

HEIJUNKA



DEFINITION OF HEIJUNKA (hi-JUNE-kuh)

- a Japanese word meaning “leveling”
- the balancing of production by both volume and product mix as demanded by the customer by making optimal utilization of the available capacity
- a technique for achieving even output flow by coordinated sequencing of small production batches throughout manufacturing process
- a technique for reducing the Mura which in turn reduces *Muri* and *Muda* in production and interpersonal processes

The 3M's

- Muri — overburden
- Mura — unevenness
- Muda — waste

By implementing Heijunka, organizations are able to build to customer demand by type/product, spreading out production evenly throughout the day. As a result, workflow is balanced, flexible, stabilized, standardized, predictable, and capacity isn't over or under-utilized.

ESSENTIAL COMPONENTS/ REQUIREMENTS OF HEIJUNKA IMPLEMENTATION

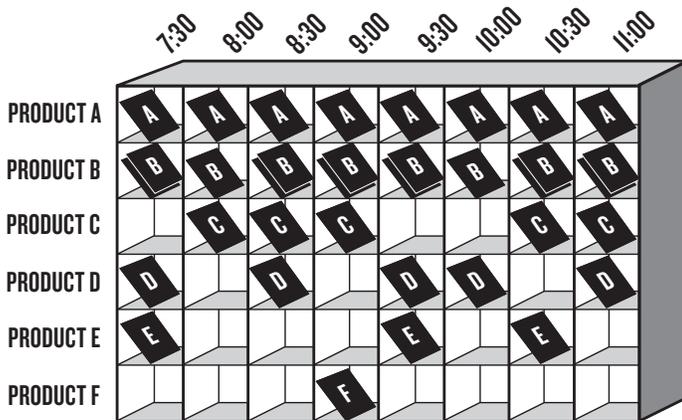
- Reliable data
- Adherence to standards
- Established takt time / coordination with customers to assess accurate demand
- Product leveling by volume/quantity
- Product leveling by product type
- Use of a Heijunka box/board (see below)
- Slow and consistent pace of work
- Tool redesign to allow for flexibility in production
- Predictable environment
- Reliable Equipment
- Efficient changeover times
- Mistake-Proofing devices
- Buffer stock to hold over during fluctuations

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HEIJUNKA BOX

The Heijunka box is a tool originally created by Toyota to help facilitate smoother production flow. It's a visual scheduling box (or grid, if done electronically), that makes it easy to visualize many important aspects of the daily production plan for the value stream. These aspects include: what part number and quantity to produce at any given moment, when changeovers are planned, when operators are to perform equipment checks, and when planned downtime is scheduled.

A Heijunka box shows time interval columns and products as rows. Kanban cards, indicating downstream consumption, are placed in the appropriate "slots" in a way that most evenly levels the production load on the value stream. By doing so, production occurs at a pace that is both optimized and mirrors actual demand.



Example of a Heijunka Box, illustrating that production is smooth for each product.

BENEFITS/RESULTS OF IMPLEMENTING HEIJUNKA / LEVEL-LOADING:

- Steady income across peak and off-peak seasons
- Consistent/steady production forecasts over the year
- Flexibility to respond to customer demand
- Reduced overtime due to predictable/balanced work schedules and use of resources (people and equipment)
- Minimal inventories
- Reduced capital costs
- Leveled demand on upstream processes
- Increased efficiency through reductions in: lead time, changeovers, work in process, and on time delivery

HEIJUNKA IN THE NEWS

Leveling out production benefits most industries. For an example of how Heijunka and changeover reduction can have a positive impact on food manufacturers, check out [this article](#).

REFLECTION: TAKING IT BACK HOME

Is there a temptation to "fully load" the upstream process in your organization to prevent fluctuations in production and "get ahead?" What are things you can get started on RIGHT NOW to begin leveling out your processes? Beginning with an accurate current state value stream map is often a good place to start. Not only does it reinforce what you're doing well, but more importantly, it allows you to look for opportunities in your processes by identifying bottlenecks and constraints. Where are your "re's" — rework, repairs, etc. cropping up?

Consider: What's your rate of production based on takt times? Do you need to reduce changeovers? Create mistake-proofing devices? Have you established right the first-time quality metrics? What else is your VSM telling you? Answers to these questions will help you establish product families and create small batches that run at an even pace to meet customer demand.

HEIJUNKA...NOT TO BE CONFUSED WITH

Hi Jinks. With production at the plant leveled out, Mark and his crew realized the days of writing poetry in the breakroom between old batch runs had quickly come to an end. How do you think Charles Dickens got his start?

FAMOUS QUOTE USING HEIJUNKA

"The slower but consistent tortoise causes less waste and is more desirable than the speedy hare that races ahead and then stops occasionally to doze. The Toyota Production System can be realized only when all the workers become tortoises."

Taiichi Ohno