

# HIR Supply Chain TWG Next Steps

## Supply Chain TWG Team

### **TWG Chair -- Selection in Process**

Chris Bailey -- [Christopher.j.bailey@asu.edu](mailto:Christopher.j.bailey@asu.edu)

Steffen Kröhnert -- [steffen.kroehnert@espat-consulting.com](mailto:steffen.kroehnert@espat-consulting.com)

Kitty Pearsall -- [kitty.pearsall@gmail.com](mailto:kitty.pearsall@gmail.com)

Melissa Grupen-Shemansky -- [megshemansky@semi.org](mailto:megshemansky@semi.org)

Siva Sivasanka -- [rsivasankar@google.com](mailto:rsivasankar@google.com)

Paul Trio -- [ptrio@semi.org](mailto:ptrio@semi.org)



# HIR Supply Chain TWG -- Looking Forward

The Supply Chain TWG plans to focus on the following areas listed below but may include more topics. Cross collaboration is planned with the Modeling and Simulation TWG and potentially the Co-Design TWG to meet the challenge of “really” knowing what is in your supply chain.

**Advanced Packaging** -- new technologies and applications require a flexible and agile supply chain

**Raw Materials Supply** -- that come with offshoring, localization and nearshoring.

**Manufacturing Equipment Innovation and Availability** -- required to keep pace with advanced packages and applications

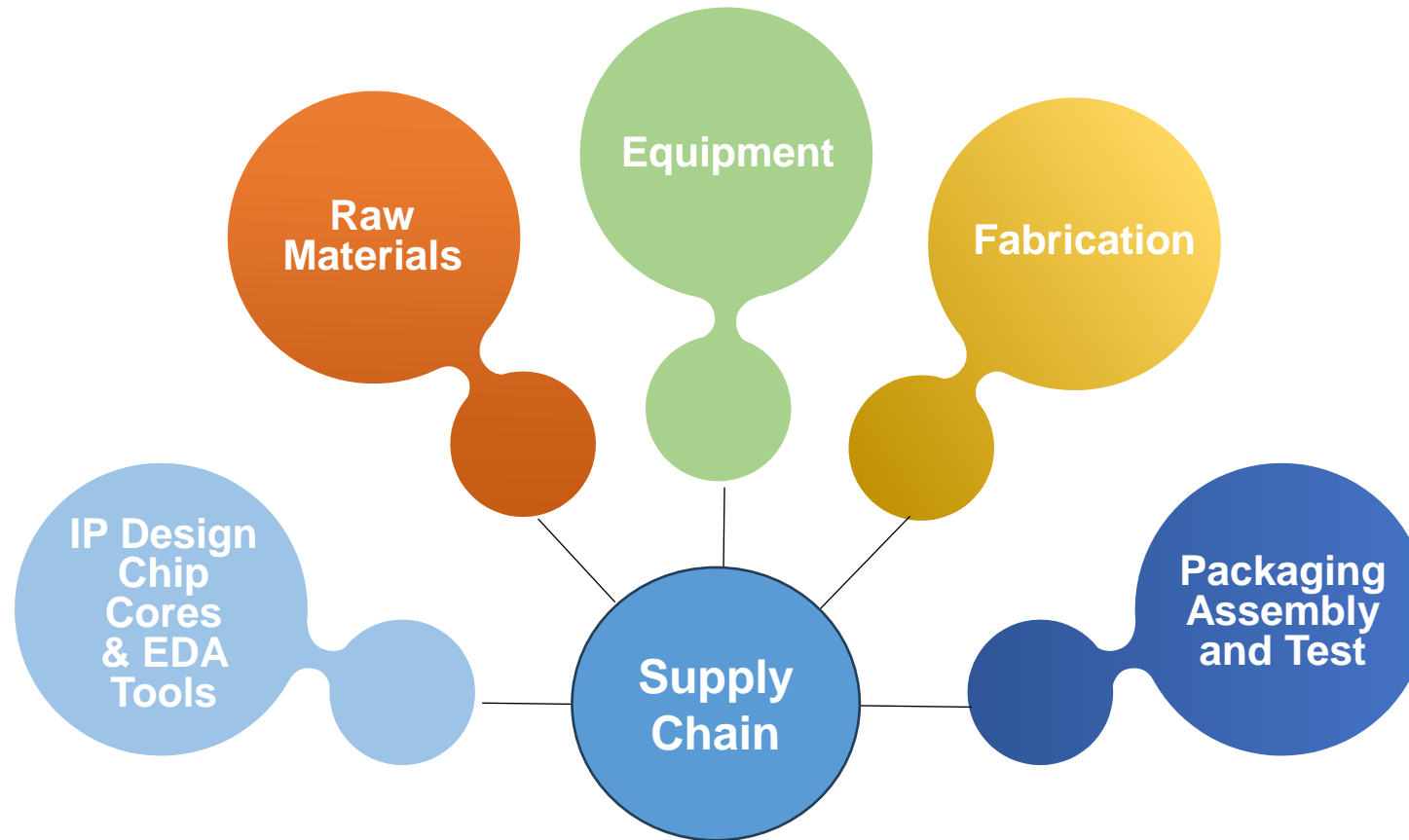
**Digital transformation of manufacturing/production processes** -- AI/ML used to create a digital supply chain and/or the use of digital twins to enable prescriptive analytics

... to better understand the complex elongated supply that results, its impact, and its response to disruptions require in-depth analysis of the resulting supply chain – create a supply chain map

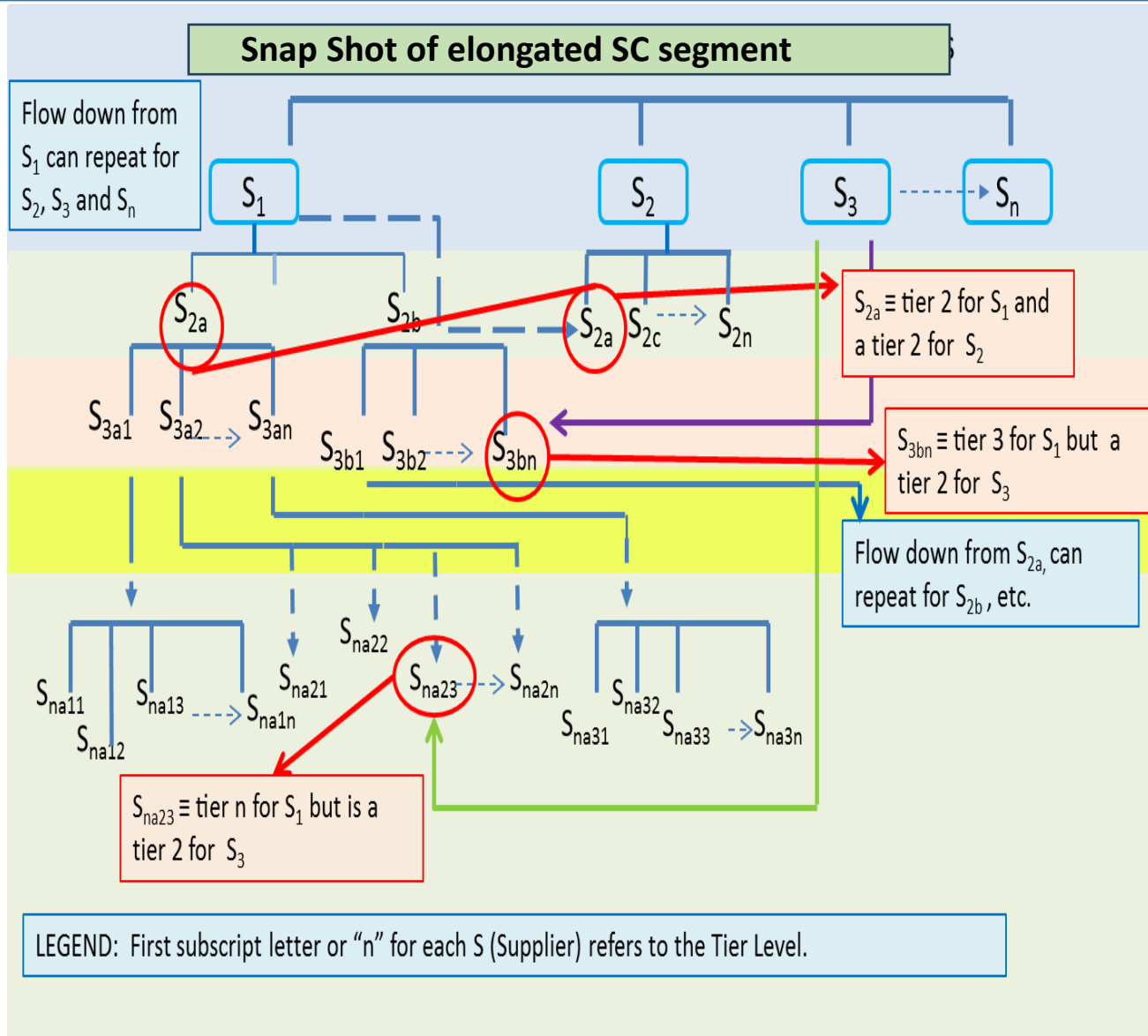


# Semiconductor Manufacturers' Inclusive Supply Chain

... an effective process must be able to access a global supply chain of materials, equipment, fabrication, assembly, and test capacity ...



# Semiconductor Supply Chain Map for a given segment



**Focus 1st on  $S_{3bn}$ .** This supplier is a 3rd tier supplier of Supplier 1, and at the same time it is a Tier 2 supplier of Supplier 3

**Focus 2nd on  $S_{2a}$ .** This 2nd tier supplier to Supplier 1 is also a Tier 2 Supplier for S2.

**Focus 3rd on  $S_{na23}$ ,** further down the chain at Sna23. This is the 21st supplier of the nth tier of Supplier S2a. It is also a 2nd Tier supplier of Supplier 3.

Continuing in this effort it is easy to see how this elongated SC model takes on the name "barrel shaped"



# Semiconductor Supply Chain Analysis Via Digital Twins

Digital twins can be used to assist the supply chain analyst because the semiconductor SCs are rich in data. Simulations have been used for many years and are now enhanced through the use of the creation of a digital supply chain.

- Complexities that a manufacturing entity faces but not aware of
- Assumed confidence because of multiple sourcing for a given supplier and or tier
- Supplier redundancy is not always a good thing as a supplier and its tier can vary
- Hard to assess resiliency



# Semiconductor Manufacturers' Supply Chain Summary

If anyone is interested in joining the Supply Chain TWG  
please contact me at [kitty.pearsall@gmail.com](mailto:kitty.pearsall@gmail.com)

*Thank You for Your Attention!*

