saw at the suppliers you visited

Example Vision

- We will be the best heat treating company in the industry
- We will provide the best lead times, 100% on-time delivery, and 0 PPM quality performance
- We will provide an excellent place to work

Step Two

- Step Two
- Set your improvement goals
- Focus only on those things that improve your current performance

Example Improvement Goals

<u>Near-Term</u> (12 mos.)	<u>Medium-Term</u> (12-24 mos.)	<u>Long-Term</u> (24+ mos.)
<ol style="list-style-type: none"> 1. Achieve 97% on-time delivery for all value streams 2. Reduce PPM on all value streams to <2000 3. Continue lean implementation – achieve inventory turns of 8 4. Reduce lead time through 2 major suppliers to less than 12 weeks 	<ol style="list-style-type: none"> 1. Achieve 99% on-time delivery for all value streams 2. Reduce PPM on all value streams to <500 3. Continue lean implementation – achieve inventory turns of 12 4. Reduce lead time through 4 major suppliers to less than four weeks 	<ol style="list-style-type: none"> 1. Achieve 100% on-time delivery for all value streams 2. Reduce PPM on all value streams to <100 3. Continue lean implementation and achieve 15 inventory turns 4. Reduce lead time through all major value streams to less than two weeks

- ➔ First establish your long-term goals
- ➔ Then follow with medium-term goals
- ➔ Lastly translate the near-term goals and try to stick to performance related goals that can drive improvement efforts

Improvement Goals

<u>Near-Term</u> (12 mos.)	<u>Medium-Term</u> (12-24 mos.)	<u>Long-Term</u> (24+ mos.)
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.
7.	7.	7.

Step Three

- Step Three
- Set improvement targets for the key metrics

Improvement Targets

Business Results	Q1	Q2	Q3	Q4
On-Time Delivery “OTD”				
Inventory Turns				
Sales per Employee				
(Defective) Parts Per Million “PPM”				
Quick Ratio				
Processes at Level 3 or above				
Annual Improvement Plan % Complete				

- ➔ Begin with where you are today and then show what you expect as a result of your improvement efforts
- ➔ It is unreasonable to invest in a process management system with process owners, kaizen events, and standard work efforts without expecting your metrics to improve
- ➔ Yes - if you're not used to measuring these things this could be a lot of work to begin with - but let's face it, what gets measured gets managed and you can't grow up as a company without measuring something. This is how our customers measure our performance. Best to begin there.

Improvement Targets

Business Results	Q1	Q2	Q3	Q4
On-Time Delivery "OTD"				
Inventory Turns				
Sales per Employee				
(Defective) Parts Per Million "PPM"				
Quick Ratio				
Processes at Level 3 or above				
Annual Improvement Plan % Complete				

On-Time Delivery "OTD"

Number of on-time parts delivered divided by total parts delivered expressed as a %.
Uses "promise date" defined as the date the supplier agreed to deliver.

Inventory Turns

Annual Cost of Goods Sold (12 month rolling average) divided by
Period-average inventory (average for the most recent month)
Inventory includes raw, WIP, and finished goods.

Sales per Employee

Sales revenue for the quarter divided by total number of employees at the end of the
quarter (direct and indirect) expressed in dollars.

Parts Per Million (PPM)

Refers to the number of defective parts shipped divided by the total number of parts
shipped in a period normalized to 1,000,000 parts. This will be calculated using
validated customer-reported defects.

Quick Ratio

Current Assets minus Inventories divided by Current Liabilities.

Processes at Level 3 or above

Count the absolute number of processes at Level 3 or higher in process maturity,
including processes on the SEA Roadmap and other processes that you have
designated Managed Processes.

See the SEA Definitions at <http://www.seaonline.org/docs/SEADefinitions.pdf>

Step Four

- Step Four
- Select the Value Streams that will make the greatest difference in your goals
- **Value Stream** – All the processes required to produce a product or service of value to a customer. The term value stream applies to product families or individual products or services. The value stream includes the flow of materials in production as well as information flow. The customers of a value stream could be internal or external.
- Map the Value Streams you selected

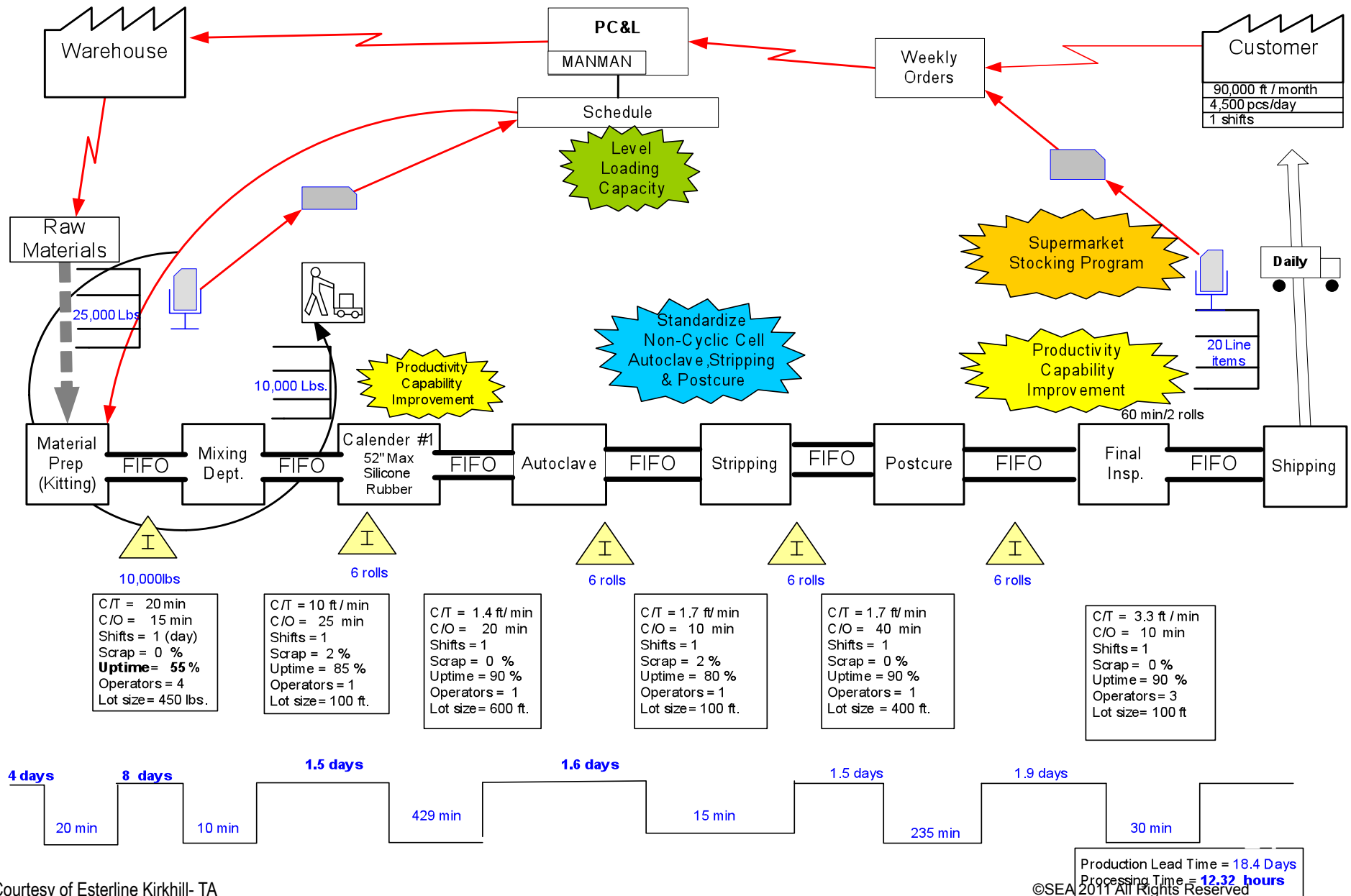
Value Stream Selection Matrix

Your Goals	Value Stream #1	Value Stream #2	Value Stream #3	Value Stream #4
Improve Lead Time	5	4	3	2
Improve On-Time Delivery	5	3	2	4
Improve Quality	2	4	1	1
Total	12	11	6	7

5 is high impact on the goal; 1 is low impact - highest total is the value stream that has the most overall impact on the goals

CSE Mixing Dept 201

Current State VSM Silicone Rubber Product Family (as of Sept)



Step Five

- Step Five
- Decide on the areas that represent the greatest bottlenecks
- Schedule the project or Kaizen event for each bottleneck
- Set specific goals for each area of the value stream to be improved

When it comes to facilitating improvement projects, you need to use someone who has experience in conducting a variety of kaizen events. Don't use someone who is still learning. Remember a Toyota general manager may spend 12-15 years learning to conduct Kaizens. An outside consultant with experience may cost a lot but a successful kaizen can produce 5-10 return on investment. SEA does not require you to use a SEA-certified consultant but the SEA process won't work unless many Kaizens are scheduled and conducted by competent experts.

Align Resources to Managed Processes

Value Stream	Managed Process #1	Managed Process #2	Managed Process #3	Managed Process #4	Managed Process #5
Measurable Objective	Improve setup from 2 hours to < 20 minutes	Improve delivery to 100% on-schedule	Improve quality to less than 200 PPM	Reduce lead time from 10 days to <1 day	Improve delivery to 100% on-schedule
Process Owner					
Master Trainer					
SME					

Set Goals to Guide Improvement Projects

- Improve ABC productivity by 100%
- Standardize XYZ process
- Improve first pass yield to 98%

Step Six

- Step Six
- Assign champions and process owners



SEA Process Architecture

Vision - Mission - Strategic Goals

Process Champions

Leadership
&
Culture

Workforce
Development

Operational
Excellence

Value
Stream

Processes & Owners

Standard Work Definition, Master Trainers & SMEs

Champion - Senior Manager

- ➔ Lead the improvement efforts for value streams and roadmap process groups
- ➔ Lead change management activities including increased communication, information sharing, recognition, and feedback
- ➔ Assign and hold Process Owners accountable for process maturity and process performance

Process Owner

- ➔ Set a goal for process maturity level 3
- ➔ Participate as stakeholder in Kaizen and improvement projects
- ➔ Lead and facilitate improvement projects
- ➔ Compile data and comments for 1.1.4 Continuous Improvement Process

Leadership Process Owners

Track	Champions	Roadmap Process	Owners	Master Trainer
1. Leadership & Culture		1.1.1 Strategic Planning		
		1.1.2 Leadership Communication		
		1.1.3 Organizational Performance Review		
		1.1.4 Continuous Improvement Management (usually same as Operational Excellence Champion)		
		1.1.5 Workforce Development Integration (usually same as Workforce Development Champion)		
		1.2.1 Supply Chain Integration Process		
		1.3.1 New Product Startup Process		

Source – the SEA Change Plan Format

Workforce & Operational

Track	Champions	Roadmap Process	Owners	Master Trainer
2. Workforce Development		2.1.1 Job Skills & Cross Training Certification		
		2.2.1 Continuous Improvement Process		
3. Operational Excellence		3.1.1 Kaizen Process		
		3.1.2 6S Visual Workplace Process		
		3.1.3 Quick changeover/SMED Process		
		3.2.1 Material Management Process		
		3.2.2 Production Planning Process		
		3.2.3 Development Process		

Source – the SEA Change Plan Format

Managed Processes

- ➔ **Managed Process** – A process selected by senior management for improvement. This process might be selected during strategic planning or other coordinated leadership activities. Managed Processes have a process owner, master trainer, and SME assigned to improve the process. Managed Processes have a team assigned for Kaizen, Six Sigma, or other Process Maturity improvement activities as appropriate.

Select Managed Processes

- ➔ Using the value stream maps made earlier, select the Managed Processes in each value stream targeted for improvement and assign a Process Owner

Select Managed Processes & Owners

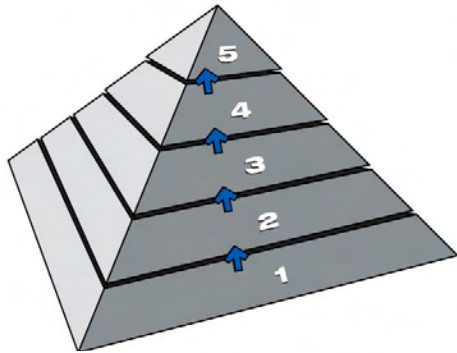
Value Stream	Managed Process #1	Managed Process #2	Managed Process #3	Managed Process #4	Managed Process #5
Measurable Objective	Improve setup from 2 hours to < 20 minutes	Improve delivery to 100% on-schedule	Improve quality to less than 200 PPM	Reduce lead time from 10 days to <1 day	Improve delivery to 100% on-schedule
Process Owner	Jim	Bart	Carol	Kim	Jeff
Master Trainer					
SME					

Process Owner Training

- Process Owners need to understand the Roadmap and Process Maturity Model
- Process Owners should be skilled to facilitate teams and influence support for process improvement efforts

Process Maturity Model “PMM”

▼ Process Maturity Levels



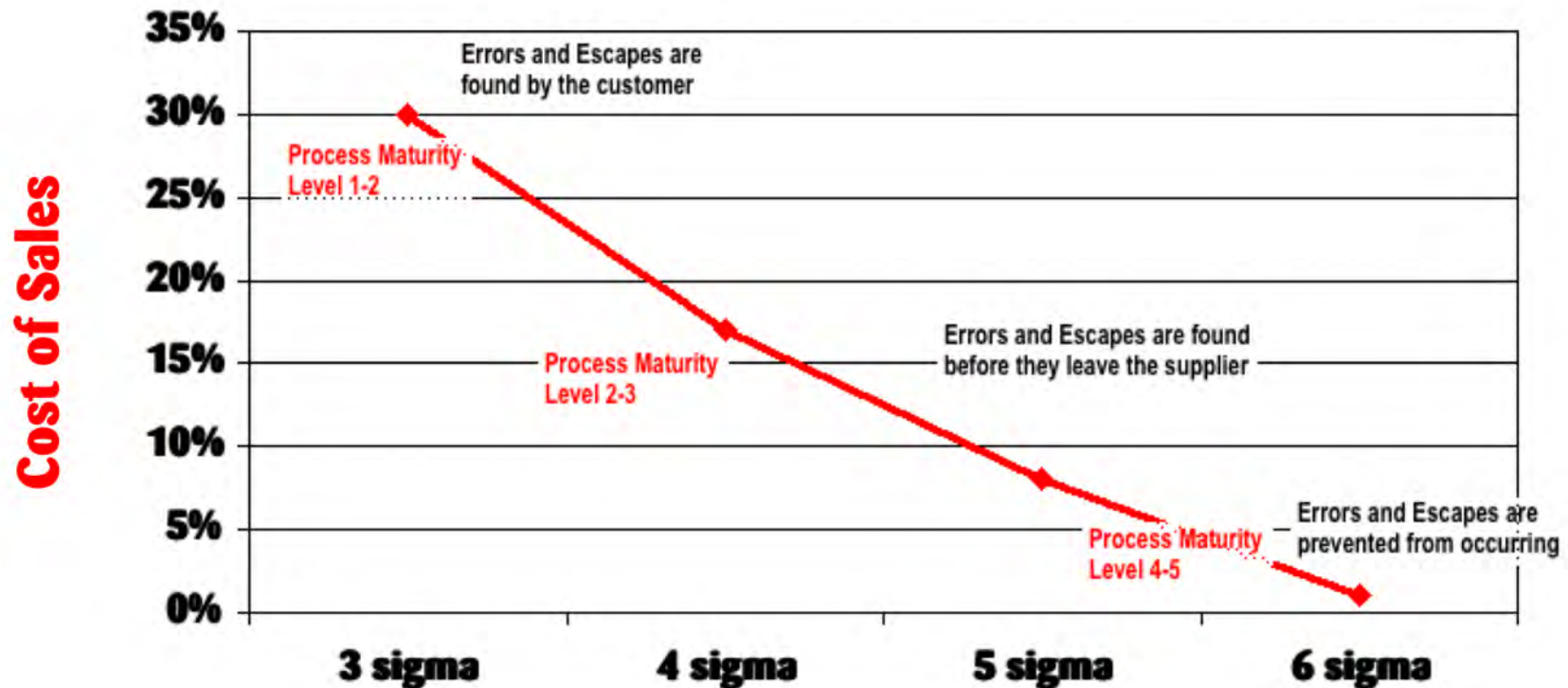
5 The process shows continuous positive trends and benchmarks world-class

4 The process is under process control, is analyzed, and improved using data

3 The process has certified trainers and is standardized

2 The process has been documented to the work instruction level

1 The process has been identified, defined, and has an owner



Select Master Trainers & SMEs

- A subject matter expert who works in or is familiar with the work area and is willing to follow a standard process for training and certification of fellow workers
- Has the skills to provide training and coaching to others in an informal workplace setting
- Has good communication and relationship skills
- Must have or acquire computer skills
- If you have two SMEs, consider assigning one to support the Master Trainer

Select Master Trainer & SME

Value Stream	Managed Process #1	Managed Process #2	Managed Process #3	Managed Process #4	Managed Process #5
Measurable Objective	Improve setup from 2 hours to < 20 minutes	Improve delivery to 100% on-schedule	Improve quality to less than 200 PPM	Reduce lead time from 10 days to <1 day	Improve delivery to 100% on-schedule
Process Owner	Jim	Bart	Carol	Kim	Jeff
Master Trainer	Betty	Bill	Dave	Lance	Suze
SME	John	Janie	Carl	Sean	Joe

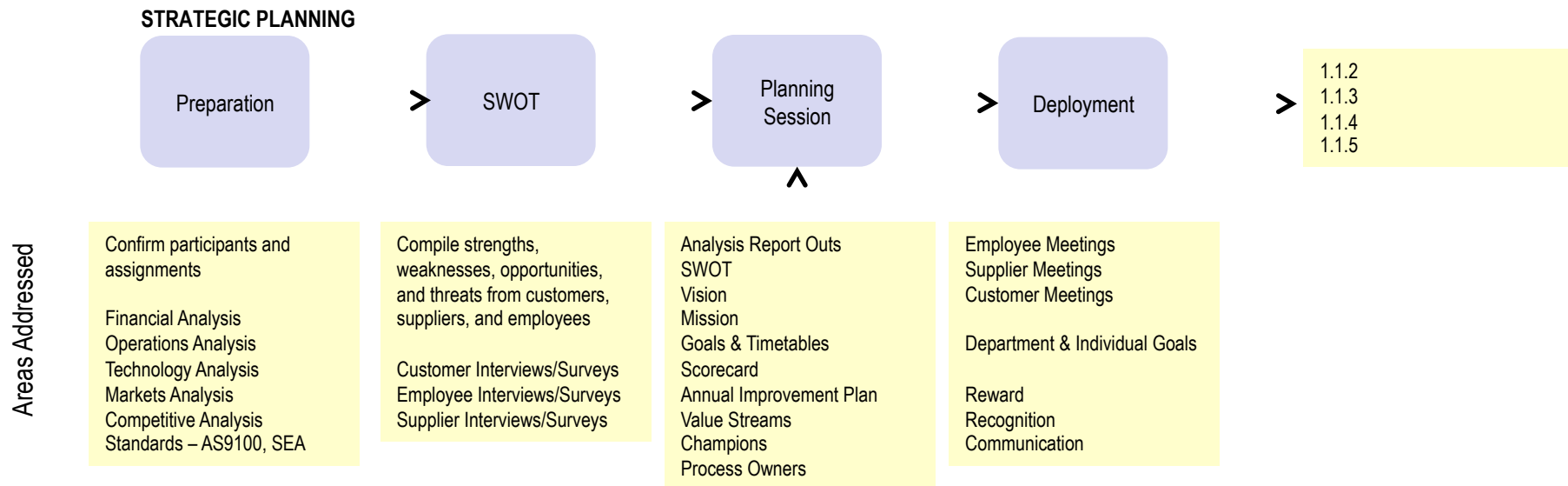
Source Examples

- Following are examples to provide you with some ideas for the Level 1 process map for your processes.
- These include anything and everything that we have seen used in these processes. This does not mean all these things are required.
- For process requirements, look at the criteria at the bottom of the page. Only what this criteria lists is a requirement of your process.
- To achieve Level 2 maturity, you will have to write work instructions for each of the boxes in this diagram so be careful not to include more than you believe you need.
- To achieve Level 3 maturity, you will need to use the work instructions to train and certify each person who will be a part of the process.
- Please don't copy these processes. Each company is different and your processes should reflect your own ideas of what works and what doesn't. The SEA Certification audit asks "How your company accomplishes the aims in the criteria" and that gives you plenty of flexibility for designing a process you like.

Leadership Processes

1.1.1 Strategic Planning

Purpose: to define and deploy the most important strategic priorities to drive performance improvement.



1.1.1 Strategic Planning Process – How do your senior leaders accomplish strategic planning? What are the key process steps and who are the participants? How do you ensure that the process addresses strengths, weaknesses, opportunities, and threats; major shifts in technology, markets, and competition? What are your key strategic goals, measureable targets, and timetables? How are goals and metrics deployed throughout the organization?

1.1.1 Process Worksheet

Suppliers	Inputs	Process	Outputs	Customers
Customers Employees Suppliers Owners	Financial Analysis Operations Analysis Technology Analysis Markets Analysis Competitive Analysis Standards – AS9100, SEA	Preparation		Planning Team
Customer Employee Supplier	Customer Interviews/Surveys Employee Interviews/Surveys Supplier Interviews/Surveys	SWOT		Planning Team
Planning Team	Report Outs SWOT	Planning Session	Vision Mission Goals & Timetables Scorecard Targets Objectives – Action Plans Value Streams Selected Champions Selected Process Owners	Planning Team
Planning Team	Strategic Plan	Deployment	Employee Meetings Supplier Meetings Customer Meetings Department & Individual Goals Reward Recognition Communication	Employees Suppliers Customers

1.1.1 Work Instructions

Inputs	Process	Instructions	Outputs	Customers
Financial Analysis Operations Analysis Technology Analysis Markets Analysis Competitive Analysis Standards – AS9100, SEA	Preparation	A member of the planning team will be assigned to produce a report on each of the inputs listed to be distributed one week prior to the planning session.	<u>PowerPoint Reports</u> Financial Analysis Operations Analysis Technology Analysis Markets Analysis Competitive Analysis Standards – AS9100, SEA	Planning Team
Customer Interviews/Surveys Employee Interviews/Surveys Supplier Interviews/Surveys	SWOT	Surveys will be conducted with each input audience to determine strengths, weaknesses, opportunities, and threats report to be distributed to planning team one week prior to planning session.		Planning Team
Report Outs SWOT	Planning Session	Planning Team meets in accordance with defined schedule and agenda	Vision, Mission Goals & Timetables Scorecard Annual Improvement Plan Value Streams Champions, Process Owners	Planning Team
Strategic Plan	Deployment	Sessions are scheduled with each function and department to present strategic plan and to review key performance requirements for each in accordance with roadmap processes 1.1.2-5.	Employee Meetings Supplier Meetings Customer Meetings Department & Individual Goals Reward Recognition Communication	Employees Suppliers Customers

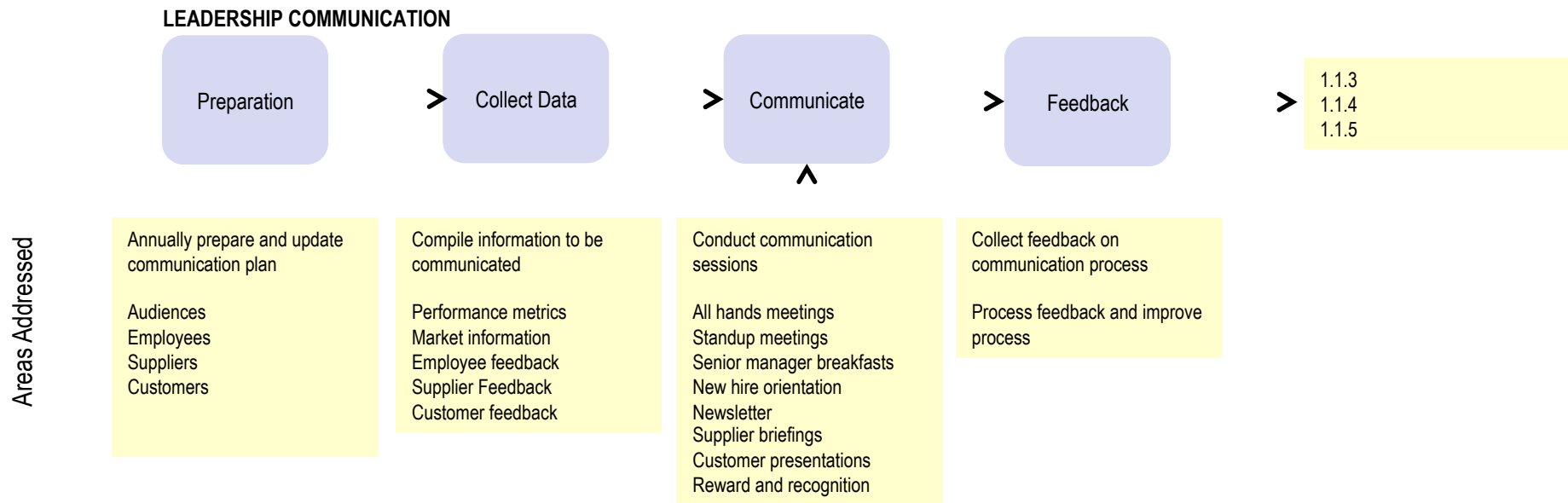
1.1.1 Training Record

Process	Participants	Certified Trainer	Training Date	Certification Date
Preparation	Planning Team	Jones	3/10/1999	4/10/1999
	Planning Staff Support		3/10/1999	4/10/1999
SWOT	Planning Team	Jones	3/11/1999	4/10/1999
	Planning Staff Support		3/11/1999	4/10/1999
	Department Heads		3/11/1999	4/10/1999
Planning Session	Planning Team	Jones	3/14/1999	3/14/1999
Deployment	Planning Team Department Heads Functional Heads Cell Leaders Team Leaders	Smith		

Most companies already have formats for work instructions and training records. These are intended as illustrations and not formats.

1.1.2 Leadership Communication

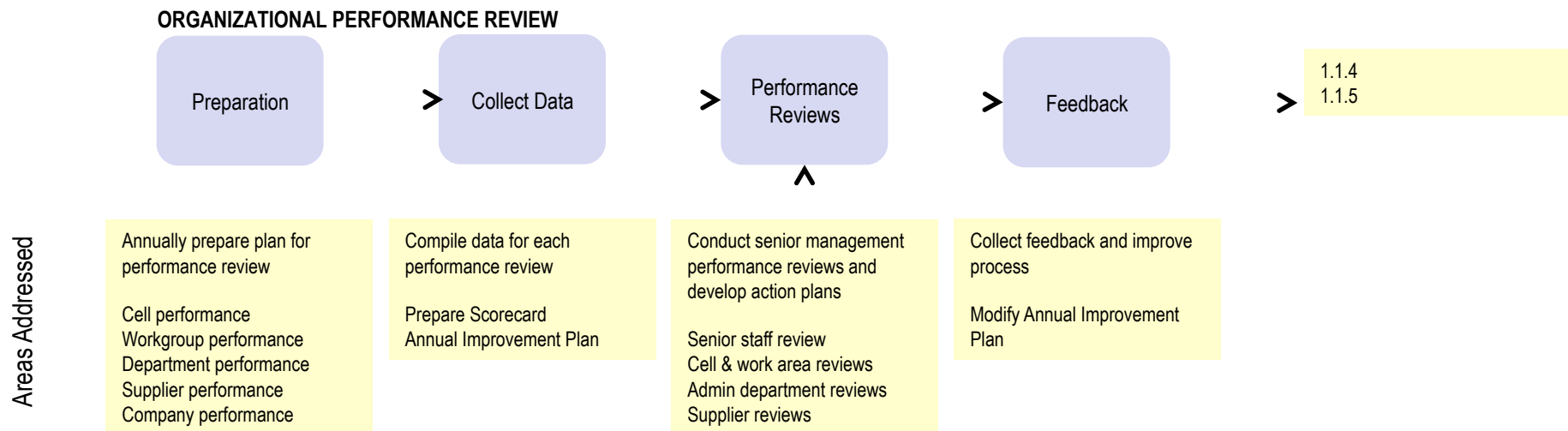
Purpose: to ensure understanding, buy-in, and ownership at all levels of the organization to drive performance improvement.



1.1.2 Leadership Communication Process – How do senior leaders communicate and reinforce company direction and expectations (vision, goals, mission, and values) to all employees, customers, and key suppliers/partners? What are the key process steps and who are the participants? How do senior leaders encourage frank, two-way communication throughout the organization? How do senior leaders create and re-enforce a high-performance work culture that embraces standard work, process maturity, and lean production techniques? How do senior leaders involve themselves in reward and recognition that re-enforces a high-performance work culture?

1.1.3 Organizational Performance Review

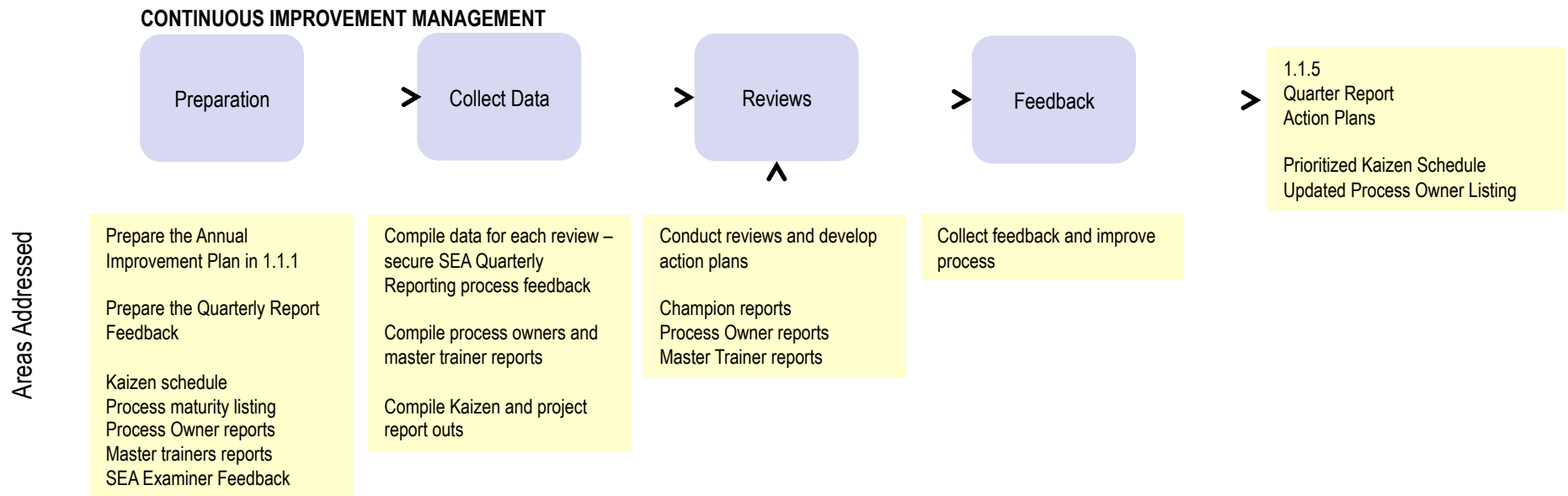
Purpose: to ensure focus on and accountability for targeted performance improvements at all levels of the organization.



1.1.3 Organizational Performance Review Process - How do senior leaders review organizational performance to assess organizational success, competitive performance, and progress relative to strategic goals and action plans? How do senior leaders select, organize, and assess key performance metrics and measureable goals? How do senior leaders translate organizational performance review findings into priorities for continuous improvement?

1.1.4 Continuous Improvement Management

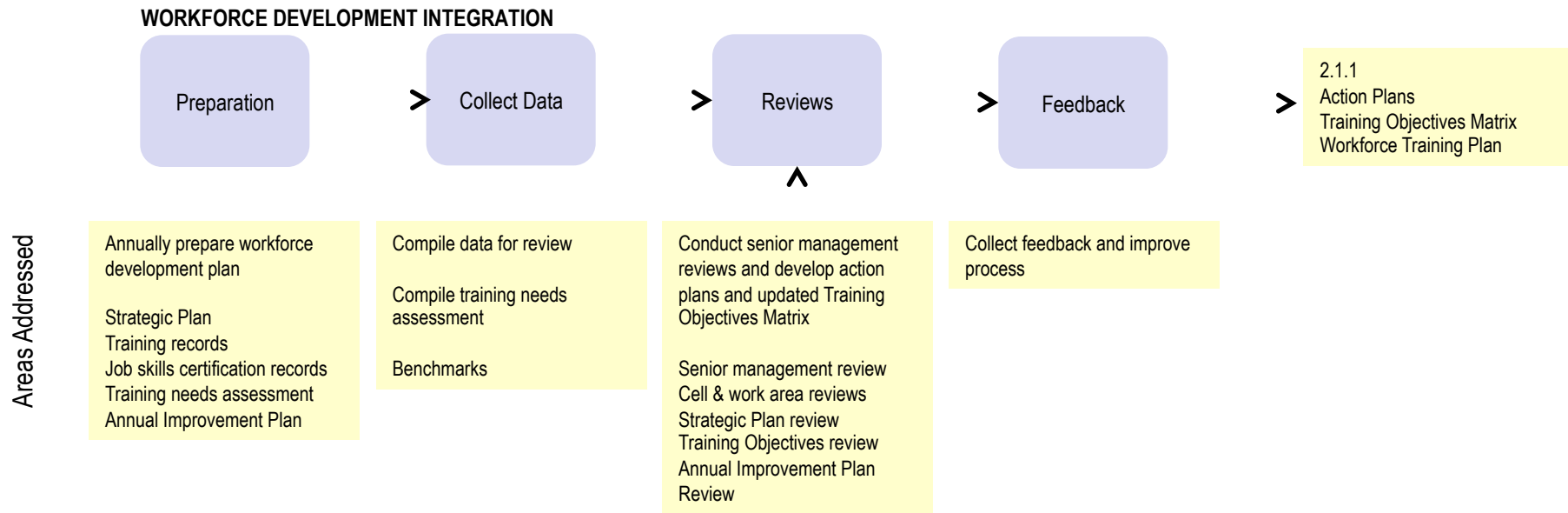
Purpose: to prioritize and drive improvement efforts, as well as allocate necessary resources.



1.1.4 Continuous Improvement Management Process – How does your organization select improvement priorities and review progress on improvement initiatives? How are process owners, master trainers, and strategic champions included in this process? How are improvement projects and teams selected and given direction? How is a standard problem-solving model deployed throughout the organization? How are recognition and sharing of key learning accomplished? How are process improvement ideas solicited, reviewed, approved, and implemented? How is a high level of workforce participation ensured? How are improvement suggestions recognized? How are suggestions made visible in work areas?

1.1.5 Workforce Development Integration Process

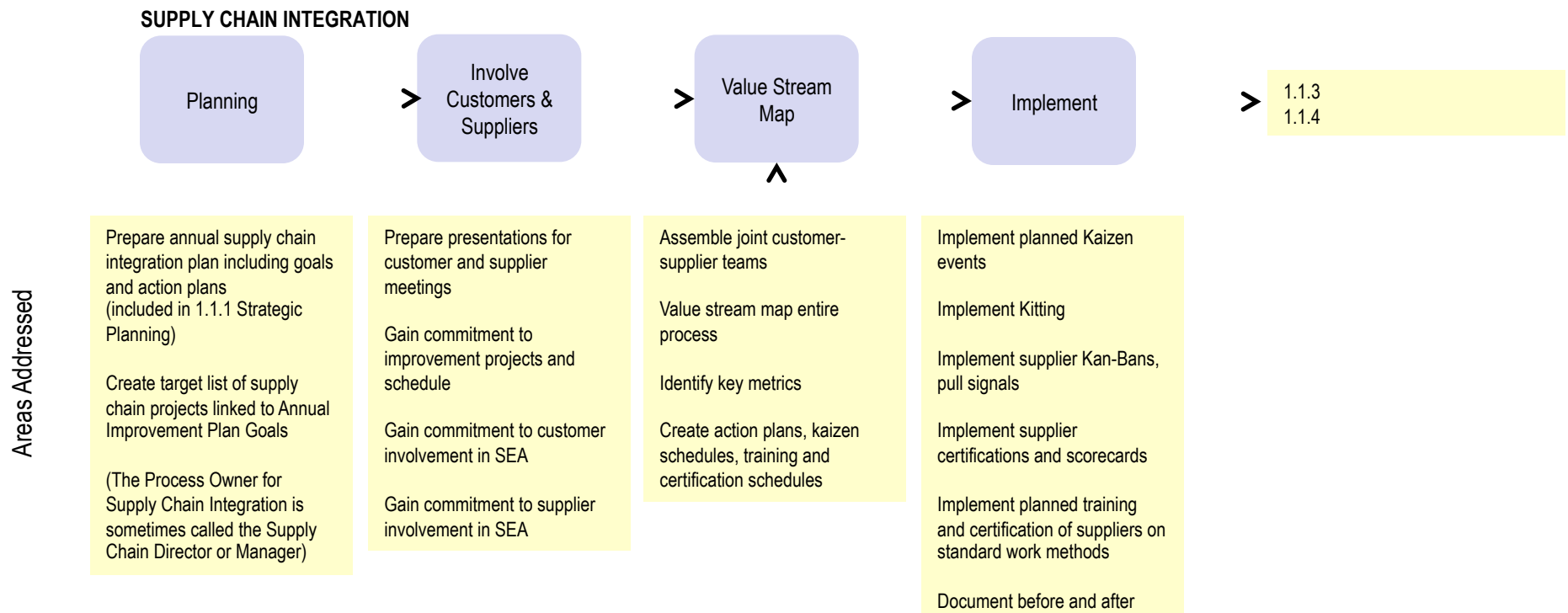
Purpose: to ensure that management sets priorities and allocates resources to workforce development.



1.1.5 Workforce Development Process – How do senior leaders evaluate the need for workforce development and select topics for each level and function? How does the selection of training topics integrate with strategic goals and process improvement needs? How is the workforce-training plan prepared and monitored? How does your organization ensure continuous learning from improvement projects, customers, and suppliers? How does your organization integrate benchmarking into the learning process? How does your organization integrate such learning into on-going employee education, training, and development?

1.2.1 Supply Chain Integration Process

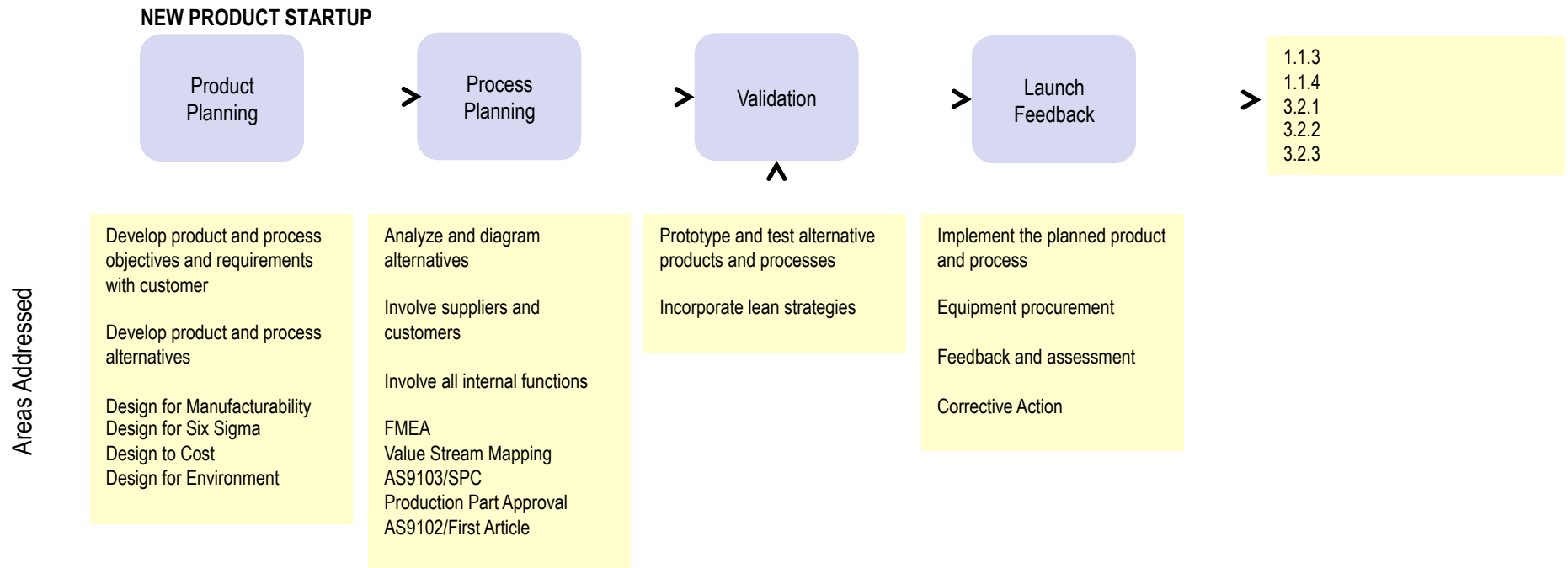
Purpose: : to integrate customer and supplier efforts to increase performance and reduce cost for the entire supply chain



1.2.1 Supply Chain Integration Process – How do senior leaders select supply chain improvement projects? How does your organization integrate its customers and suppliers into its improvement strategies? How do you qualify suppliers in quality, delivery and ability to respond to pull signals? How do you integrate suppliers into your lean strategies such as in supplier-managed inventory, min-max, consumption-based ordering, pull signals? How does your organization make use of teaming agreements to drive alliances that improve supply chain performance?

1.3.1 New Product Startup Process

Purpose: to plan and implement a highly effective product and process startup



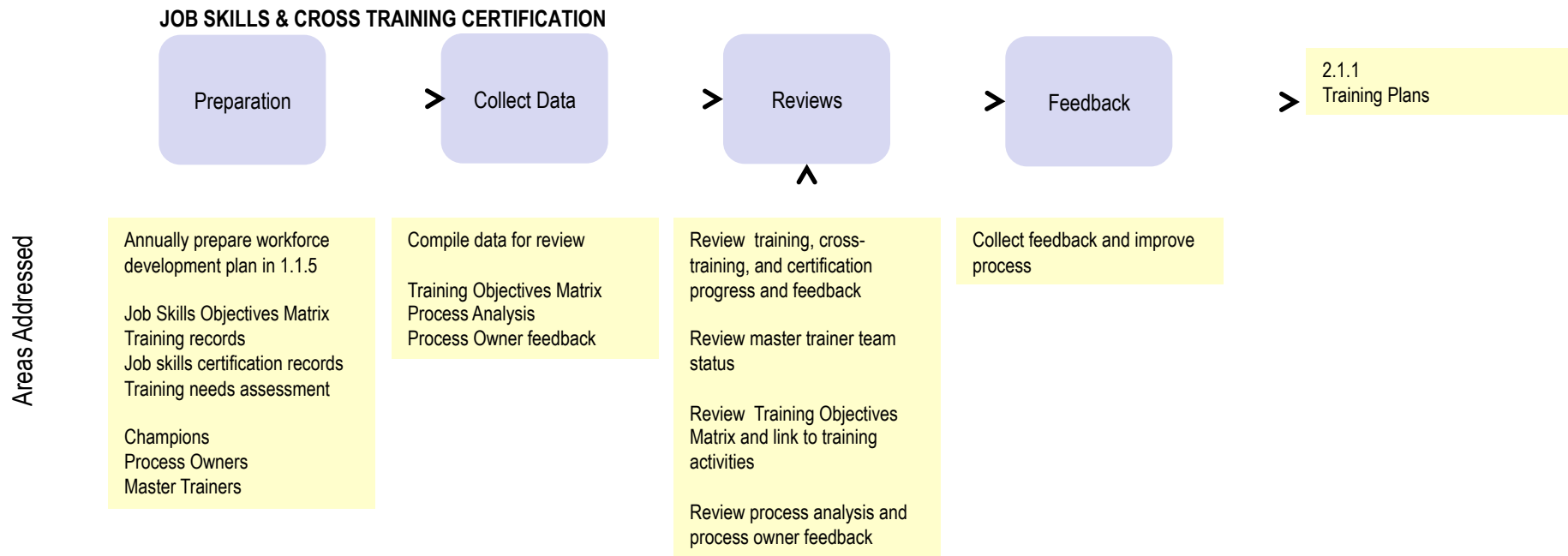
1.3.1 New Product Startup Process – How does your organization contribute to the immediate success of customer startup operations including first article and early production efforts? How are processes like Advanced Product Quality Planning “APQP” and Production Preparation Process “3P” used to pro-actively ensure value for customers? How are customers needs for reduced lead time and high levels of initial quality considered in the startup process?



Workforce Development

2.1.1 Job Skills & Cross-Training Certification Process

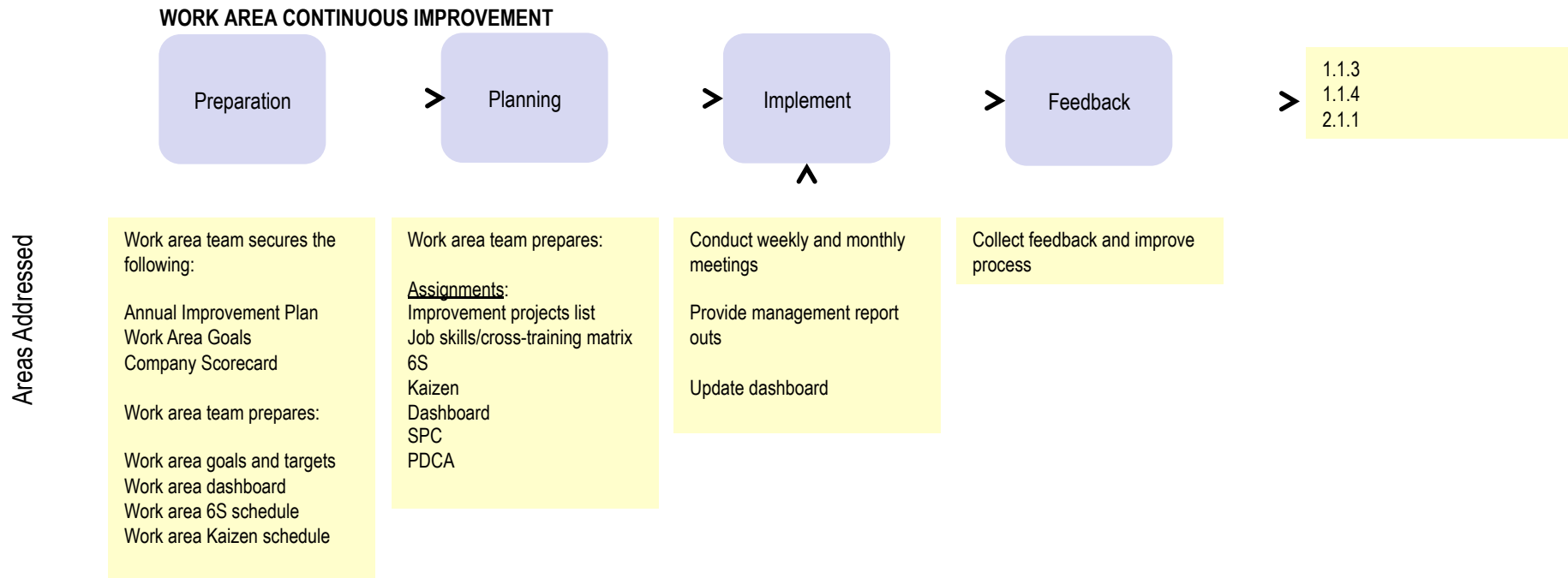
The purpose of the job skills & cross-training certification process is to maintain and expand the training and job skills certification effort.



2.1.1 Job Skills & Cross-Training Certification Process - How is job skills training and certification accomplished? How does your organization ensure that processes selected are linked to key priorities for improvement? How is cross-training accomplished? How is the team of master trainers maintained and expanded? How is the training and cross-training program reviewed?

2.2.1 Work Areas Continuous Improvement Process

The purpose of the work area continuous improvement process is to establish a self-management system for cells and work areas



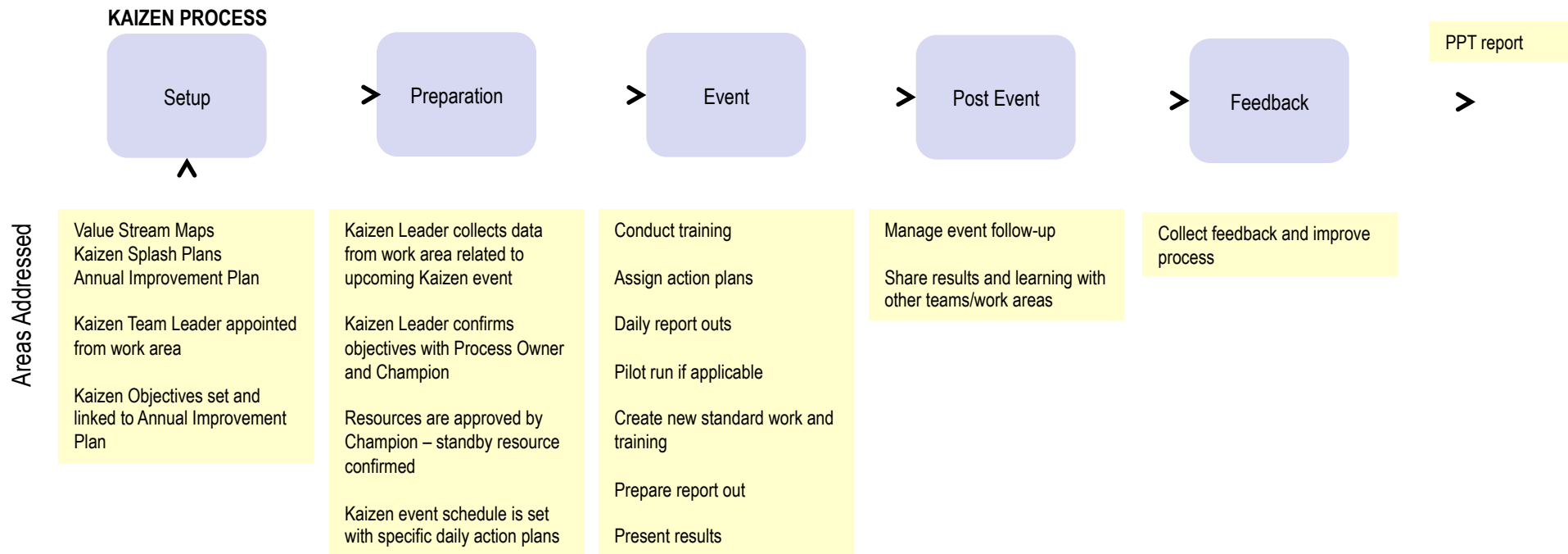
2.2.1 Work Area Continuous Improvement Process – How is continuous improvement supported in all work areas? How are improvement projects linked to work area goals? How does the work area integrate continuous improvement into their daily operations? How are problem-solving and corrective action methods standardized in all workgroup processes? How are work areas and cells reviewed by senior management? How are statistical methods integrated into the standard work for appropriate managed processes? How are process control plans developed and implemented? How are statistical methods reviewed and their application improved?

Operational Excellence

A collage of industrial and aerospace images. In the foreground, a worker in a hard hat and safety glasses is working on a large, circular turbine component. In the background, a helicopter is flying, and a jet is visible. An astronaut in a full suit is also present. The entire image is overlaid with a semi-transparent yellow filter.

3.1.1 Kaizen Process

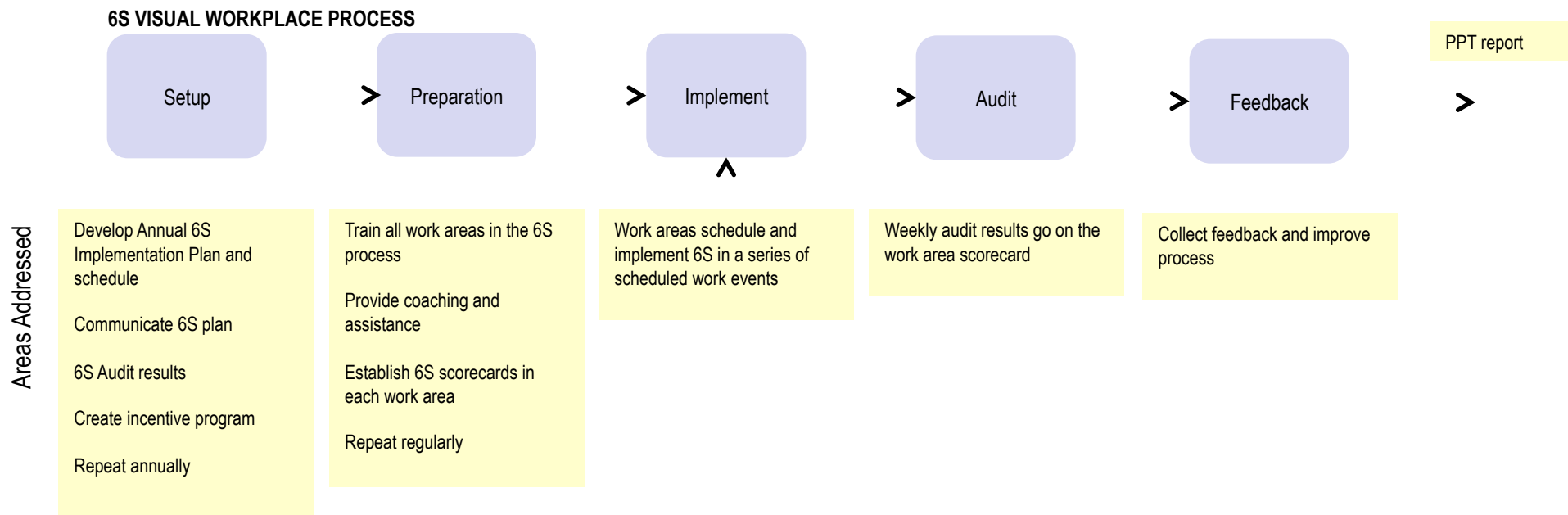
The purpose of the Kaizen Process is to accelerate and create breakthroughs in work-area process performance.



3.1.1 Kaizen Process – How does your organization set and review priorities for Kaizen events? How are Kaizen events conducted? How is recognition for team members provided and are senior managers and the workforce involved? How are lessons learned shared with others who can benefit? How are process improvements documented and deployed to others using the same or similar processes? How are internal Kaizen leaders developed and deployed? How are goals set for Kaizen leadership and how is progress monitored?

3.1.2 6S Visual Workplace Process

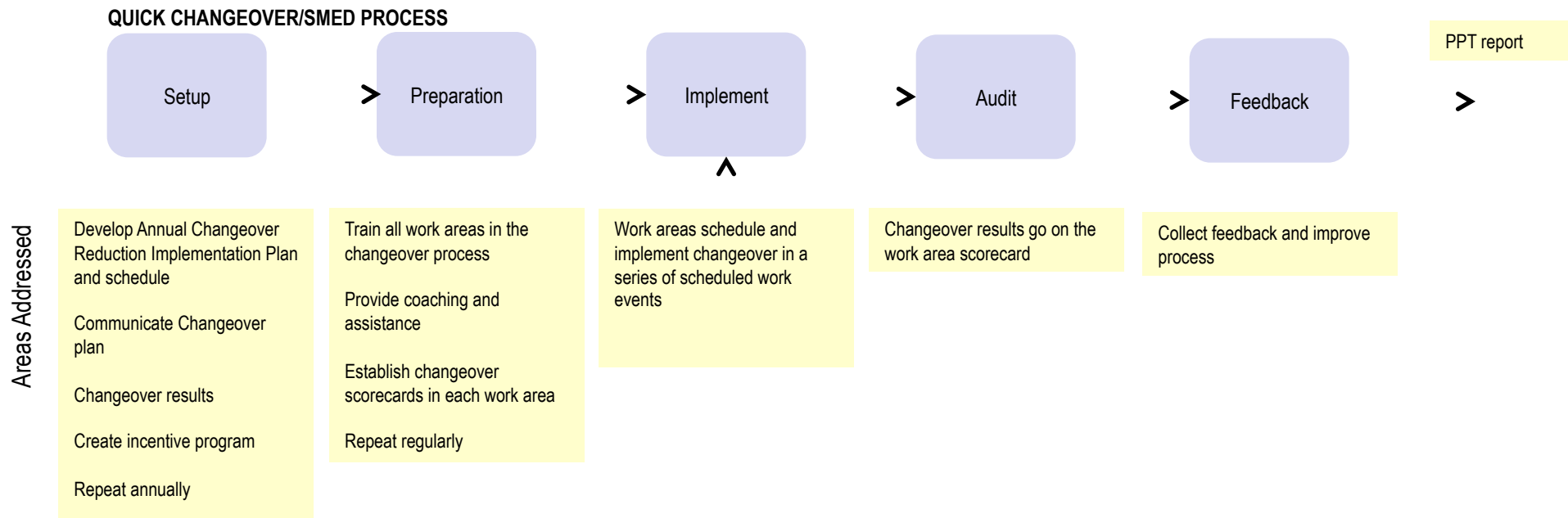
The purpose of the 6S visual workplace process is to place ongoing and continuous focus on workplace organization and effectiveness.



3.1.2 6S Visual Workplace Process – How does your organization ensure effective deployment of 6S Visual Workplace strategies for workplace organization? How are the 6S status, process flow, production status, employee training status, and continuous improvement effort clearly displayed and visible in the office and factory floor? How does your organization ensure that work areas are kept consistently free of dirt and clutter? How are improvements reviewed and recognized?

3.1.3 Quick Changeover/SMED Process

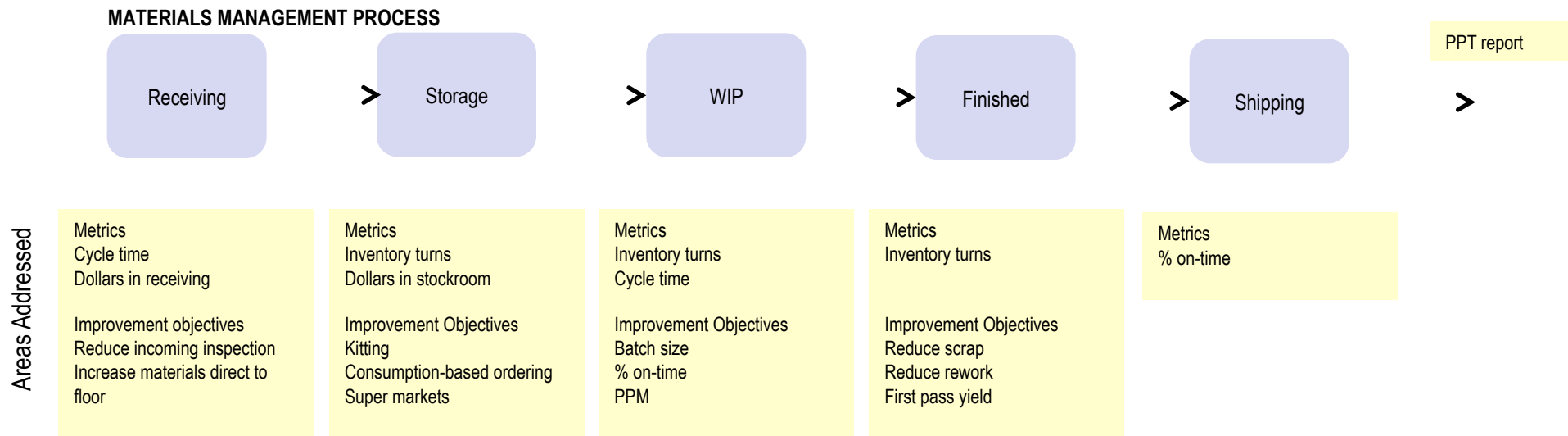
The purpose of the quick changeover process is to place focus on the reduction of changeover times in order to achieve faster flow of product



3.1.3 Quick Changeover/SMED Process – How does your organization continually reduce changeover and setup times? How are changeover and setup times tracked and displayed on the factory floor? Have machine operators been formally trained in SMED methods? How is progress reviewed and recognized? What metrics are monitored?

3.2.1 Materials Management Process

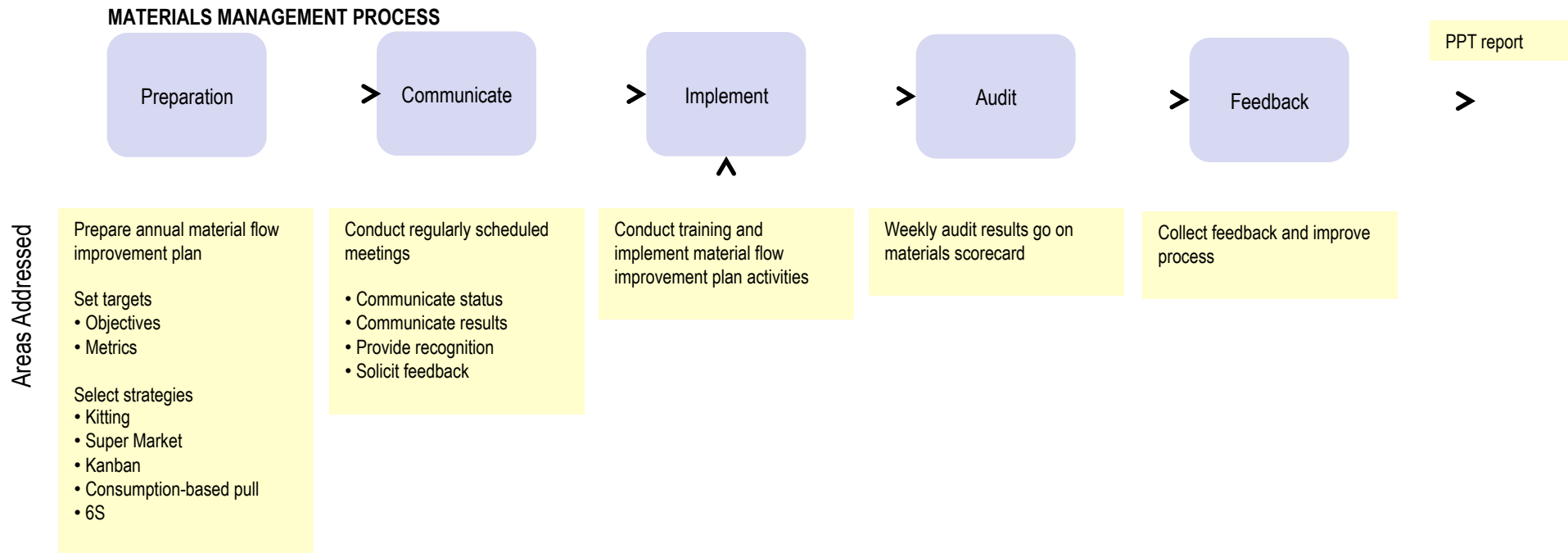
The purpose of the material management process is to enable, support, and improve material support for the lean enterprise.



3.2.1 Material Management Process – How does your organization ensure the effectiveness of material management processes in support of its lean and flow manufacturing objectives? How does your organization maintain a high level of inventory accuracy? How do you maintain a high level of 6S in material storage areas? How are levels of obsolete, slow-moving and expedited material maintained at a minimum? How are material handlers, material planners and supervisors formally trained in material management methods? How does your organization integrate the requirements of a flow-based material process? How are “pull” methods such as material Kanbans, consumption-based ordering and min-max utilized? How are Kanban supermarkets integrated into factory floor operations?

3.2.1 Materials Management Process

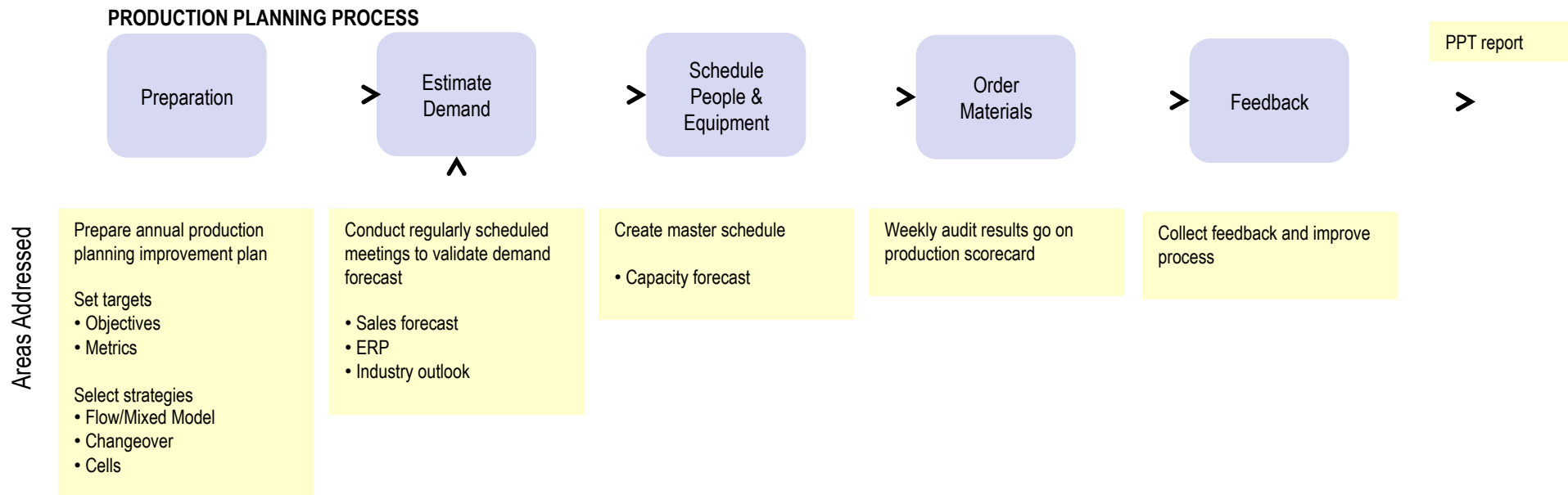
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3.2.2 Production Planning Process

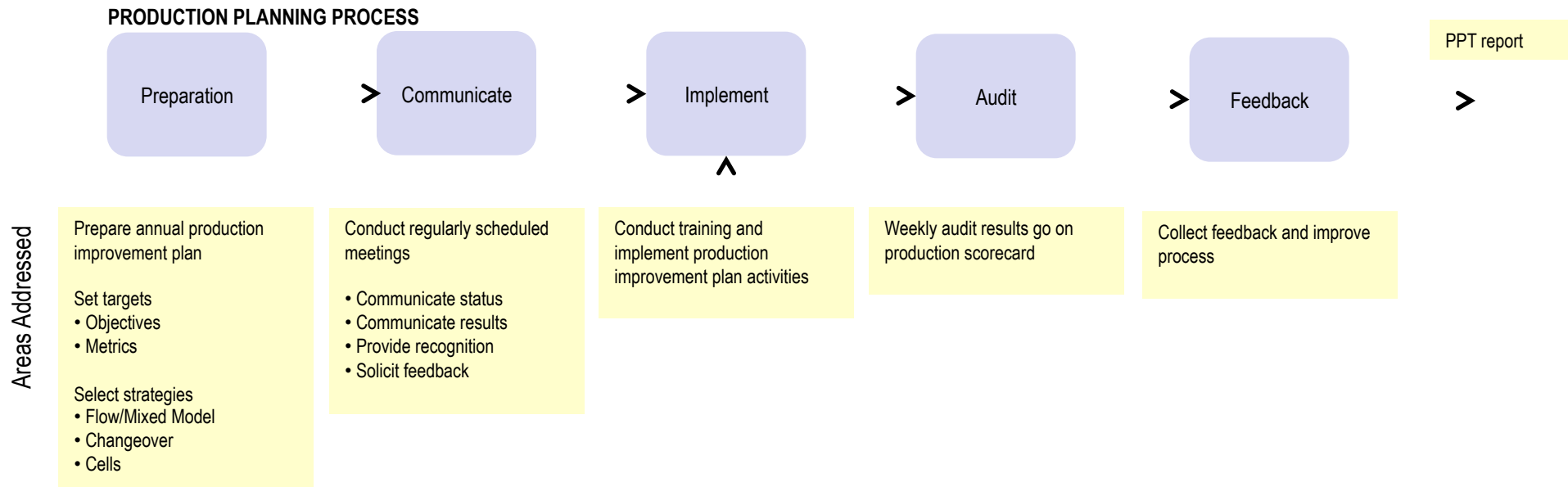
The purpose of the production planning process is to enable, support, and improve production support for the lean enterprise.



3.2.2 Production Planning Process – How does your organization ensure the effectiveness of production planning processes in support of its lean and flow manufacturing objectives? How often are production requirements updated and communicated to the factory floor? How are production schedules communicated to different work centers? How are pull methods such as FIFO lanes and supermarkets used to replace the need for detailed production schedules? How are production planners trained in production planning methods? How does your organization integrate mixed model cell/line design into its operations throughout the enterprise? How are production and industrial engineers, production managers and supervisors, and material management personnel trained in the lean mixed model line design methods? How are major processes linked and balanced into a continuous flow? How are pull methods such as In Process Kanbans, FIFO lanes and Kanban supermarkets integrated into the production flow? How are operators cross-trained for multiple workstations?

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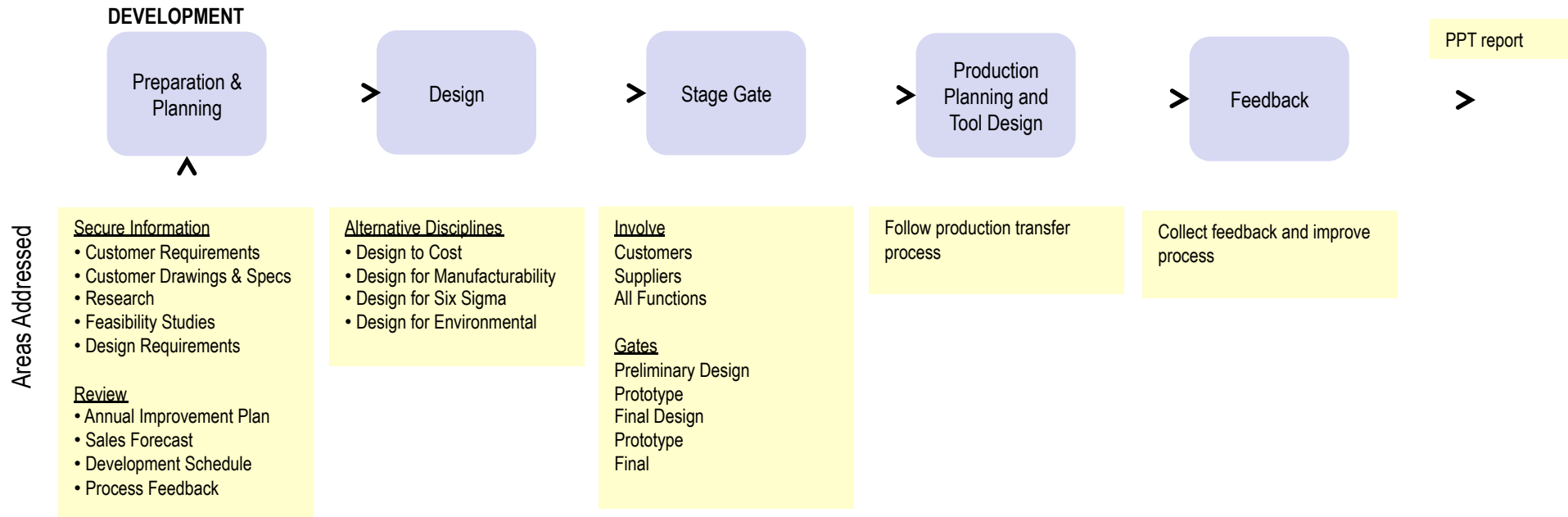
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3.2.3 Development Process

The purpose of the development process is to provide and continuously improve engineering services for the lean enterprise



3.2.3 Development Process – How does your organization design and develop new products or services? How are advanced techniques such as Six Sigma, Design of Experiments, Design to Cost, Design for Manufacturability integrated into your operations? How are customers and suppliers integrated into your development process? How is the development process reviewed and improved?

Reading Materials

- ✈ The Industrial Trainer by Gary Griffith
- ✈ Aerospace Flow by Richard Rahn

These are both available on Amazon.

The SEA website has webcast workshops free to members that give specific information about various aspects of implementing the SEA Roadmap. Got to <http://seaonline.org/Briefings/webcasts.html>

SEA Visibility & Recognition



SEA Suppliers that continually strive to improve themselves participate in the Quarterly Performance Review process and are listed on the SEA Supplier Registry used by buyers and purchasing agents across the industry. As your company results improve, you'll be invited to participate in the SEA Keynote process and your company's visibility for increase.

SEA is the best way in our industry to avoid the additional costs of sales and business development while ensuring that your performance is increasingly more competitive. Do the work, reap the rewards!