

# **Quality, the Configuration of the Inspection System and Resource Requirements**

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## **Abstract**

Resource requirements is the basic building block of capacity planning and a principal concern in the design of production/manufacturing system. Similar factors govern resource requirements and material flows. In particular, quality factors and the configuration of the quality assurance – the inspections' system. In IEOM 2021, the dependencies of material flows on quality and the configuration of the inspection system have been discussed and resource requirements have been marked for future consideration. Now it is their turn. Despite the intensive effort devoted to this subject, only recently have the dependencies of resource requirements on quality levels and the configuration of the inspections' system been modeled correctly. The quality levels, the configuration of the inspections' system, and inspection error rates significantly affect production volumes and the consequent resource requirements. Due to the compensation principle volume and hence resource requirements are inversely related to the quality level - increase with the defect rates. Inspections aid by removing defect units – decrease the volumes. Unfortunately, inspections are imperfect and conforming units are also removed due to inspection errors. These units, too, require compensations. Besides, Inspections incur costs, additional to other production costs. Consequently, the configuration of the inspections' system becomes an issue. These effects are demonstrated, examined and discussed in this talk.

## **Keywords (12 font)**

Quality, Inspection errors, Yield rates, Resource requirements

## **Biography**

**Moshe Eben-Chaime** is a professor in the Department of Industrial Engineering and Management, Ben-Gurion University of the Negev, Israel. He received the Ph.D. degree from the School of Industrial and Systems Engineering, Georgia Institute of Technology where he studied as a Fulbright student. His research interests are in core IE and productivity improvement through better design of production/manufacturing systems, work methods, work stations and facilities.