PROCESS TOOL OVERVIEW
Six Sigma SIPOC Framework

OUTLINE

Adaptable businesses modify and develop their processes to the situation. One school of thought on modifying and developing processes is Six Sigma. Among the most fundamental Six Sigma tools is the SIPOC process framework.
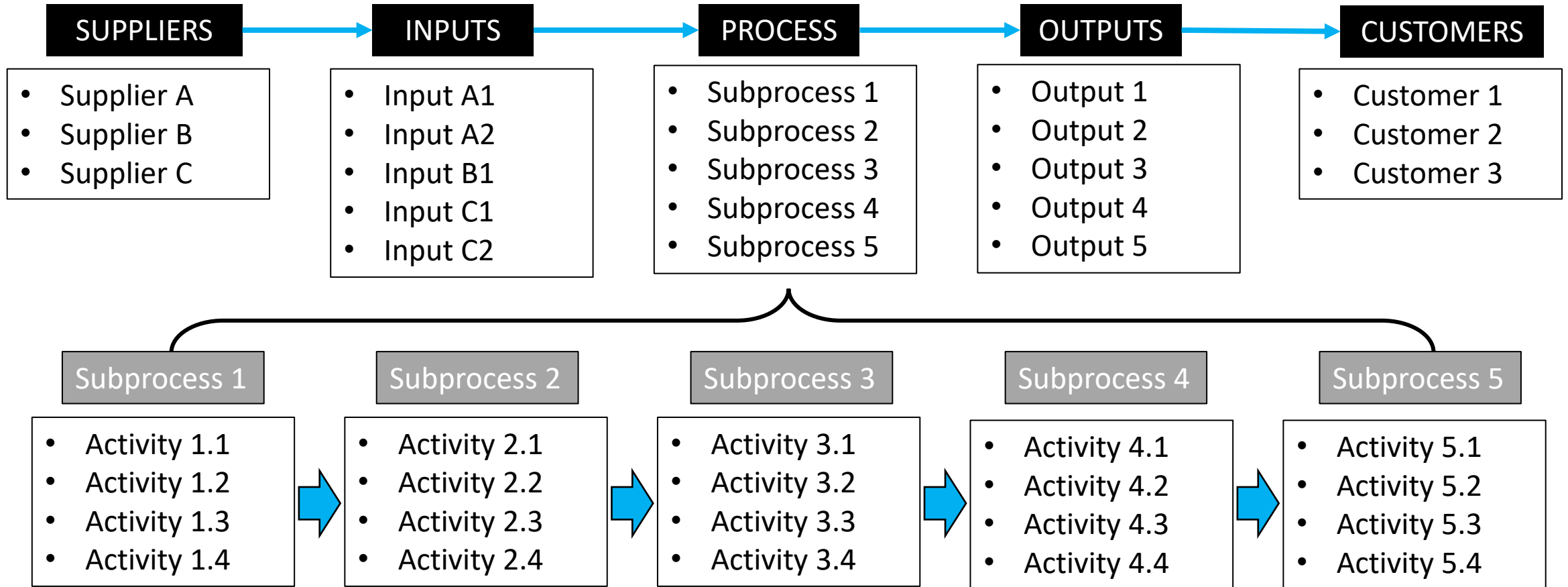
"SIPOC" stands for Supplier – Input – Process – Output – Customer. Using some version of a SIPOC is essential for methodical process definition, measurement, analysis, improvement, and control work.

The SIPOC process framework in this presentation was developed by TSM Worldwide LLC to illustrates application to a manufacturing (e.g. a machine shop) or mechanical contracting-related fabrication environment.

For more information or to submit inquiries, please see the capabilities statement at the end.
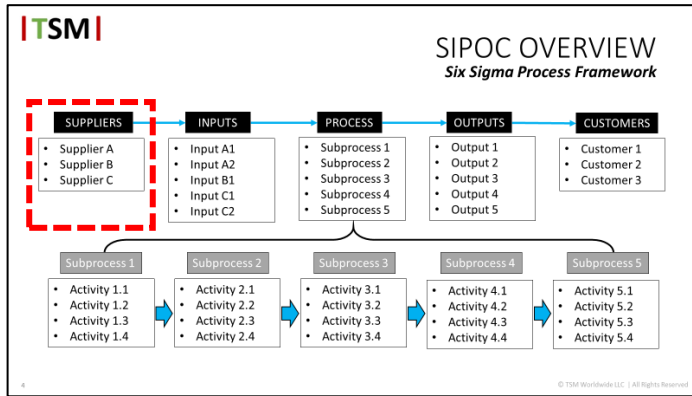
SIPOC OVERVIEW
Six Sigma Process Framework

SUPPLIERS	**INPUTS**	**PROCESS**	**OUTPUTS**	**CUSTOMERS**
• Supplier A • Supplier B • Supplier C	• Input A1 • Input A2 • Input B1 • Input C1 • Input C2	• Subprocess 1 • Subprocess 2 • Subprocess 3 • Subprocess 4 • Subprocess 5	• Output 1 • Output 2 • Output 3 • Output 4 • Output 5	• Customer 1 • Customer 2 • Customer 3

Subprocess 1	Subprocess 2	Subprocess 3	Subprocess 4	Subprocess 5
• Activity 1.1 • Activity 1.2 • Activity 1.3 • Activity 1.4	• Activity 2.1 • Activity 2.2 • Activity 2.3 • Activity 2.4	• Activity 3.1 • Activity 3.2 • Activity 3.3 • Activity 3.4	• Activity 4.1 • Activity 4.2 • Activity 4.3 • Activity 4.4	• Activity 5.1 • Activity 5.2 • Activity 5.3 • Activity 5.4

SIPOC OVERVIEW
Six Sigma Process Framework

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
• Supplier A • Supplier B • Supplier C	• Input A1 • Input A2 • Input B1 • Input C1 • Input C2	• Subprocess 1 • Subprocess 2 • Subprocess 3 • Subprocess 4 • Subprocess 5	• Output 1 • Output 2 • Output 3 • Output 4 • Output 5	• Customer 1 • Customer 2 • Customer 3

SUPPLIER

- Supplier A
- Supplier B
- Supplier C

- Supplier is meant generically to mean the provider of a given input necessary to eventually complete a process.

- Suppliers can refer to actual people, companies, websites, industry groups, anyone or anything that releases or publishes or otherwise provides a relevant process input.

- If there is more than one supplier involved in a process, its useful to create a naming convention that associates a given supplier with an input.
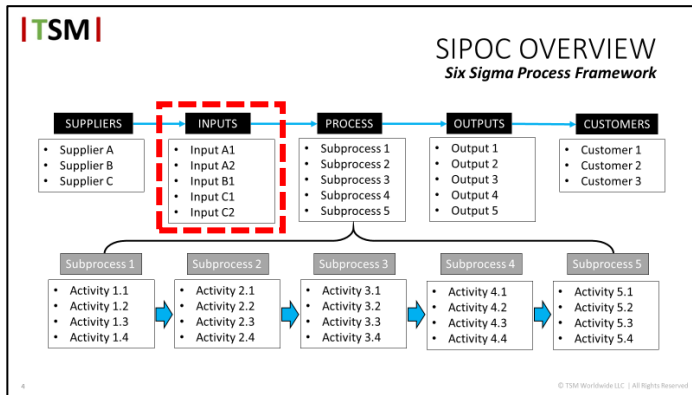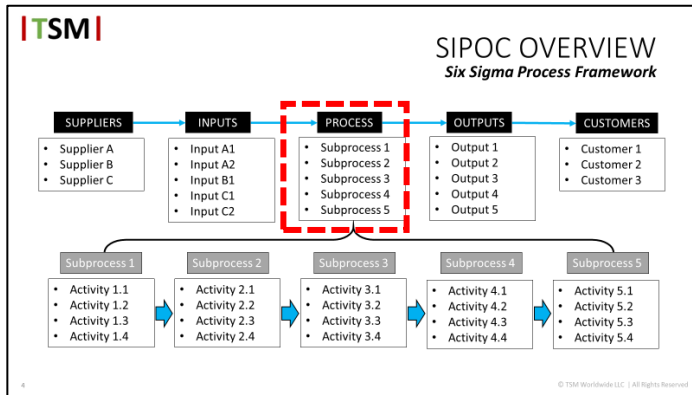
INPUTS

- Input A1
- Input A2
- Input B1
- Input C1
- Input C2

- An input is generically to mean anything provided by a supplier that is necessary to eventually complete a process.

- Can be actual people, specific kinds of tools and materials, technical specs, relevant laws and building ordinances, business purchasing policy, customer specifications and expectations, contract details, project plan details, project manager guidance, foreman guidance…basically anything relevant to the process and delivering desired outputs for a defined customer.

- Should be named to clarify where they came from. For example, Inputs A1 and B1 would be the from Customer A and B respectively.

What is meant by "Process?" (Part 1)
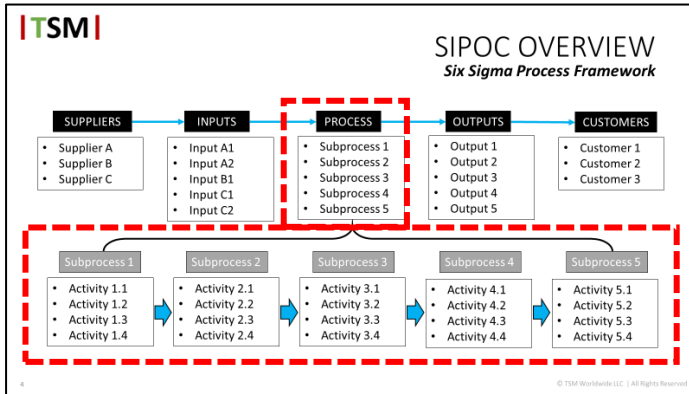

SIPOC OVERVIEW
Six Sigma Process Framework

PROCESS

- Subprocess 1
- Subprocess 2
- Subprocess 3
- Subprocess 4
- Subprocess 5

- A process is the series of activities or tasks performed to transform inputs into an output for a customer.

- A process can be simple and isolated with straight forward linear aspects. More often, processes needs to be broken down into hierarchies of sub processes, each with their own activities. Processes can have linear, cyclical, and parallel aspects, and might even be nested within a larger process or have subordinate nested processes.

- Processes can have "always on" aspects or conditional characteristics (e.g. if x, the execute process X1, if x does not happen, do process X2.)
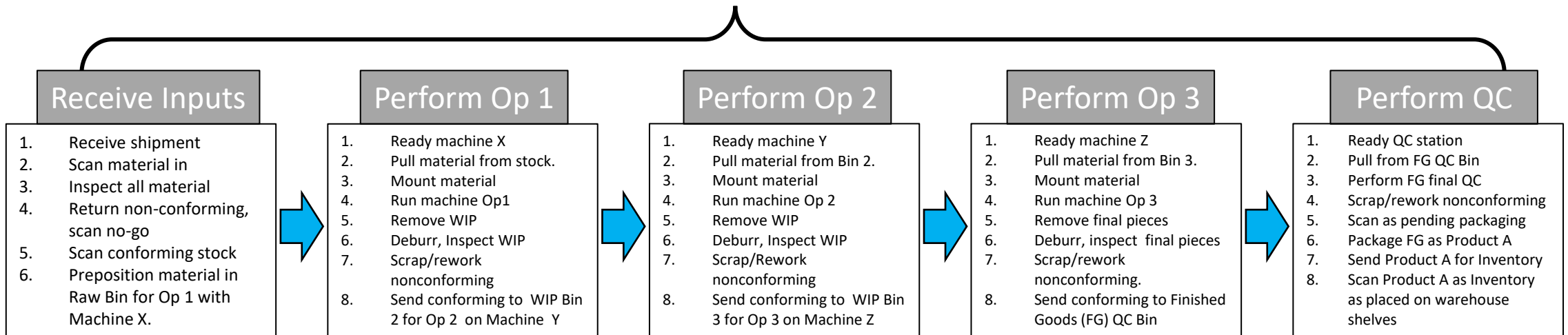
SIPOC OVERVIEW
Six Sigma Process Framework

Fab Product A

- Receive Inputs
- Perform Op 1
- Perform Op 2
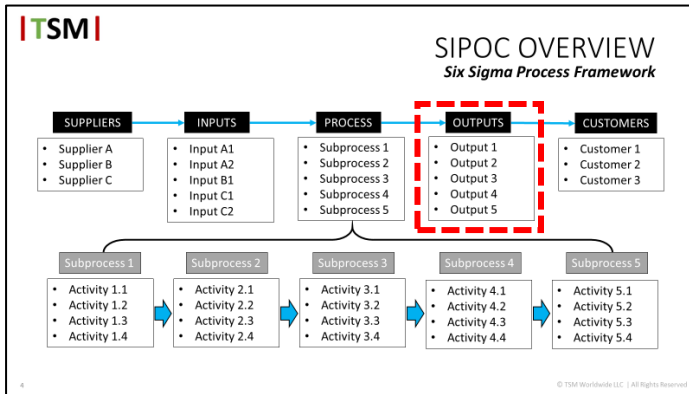- Perform Op 3
- Perform QC

Sample process narrative:

Fabricate Product A…. Raw material is received from a supplier, this material is then converted through 3 machining operations into finished goods, then packaged as final products, and finally placed into inventory.

Receive Inputs

1. Receive shipment
2. Scan material in
3. Inspect all material
4. Return non-conforming, scan no-go
5. Scan conforming stock
6. Preposition material in Raw Bin for Op 1 with Machine X.

Perform Op 1

1. Ready machine X
2. Pull material from stock.
3. Mount material
4. Run machine Op1
5. Remove WIP
6. Deburr, Inspect WIP
7. Scrap/rework nonconforming
8. Send conforming to WIP Bin 2 for Op 2 on Machine Y

Perform Op 2

1. Ready machine Y
2. Pull material from Bin 2.
3. Mount material
4. Run machine Op 2
5. Remove WIP
6. Deburr, Inspect WIP
7. Scrap/Rework nonconforming
8. Send conforming to WIP Bin 3 for Op 3 on Machine Z

Perform Op 3

1. Ready machine Z
2. Pull material from Bin 3.
3. Mount material
4. Run machine Op 3
5. Remove final pieces
6. Deburr, inspect final pieces
7. Scrap/rework nonconforming.
8. Send conforming to Finished Goods (FG) QC Bin

Perform QC

1. Ready QC station
2. Pull from FG QC Bin
3. Perform FG final QC
4. Scrap/rework nonconforming
5. Scan as pending packaging
6. Package FG as Product A
7. Send Product A for Inventory
8. Scan Product A as Inventory as placed on warehouse shelves

OUTPUTS

- Output 1
- Output 2
- Output 3
- Output 4
- Output 5

- Output is generically to mean the deliverable or end-product of a given process, which can be anything from planning documents, to final fabricated components, products, to sheet metal or piping installed for a given floor plan, to a finished building depending on your level of concern / analysis.

- Outputs can be tangible or intangible. For example, a component widget with stamped serial number is an output. A team of installers all trained up on specific task or procedure can also be understood as an output from a project preparation process.

- Outputs can be final or inputs to other processes. For example, the component widget or the trained installer team above could be mapped as inputs to a downstream processes in making an assembled final product or completing building system installation for a given zone, floor, or building.

What is meant by "Customers?"

SIPOC OVERVIEW
Six Sigma Process Framework
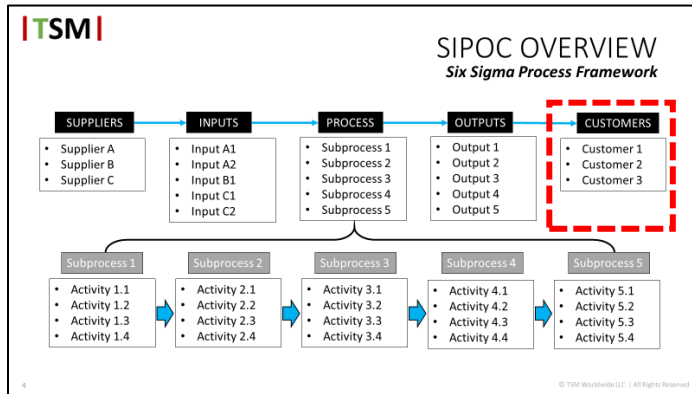
CUSTOMERS

- Customer 1
- Customer 2
- Customer 3

- Customers could be fellow employees, actual client customers, and teams or organizations of any sort.

- They can be "end customers" who make use of the output for their own purposes. Or they can be intermediate customers in that they pass along the output as if the output is actually an input into their own process in some way.

- A basic principle of Six Sigma process development and quality management generally is that is that all processes, all subprocesses, and all activities need to be conceptualized to ultimately meet the needs and expectations or requirements of all downstream process customers.

|TSM|

CAPABILITIES STATEMENT

The TSM story began in 2006 after Jeff Moran returned from overseas military duty and completed a multi-year intensive entrepreneurship assistance program sponsored by the Veterans Benefits Administration. TSM has since evolved to conscientiously and creatively partner with clients on a range of specialized challenges and opportunities in construction and manufacturing management. In 2020, TSM completed VA-verification as a Service-Disabled Veteran-Owned Small Business so now also offers strategic venturing services to firms in federal markets. TSM plans to complete SBA HUBZone certification in 2021.

SDVOSB — cVE

Jeff Moran
Owner & Project Executive

Biography
30+ years of diverse functional and international experience with TSM Worldwide LLC, Honeywell Aerospace, Ingersoll-Rand, and Deloitte including 14 years of distinguished Regular & Reserve Army service as an apprentice and commissioned Intelligence Officer.

Selected Individual Certifications
FMI – Construction Exec | MCAA-AIPM | USACE/NAVFAC QM
DAU-DSAM | DoD-PPBES | DoD-RMBC | SBA 7J (10+)
Six Sigma Blackbelt | MN State –Tech Dipl (Design, Fab, Svc)
Learning Tree – Systems & Network Security (+4 others)

Education
BSFS, Georgetown University (honors)
MBA, Emory University
Joint LLM MS, Université de Genève-IHEID

Contact Details
+1.763.301.1843 (Mobile)
+1.877.768.4164 (Office/Fax)
jeff@tsmworldwide.com

View profile

Linked in

Functional & Process Competencies
- Compliance program evaluation, development, management
- Continuous process improvement
- Financial analysis, management accounting, audit, controls
- Interim management & supervision
- Investigative research methods & practices
- Machine shop design and manufacturing service management
- Physical, information, systems, network, & personnel security
- Procurement & related administration and management
- Program/project management (full life-cycle)
- Quality management, audit, & control
- Risk-management & advisory (full spectrum)
- Sales & marketing management
- Strategic ventures & contracts management
- Technical service & manufacturing operations management
- Valuation, estimating, forecasting, and budgeting

Market Segments of Interest
- Aerospace, defense, intelligence
- Correctional, public safety, security
- Federal facilities, institutions, and public buildings
- Manufacturing & building construction management
- Medical, hospitals, patient-care

Selected NAICS Codes
- 236220 | Commercial & Institutional Building Construction
- 238220 | Plumbing, Heating, and Air-Conditioning Contractors
- 332710 | Machine shops
- 423720 | Plumbing & Heating Equipment (Hydronics) Wholesaler
- 423730 | Heating and Cooling Equipment (Air) Wholesaler
- 541611 | Administrative management, related consulting services
- 541614 | Process, distribution, logistics consulting services

Other Certifications / Security Clearance
- VA Verified SDVOSB | HUBZone certification pending
- MN Federal Executive Board-certified (SADBOC)
- Top Secret + clearance expired, reinvestigation pending

CAGE Code 8FQV5
DUNS # 012488963

Web Address https://tsmworldwide.com

Physical Address
TSM Worldwide LLC
12700 550th Street
Rock Creek, MN 55069

Postal Address
TSM Worldwide LLC
P.O. Box 141050
Minneapolis, MN 55414