

# Project / Study Definition

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# Project / Study Definition

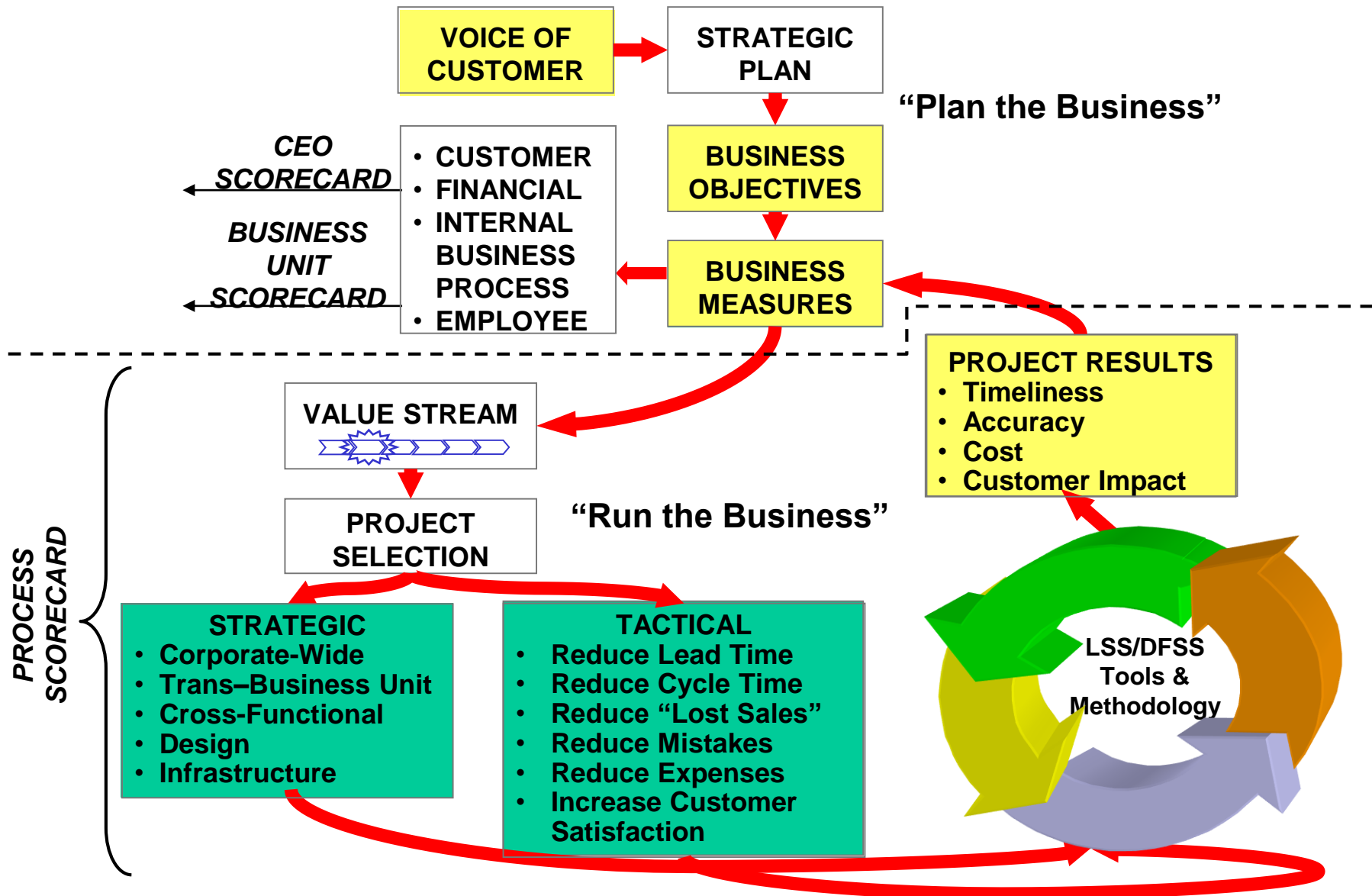
- In this session, we will discuss projects / studies within the Lean Six Sigma (LSS) and Design for Six Sigma environment.
  - Opportunities – where to find them
  - Projects versus studies
  - Initiating / scoping projects and studies
  - Key elements of the Project / Study Charter
    - Process description
    - Problem statement
    - Business benefits (impact)
    - Goals
    - Measures
    - Stakeholder analysis
    - Teams
- A list of supplemental material and additional practice/review questions for this session are provided at the end of this presentation
- You can download the pdf of this presentation, along with any supporting data files, on the site where you are accessing this course



Take  
Note

# Knowledge Based Business Infrastructure

- Projects are the common element in any continuous improvement strategy. This includes both Lean Six Sigma (LSS) and Design for Six Sigma (DFSS) methodologies.



# LSS / DFSS Framework

- Leadership Team
- Champions (Sponsors, Mentors)
- Master Black Belts (Masters)
- Black Belts (Experts)
- Green Belts (Specialists)
- Team Members

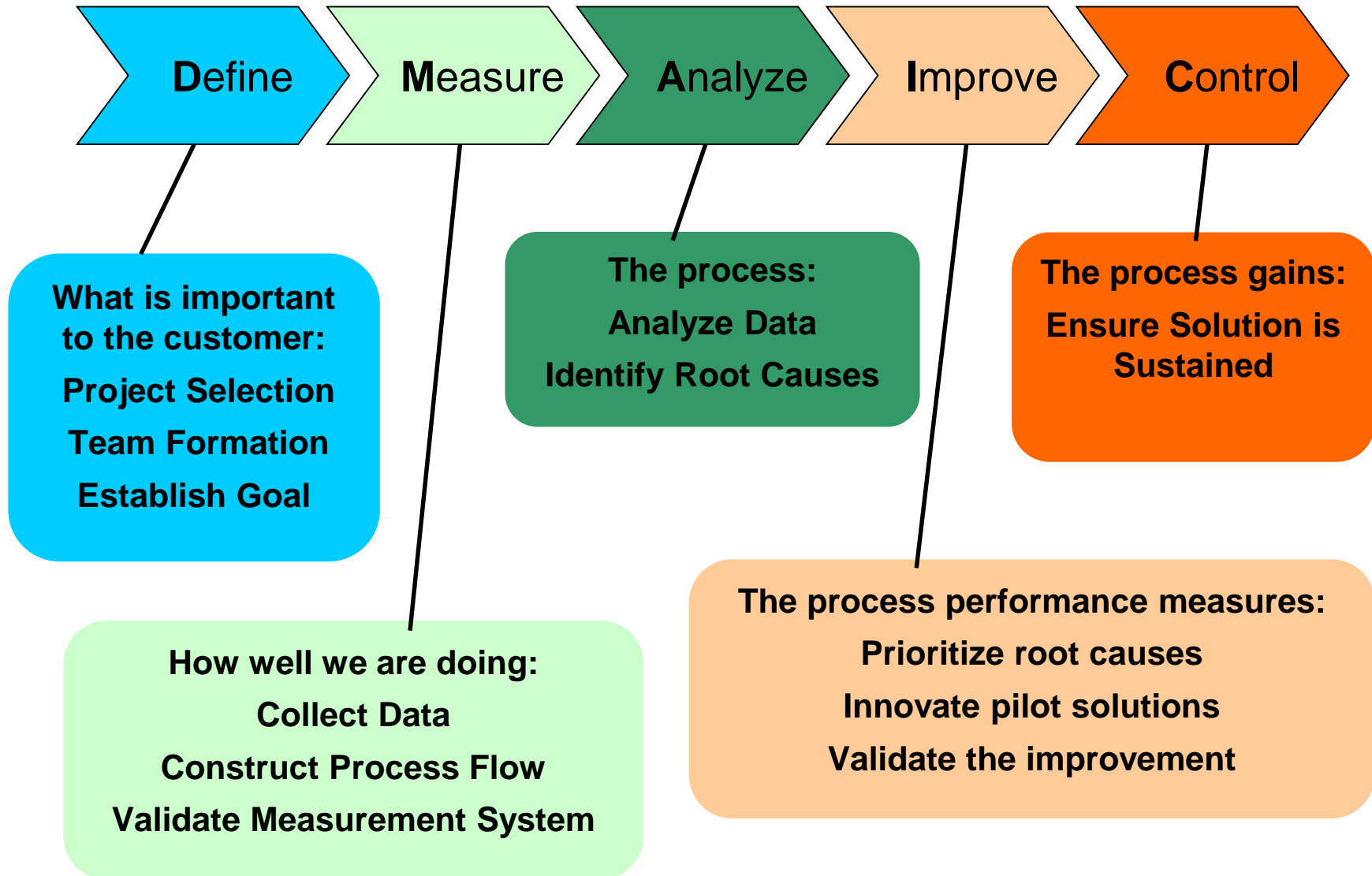
**PROJECTS**  
(focused on business results)



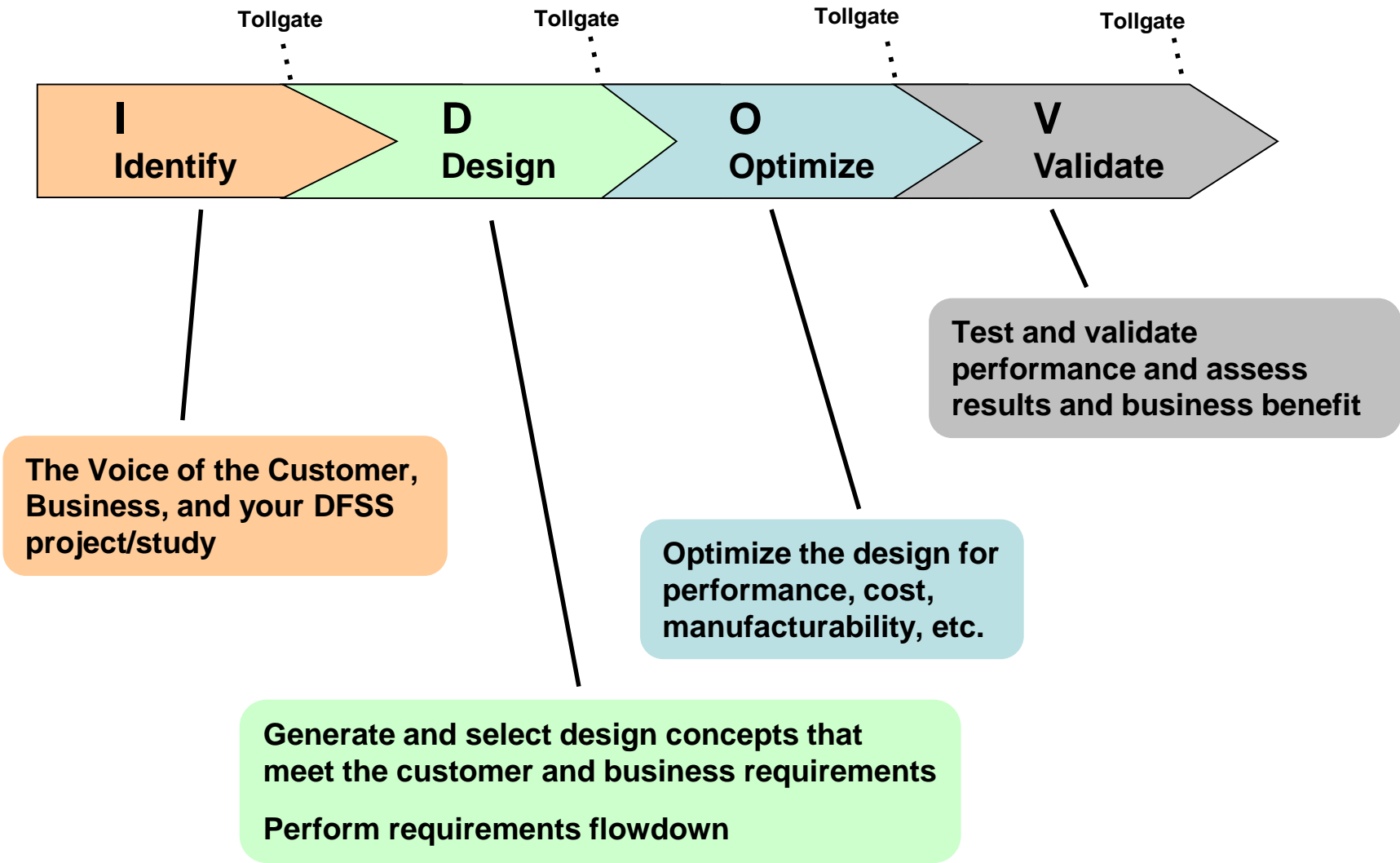
# Project Selection: “DMAIC” or “IDOV”?

- In general:
  - LSS: “DMAIC” approach and tools work best when goal is to improve an existing product or process, with baseline performance metrics.
  - DFSS: “IDOV” approach and tools work best when goal is to design a new product or process, with no baseline performance metrics available, or to redesign an existing product or process that is not meeting the performance requirements.
- Many projects contain elements of both; use appropriate tools, without concern about “purity” of approach

# LSS Project Master Strategy (DMAIC) ... the Roadmap



# DFSS Project Master Strategy (IDOV) ... the Roadmap



\* The IDOV four-phase DFSS process originated with Dr. Norm Kuchar at GE CRD, and is used with permission.

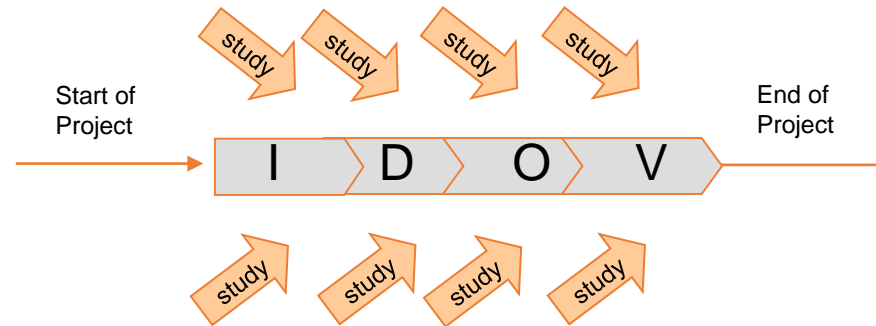


# Projects / Studies

- Projects require the potential belt to complete the full DMAIC or IDOV methodology from start to finish.
- Studies are applications of specific tools from these methodologies. For example, completion of a Design of Experiment (DOE) or a Voice of Customer (VOC) would, by itself, be considered a study.
- Each person should have a project identified when beginning LSS training. Ideally, for DFSS training, the student should have a project identified (or several studies) when entering (or at least upon completion of) DFSS training.
- Each project/study should have a charter which is time-bounded, has specific goals and measures of success, and is approved by a project sponsor and coach. Each project/study must have a clear business impact /compelling reason for working on the project/study. A detailed charter with clear and precise definition contributes to successful project/study completion.

# Certification Requirements: Projects and Studies\*

- Within an IDOV project, there are a series of “studies”, or applications of specific DFSS tools and methods, that are done to complete the project and support the IDOV tollgate reviews.



\* Source: George Maszle (Xerox Corporation) – used with permission.

- Within new product development, the IDOV methodology could span a year or even more! For DFSS Green Belt and Black Belt timely certification concerns, the requirements for a project include a completed IDOV project or three studies.
- LSS Green Belt and Black Belt certifications require a completed project using all five phases of the DMAIC methodology.



# Identifying and Selecting Projects and Studies

- **Opportunities – Where to Look:**

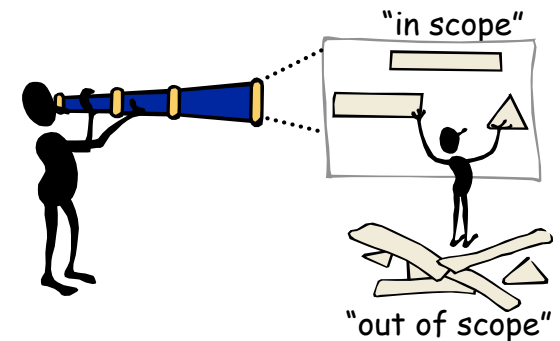
- Business needs; strategic linkage; burning issues
- Customer needs, issues, complaints
- Bottlenecks; problem areas
- Processes with long cycle times, high rework and/or defect rates
- Cost of Doing Nothing (CODN) and Cost of Waste (COW)
- Previous project work
- Employee suggestions

- **Characteristics of Good Projects:**

- **Charter: Clear, precise definition of the problem, project goals and scope of the project**
- No known solution in advance
- Good data available (or able to be gathered)
- Aimed at making a process better, faster, and/or lower cost
- Drives business profitability and/or enhances customer value
- Resources and support available for working on the project

# Initiating and Scoping the Project / Study

- Leadership/management initiates and motivates the project. Leaders should be trained in LSS / DFSS to build commitment and momentum. Project selection is based on business needs, customer requirements, benchmarking results, etc.
- Projects must be scoped appropriately, and project goals must be clearly defined. When reviewing your project with your Sponsor, here are some items to discuss and agree on:
  - What resources are available to the team?
  - What (if anything) is considered “out of bounds” for the team?
  - What (if any) constraints must the team work under?
  - What percent of time will you have available to work on the project?
- What’s the problem with a scope that is too broad?
- What’s the problem with a scope that is too narrow?
- Clear lines of accountability must be established and strategic planning completed to address resource requirements, toll gate reviews and deadlines, etc.



# Defining the Project / Study

- Project / study details should be summarized in a project / study charter.
- Project / study charters completed by the lead belt and project sponsor; and reviewed with the project team. Project / study charters should communicate project / study information for leadership, the team, and the organization.
- Key elements of a project / study charter
  - Project sponsor
  - Description of product or process
  - Problem statement
  - Opportunity / Business Impact
  - Project goals
  - Project measures
  - Stakeholder analysis
  - Team
- Generic formats for all charters are provided in the Excel data set.

| Lean Six Sigma Project Charter          |   |                         |                      |
|---|---|-------------------------|----------------------|
| Project Name:                           |   | Project Start Date:     |                      |
| Your name:                              |   | Target Completion Date: |                      |
| Division/Location:                      |   |                         |                      |
| Project Sponsor:                        |   |                         |                      |
| 1. Product / Process                    | Describe the product or process involved.   |                         |                      |
| 2. Problem Statement                    | Describe the current pain. Why are you working on this project?                                 |                         |                      |
| 3. Business Benefit (Impact)            | Describe the importance to the business. What is cost of doing nothing or the estimated return? |                         |                      |
| 4. Project Goal(s)                      | List the specific goals of this project.  |                         |                      |
| 5. Project Measure(s)                   | What are the primary and secondary metrics? Note possible gaps for each if available) and goal. | Primary Measure(s)      | Secondary Measure(s) |
|   |   |                         |                      |
| 6. Customers and Suppliers              | Who are the customers and suppliers? What are their critical requirements or concerns?          |                         |                      |
| 7. Project Team                         | List your team members and their departments/divisions.   |                         |                      |
| 8. Percent of Time Dedicated to Project | For planning purposes, indicate what % of time you will devote to this project.                 |                         |                      |

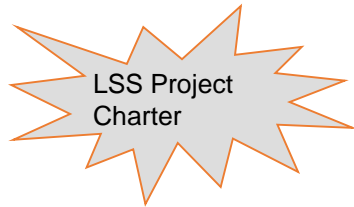


**Project – Study Definition Data Files**

# LSS Project Charter - Example



## Project – Study Definition Data Files



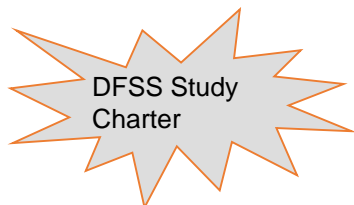
### Lean Six Sigma Project Charter

|  |  |                                |                             |
|--|--|--------------------------------|-----------------------------|
| <b>Project Name:</b>                           |  | <b>Project Start Date:</b>     |                             |
| <b>Your name:</b>                              |  | <b>Target Completion Date:</b> |                             |
| <b>Division/Location:</b>                      |  |                                |                             |
| <b>Project Sponsor:</b>                        |  |                                |                             |
| <b>1. Product / Process</b>                    | Describe the product or process involved   |                                |                             |
| <b>2. Problem Statement</b>                    | Describe the current pain. Why are you working on this project?                                  |                                |                             |
| <b>3. Business Benefit (Impact)</b>            | Describe the importance to the business. What is cost of doing nothing or the estimated return?  |                                |                             |
| <b>4. Project Goal(s)</b>                      | List the specific goals of this project.   |                                |                             |
| <b>5. Project Measure(s)</b>                   | What are the primary and secondary metrics? Note baseline data for each (if available) and goal. | <b>Primary Measure(s)</b>      | <b>Secondary Measure(s)</b> |
|  |  |                                |                             |
| <b>6. Customers and Suppliers</b>              | Who are the customers and suppliers? What are their critical requirements or concerns?           |                                |                             |
| <b>7. Project Team</b>                         | List your team members and their department/function/role.                                       |                                |                             |
| <b>8. Percent of Time Dedicated to Project</b> | For planning purposes, indicate what % of time you will devote to this project                   |                                |                             |

# DFSS Study Charter - Example



## Project – Study Definition Data Files



|   |   |   |  |
|---|---|---|--|
| <b>Study Name:</b>                                    |   | <b>Study Start Date:</b>  |  |
| <b>Your name:</b>                                     |   | <b>Target Completion Date:</b>  |  |
| <b>Division/Location:</b>                             |   | <b>Study Coach:</b>   |  |
| <b>Study Sponsor:</b>                                 |   | <input type="checkbox"/> VOC <input type="checkbox"/> MSA <input type="checkbox"/> Analytical Mod. & Sim. <input type="checkbox"/> Design & Process Cap.<br><input type="checkbox"/> DFSS Scorecard <input type="checkbox"/> FMEA <input type="checkbox"/> Robust Design <b>Black Belt Only</b><br><input type="checkbox"/> Concept Gen. & Sel. <input type="checkbox"/> Stat. Tools & Analysis <input type="checkbox"/> Tolerancing & Spec. <input type="checkbox"/> Design for Reliability<br><input type="checkbox"/> Detailed Des. Strategy <input type="checkbox"/> DOE <input type="checkbox"/> Design for X <input type="checkbox"/> Advanced Topics |  |
| <b>Competency Area(s) Demonstrated:</b>               |   |   |  |
| <b>1. Study &amp; Opportunity (product / process)</b> | Briefly describe the study and product/process involved. What problem are you trying to solve or what knowledge are you trying to expand. |   |  |
| <b>2. Business Benefit (Impact)</b>                   | Describe the importance to the business. Why should we work on this study? What is the benefit?   |   |  |
|   | <b>Check all that apply:</b>  | <input type="checkbox"/> improve customer satisfaction <input type="checkbox"/> develop new markets<br><input type="checkbox"/> faster time to market <input type="checkbox"/> robust technology development<br><input type="checkbox"/> decrease costs (rework, warranty) <input type="checkbox"/> knowledge gaining   |  |
| <b>3. Study Goal(s)</b>                               | List the specific goal(s) of this study. What are you intending to accomplish? How will you measure achievement of these goals?           | <b>1. Goal #1 here</b><br><b>2. Goal #2 here</b>  |  |
| <b>4. Study Scope</b>                                 | What is in scope (e.g., parts, subsystem, etc.) and what is not? What are the boundaries?   |   |  |
| <b>5. Deliverables (Success Criteria)</b>             | How will you know when you're finished? What are the major milestones that must be completed? How is success defined?                     |   |  |
| <b>6. Customers and Suppliers</b>                     | Who are your customers and suppliers?   | <b>Customer(s)      Supplier(s)</b>   |  |
|   |   |   |  |
| <b>7. Study Team</b>                                  | List your team members and their department/function/role.  | <b>Team Member      Dept/Role</b>   |  |
|   |   |   |  |
| <b>8. Other Required Resources</b>                    | List other resources such as fixtures, funding, equipment, etc. that are required.  |   |  |
| <b>9. Percent of Time Dedicated to Study</b>          | For planning purposes, indicate what % of time you will devote to this study.   |   |  |
| <b>Concurrence:</b>                                   | <b>Study Initiation (signature)</b>   | <b>Study Completion (signature)</b>   |  |
| <b>Green/Black Belt:</b>                              |   |   |  |
| <b>Sponsor:</b>                                       |   |   |  |
| <b>Coach:</b>   |   |   |  |

# Process Description

- Description of the process identified for improvement and its purpose (not the problem, suspected root cause, or potential solutions). This description should be concise. Only a couple of sentences should be required.
- This section can be used to show what is in and out of scope for the project / study.
- Examples:
  - The customer service center is tasked with improving the incoming call communication process. Customers call in with questions or for help and need to be directed to the appropriate person or department.
  - The blood testing lab receives specimens requiring quick turnaround for Emergency Department patients. Diagnostic tests are performed and results are made available to requesting personnel.
  - The Engineering Change Proposal process for the electronics division on the West coast.



# Problem Statement

- Everyone on the team and leadership must agree on the problem statement.
- Problem Statements should:
  - Flow from the business case
  - Define what is wrong
  - State the magnitude and/or impact of the problem (the current pain)
  - Address the “so what?” (what is the cost of doing nothing or the business impact)
  - Not specify a solution
  - **Identify a primary metric / measure**
- Example:
  - “We have huge differences between our forecasted and actual demands for software, resulting in write-offs of \$1 million per quarter in software worldwide. This is causing us to miss our revenue projections for the quarter and impacts profitability.”

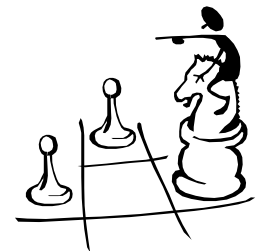


# Problem Statement (Exercise)

- Consider the following problems statements. Identify each as a good or poor example. If poor, explain why and what is needed to improve it.
  1. “Our customers are not happy with us.”
  2. “Customers are complaining because our response time is slow so we need to install the ABC software package to help us speed up response time.”
  3. “Customers are complaining because health care claims are taking an average of 48 days to process. We’re incurring \$10,000 in overtime expenses each month to keep up with the claims and our customer satisfaction rating has slipped by 30% over the past year.”

# Business Benefit (Impact)

- The business benefit (impact) section
  - Provides the business rationale leading to the project.
  - Helps create a shared understanding and shared need among team members and project stakeholders (the current pain, COPQ, CODN, COW).
  - Some rules to keep in mind when creating your business case:
    - Keep it simple!
    - Review the business case with your management, the team, and designated coaches. Ensure understanding and alignment.
    - Be convincing! Remember, if you don't understand or can't clearly communicate the reasons for working on the project / study, how will you get support and/or time for it.
- Can be used as an “elevator speech” for describing your project / study. These three key elements we need to be able to communicate effectively:
  - Why should we work on this project? (Current Pain, COPQ, COW, etc.)
  - What if we don't? What are the consequences? (CODN, So What?)
  - What is the desired outcome? (Compelling Vision)



# Project / Study Goals

- Project / study goals should:
  - Be derived from the problem statement and the business impact
  - Define the desired improvement
  - Make use of a verb, noun, number, and date
  - Not be too narrowly or too widely focused
  - Not specify a solution
  
- Example of Project / study goals:
  - **Poor:** Improve claims processing
  - **Poor:** Install ABC software to speed up processing of claims
  - **Better:** Reduce the average cycle time for processing claims by 50% by August 30th, in order to improve customer satisfaction and reduce overtime expenses.



# Project / Study Goals

Remember to make project goals:



**S**

Specific

**M**

Measurable

**A**

Achievable

**R**

Relevant

**T**

Timely



# Project / Study Measures

- Used as indicators to measure success
- Directly related to project / study goals
- Green Belt and Black Belt projects may have both primary and secondary measures
- *Primary measures* are the main focus of the project. The primary metric is typically one of three dimensions: time, money, or performance. A project should be limited to one or at most two primary measures.
- *Secondary measures* are additional things you will measure and track as you work on your project, although not your primary focus. As you focus on improving the primary measure, what can get hurt by this improvement? Often the secondary metric is one of the other dimensions not described by the primary measure. If you are trying to reduce cycle time as a primary measure, you do not want to sacrifice quality (the secondary measure)!



# Project / Study Goals and Measures (Exercise)

Consider the following scenario:

Gary Greenbelt has been assigned to improve a shipping process. In particular, the big problem has been with damaged shipments arriving at the customer site. His department is receiving a lot of customer complaints and are having to pay huge premium freight charges to get replacement shipments back to the customers quickly. Gary's project goals, agreed upon with his Sponsor are to:

- *Reduce the percentage of damaged shipments by 60% by August 30<sup>th</sup>.*
- *Reduce the premium freight charges by at least 50% by August 30<sup>th</sup>.*

What are Gary's primary project measures?

What are possible secondary project measures?

# Project / Study Goals and Measures (Exercise)

Consider the following scenario:

Gary Greenbelt has been assigned to improve a shipping process. In particular, the big problem has been with damaged shipments arriving at the customer site. His department is receiving a lot of customer complaints and are having to pay huge premium freight charges to get replacement shipments back to the customers quickly. Gary's project goals, agreed upon with his Sponsor are to:

- *Reduce the percentage of damaged shipments by 60% by August 30<sup>th</sup>.*
- *Reduce the premium freight charges by at least 50% by August 30<sup>th</sup>.*

What are Gary's primary project measures?

**damaged shipment %**  
**premium freight charges**

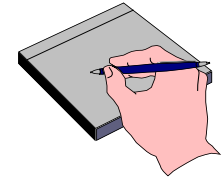
What are possible secondary project measures?

**On Time Delivery (OTD)**  
**Packaging costs**



# Stakeholder Analysis

- Identify the key stakeholders. Stakeholders are individuals or groups who are affected by or who can affect your team’s work. These could include internal and external suppliers and customers.
- Understand who is “for” and “against” the project.
- Identify sources of resistance and anticipate issues and concerns
  - Technical (cost, skills, etc.)
  - Political (authority, power, etc.)
  - Cultural
- Develop strategies for gaining needed support



**Project – Study Definition Data Files**



**Sample Project Stakeholder Analysis / Planning Worksheet**

| Dept. | Key Stakeholder | Level of Acceptance |     |      | Issues / Concerns | Strategy |
|-------|-----------------|---------------------|-----|------|-------------------|----------|
|       |                 | Low                 | Med | High |                   |          |
|       |                 |                     |     |      |                   |          |
|       |                 |                     |     |      |                   |          |
|       |                 |                     |     |      |                   |          |
|       |                 |                     |     |      |                   |          |
|       |                 |                     |     |      |                   |          |

# Stakeholder Analysis (cont'd)

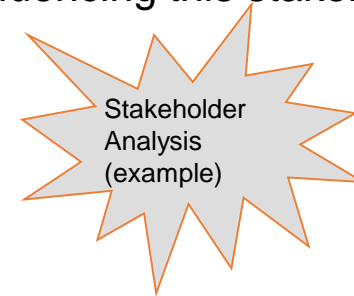
**Focus on Win/Win Strategies**

- For each stakeholder, consider
  - What do you need from this stakeholder?
  - What are their interests?
  - How can this stakeholder benefit from the project?
  - How might this stakeholder be affected or inconvenienced by the project?
  - What possible resistance might I see from this stakeholder? (technical, political, cultural)
  - What are the best strategies for communicating with and influencing this stakeholder?

## Example



**Project – Study Definition Data Files**



### Stakeholder Analysis

Name: \_\_\_\_\_  
 Project: Reducing Manufacturing cycle time for product ABC

| Department      | Key Stakeholder         | Level of Acceptance |     |      | Issues / Concerns   | Strategy for Gaining Support/Buy-In   |
|-----------------|-------------------------|---------------------|-----|------|---|---|
|                 |                         | Low                 | Med | High |   |   |
| Production      | Operators (Mike, Stacy) |                     | X   |      | learning new SOPs; limited time                                   | involve in ideas; invite to brainstorming meetings; solicit feedback; include on team; focus on simplification                                    |
| Plant Manager   | R. Sheffield            |                     |     | X    | meeting customer demand and on-time-delivery (no negative impact) | be successful on project with cycle time reduction which will positively impact OTD; send periodic email updates on project                       |
| Quality Control | M. Thetford             |                     | X   |      | don't impact QC test results; maintain quality                    | Track quality as secondary measure for project; periodic reviews with QC  |
| Maintenance     | A. Richardson           |                     | X   |      | wear and tear on equipment; no increase in downtime               | Track machine downtime as secondary measure; include impact to machines/equipment as part of decision criteria when evaluating possible solutions |

# Teamwork

- Successful projects and studies require a team effort
- Core team should be made up of no more than 4-8 members
- Effective LSS and DFSS project and study teams
  - are cross-functional and adjust membership as needed
  - recognize the value of listening, being open-minded, and basing decisions on facts and data
  - conduct effective meetings
  - involve everyone and have clearly defined roles and expectations



# Team Roles

- Team Sponsor / Champion
  - Ensures that the team has the resources and support it needs to be successful
  - Directly responsible and accountable for team results
- Team Leader
  - Facilitates team meetings
  - Keeps Sponsor informed on team progress and resource needs
- Core Team Members
  - Active participation in (weekly) meetings
  - Provide technical input and assist with data collection and analysis
  - Complete action items
- Extended Team Members
  - Active participation in sub-team meetings.
  - Provide technical input and assist with data collection and analysis
  - Complete action items
  - Review core team decisions and provide recommendation and approval on final output of team
  - Examples: Finance, Customer Service, Sales, IT, etc.

# Project / Study Charter Summary

- Project / study details should be summarized in a project / study charter.
- Project / study charters completed by the lead belt and project sponsor; and reviewed with the project team. Project / study charters should communicate project / study information for leadership, the team, and the organization.
- Key elements of a project / study charter
  - **Project sponsor**
  - **Description of product or process**
  - **Problem statement**
  - **Opportunity / Business Impact**
  - **Project goals**
  - **Project measures**
  - **Stakeholder Analysis**
  - **Team**
- Generic formats for all charters are provided in the Excel data set.

| Lean Six Sigma Project Charter          |   |                         |                      |
|---|---|-------------------------|----------------------|
| Project Name:                           |   | Project Start Date:     |                      |
| Your name:                              |   | Target Completion Date: |                      |
| Division/Location:                      |   |                         |                      |
| Project Sponsor:                        |   |                         |                      |
| 1. Product / Process                    | Describe the product or process involved  |                         |                      |
| 2. Problem Statement                    | Describe the current pain. Why are you working on this project?                                 |                         |                      |
| 3. Business Benefit (Impact)            | Describe the importance to the business. What is cost of doing nothing or the estimated return? |                         |                      |
| 4. Project Goal(s)                      | List the specific goals of this project   |                         |                      |
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| 6. Customers and Suppliers              | Who are the customers and suppliers? What are their critical requirements or concerns?          |                         |                      |
| 7. Project Team                         | List your team members and their departments/divisions  |                         |                      |
| 8. Percent of Time Dedicated to Project | For planning purposes, indicate what % of time you will devote to this project                  |                         |                      |



# Key Takeaways



- As a review techniques, stop the video and summarize the key learnings from this session. When you are finished, continue to the next page.

# Key Takeaways

- Projects – lifeblood of the LSS and DFSS continuous improvement strategies
- Leaders selects and drives the projects / studies!
- Belts drives the project / studies through the appropriate methodology.
- Studies are mostly used in DFSS certifications because of time constraint issues.
- Scoping is crucial for timely completion of the projects and studies.
- A clear and concise charter is essential to a successful project / study completion.
- Key elements of a charter:
  - Process description
  - Problem statement
  - Business benefits (impact)
  - Goals
  - Measures
  - Stakeholder analysis
  - Teams

# Supplemental Material



- Suggested Reading:
  - ***Design for Six Sigma: The Tool Guide for Practitioners*** by Reagan and Kiemele (chapter 1 and Section 7.28)
  - Air Academy's app: ***Six Sigma Quick Tools***



- SPC XL™ software training tutorials:
  - <https://airacad.com/our-insights/training-videos/spc-xl/>
- The data files for this session can be downloaded from the site where you are accessing this course.



# Additional Practice / Review Questions



## *Project – Study Definition Data Files*

- 1) Using the Project – Study Definition Data File, start completing the charter template for your project / study! Use the appropriate charter template!
- 2) Using the Example Charter #1 worksheet of the Project – Study Definition Data File, comment on the good and bad elements provided. How could you make it better?
- 3) Using the Example Charter #2 worksheet of the Project – Study Definition Data File, comment on the good and bad elements provided. How could you make it better?

# We can help...

## Connect With Us



### Remote Project Coaching

There are times when help outside your organization is needed. When that time comes, benefit from a partner that is experienced, tested, and trusted.

Expert coaching is one of the Top Five Best Practices for generating step change in project execution, as well as enhanced return on investment. We can work remotely with your organization to provide coaching support.

Air Academy Associates

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Email: [aaa@airacad.com](mailto:aaa@airacad.com)

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