



Manufacturers Alliance Seminar

Kanban Material Flow

Practical experiences from peers on how to setup material
delivery systems to flow just-in-time



ReSound GN

Kanban Material Flow

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Continuous Improvement Program Manager

GN Making Life Sound Better

The GN Group Proudly Builds on 149 Years of Innovation



ESTABLISHED
1869

*"The development of
the world is dependent
on communications"*
GN founder C.F. Tietgen,
1869

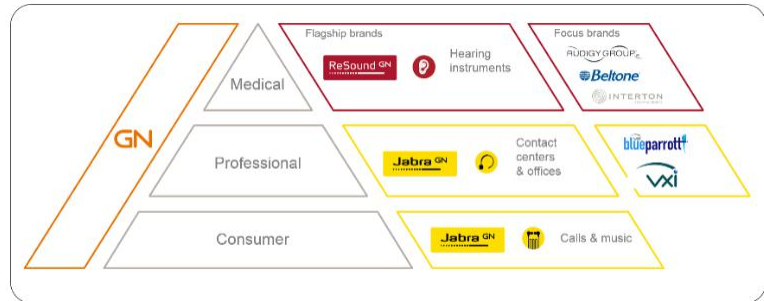
HEADQUARTERS IN
DENMARK

5,500
EMPLOYEES

2017 revenue - \$1.54 billion



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ReSound GN

North America Headquarters – Bloomington, MN



ReSound

rediscover hearing

Belton

A major segment of the ReSound^{GN} Group's worldwide market share comes from its North American operation including the US and Canada.

- 650 employees in Bloomington
- 122,000 ft² manufacturing facility
- \$912 Million revenue in 2017

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Product Introduction



RIE and BTE colors



Made for



iPod



iPhone



iPad

Accessories



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Waste

- Keep in mind that any Kanban or Flow system, from a Lean perspective, should be considering eliminating **waste** and adding **value** for the **customer**

D - Defects-scrap and rework of product

O - Over Production-making or buying too much

W - Waiting-customers internal and external

N - Non Utilized Talent-people skills

T - Transportation-moving product or equipment around

I - Inventory-increased storage and holding costs

M - Motion-not having all items located at point of use

E - Extra Processing-rework and doing more than is required

DOWNTIME!



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What's a Kanban

- Originated From Taiichi Ohno by shelf stock in American supermarkets
 - Control/reduce inventory
 - Reduce idle time
- A visual information system
 - A bin, card, cart, light, flag, board, empty space... whatever works for you
 - The simpler the better (and more cost effective)
 - Buy something or make your own

Light signal



What's a Kanban

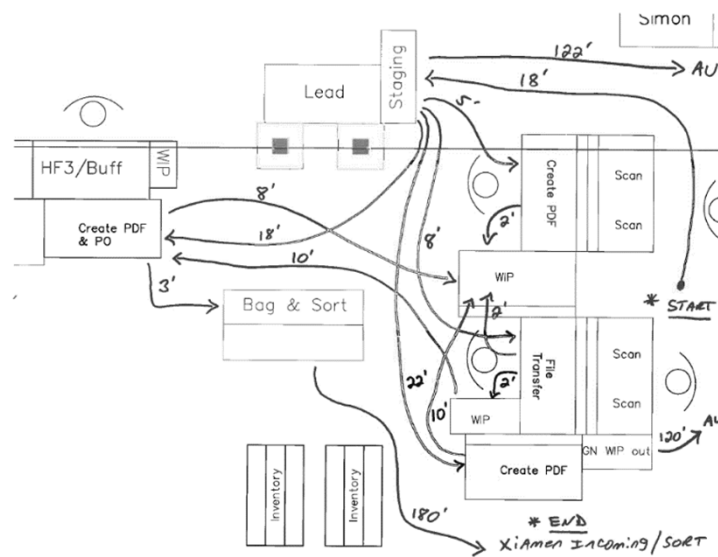
- What does it really do for you?
 - Controls **what** you make
 - Only make what the customer wants
 - Controls **how much** you produce
 - Only produce as much as the customer wants
 - Controls **when** you deliver
 - Deliver when the customer wants



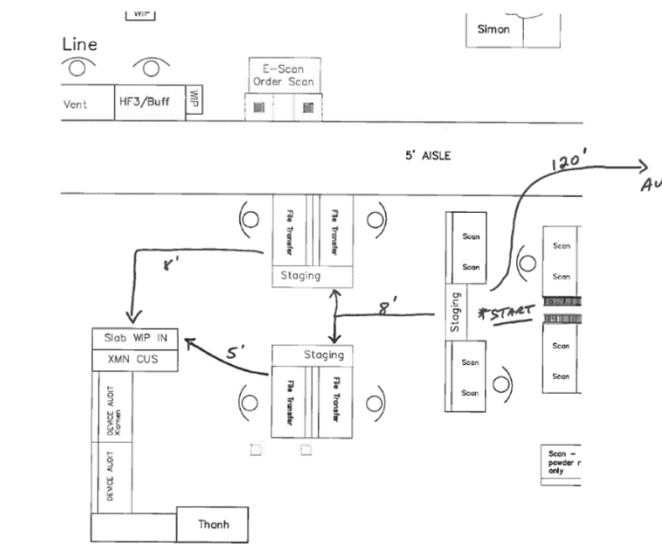
What is Flow

- The movement of your product
- Continuous flow
- Push vs. Pull
- Break it into timed segments based on cycle and/or Takt time
- Not very continuous flow or wasteful flow...
 - Use a Spaghetti diagram to “see” your flow
 - Utilize your team members for brilliant ideas
 - Don’t settle for “It’s good enough”

Bad Flow



Good Flow



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Before



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After



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Before



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After



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Before



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After



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Small Part Kanban



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Stability and flow



Incoming Order Bin Color	
Monday	Red
Tuesday	Yellow
Wednesday	Green
Thursday	Blue
Friday	Grey

Ship This Bin Color On:	
Monday	Blue
Tuesday	Grey
Wednesday	Red
Thursday	Yellow
Friday	Green



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Cadence (Heijunka)

What:

Lower WIP levels and working at a consistent, hourly pace

Why:

Allows product to flow through our operation faster (and get to our customers sooner!) and reduces the amount of complexity to sort through each day

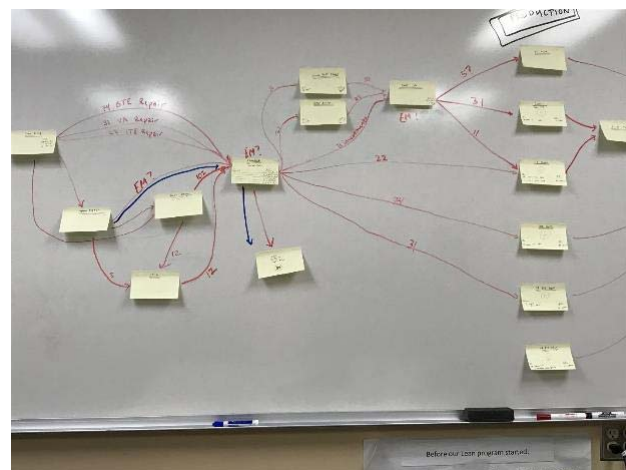
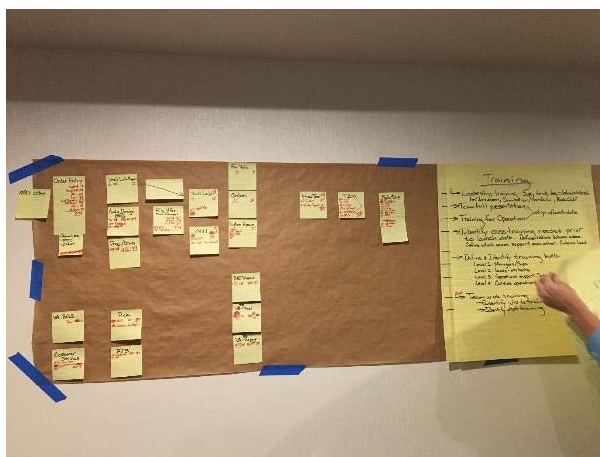
What it's *really* about:

- Discipline
- Teamwork
- Culture

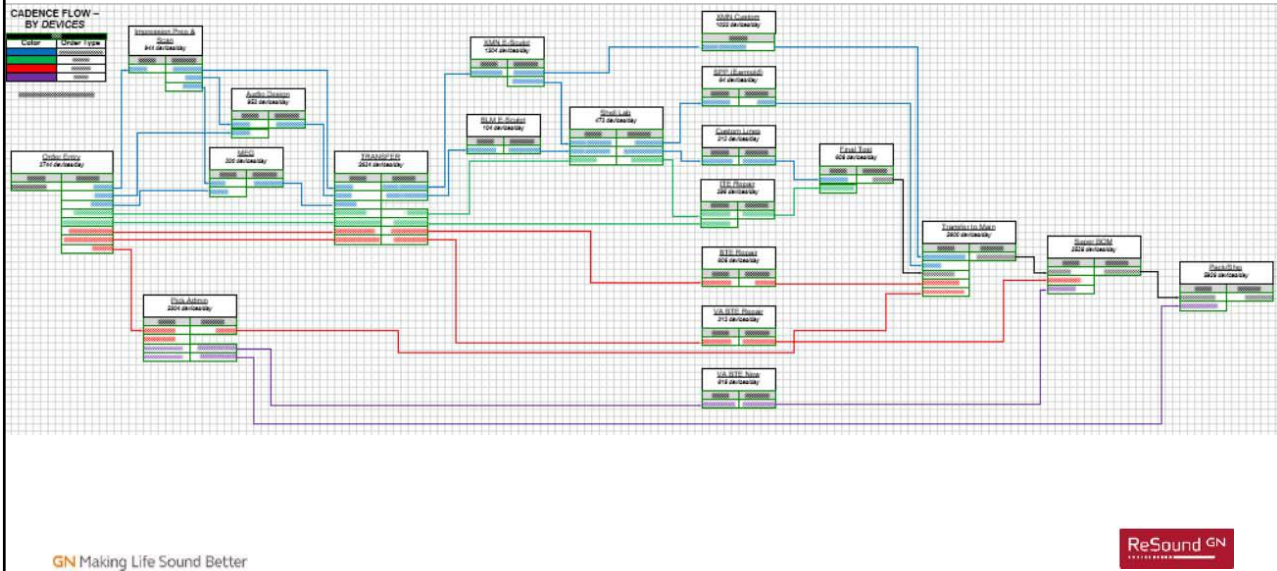


Develop Excellence, Deliver Excellence, Drive Excellence

Cadence planning stages



Cadence roadmap of flow



Develop – Preparing our Processes

- Re-organized workflows to serve internal customers
- Built 24 Flex Craft carts and 1 transfer station
- Taped 120+ benches and 6 conveyors
- Created Cadence “scoreboards” for each team



Develop Excellence, Deliver Excellence, Drive Excellence

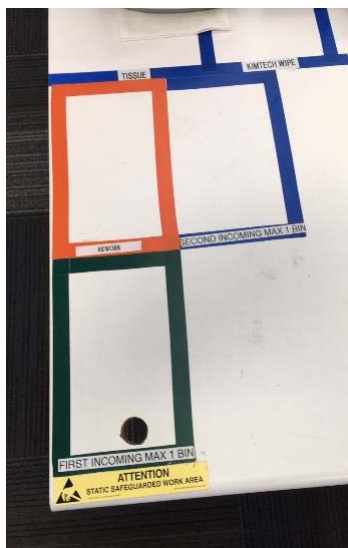
Kanban carts & transfer station using Flex Craft



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Kanban on benches



Use colors for visual management!!

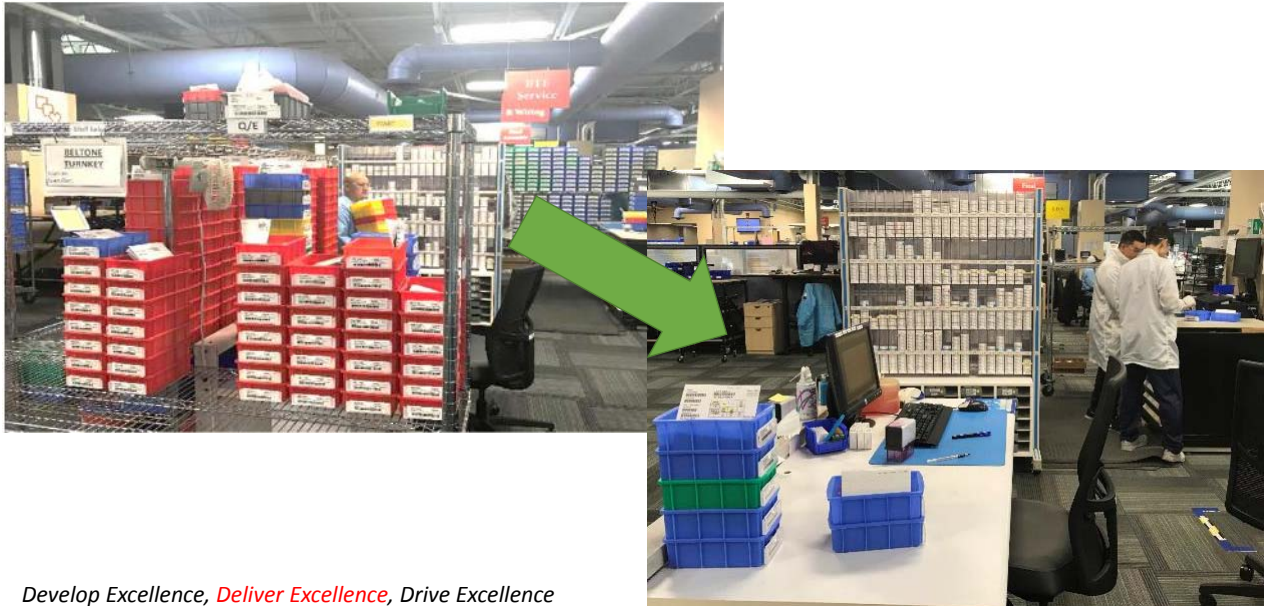
Kanban on conveyor



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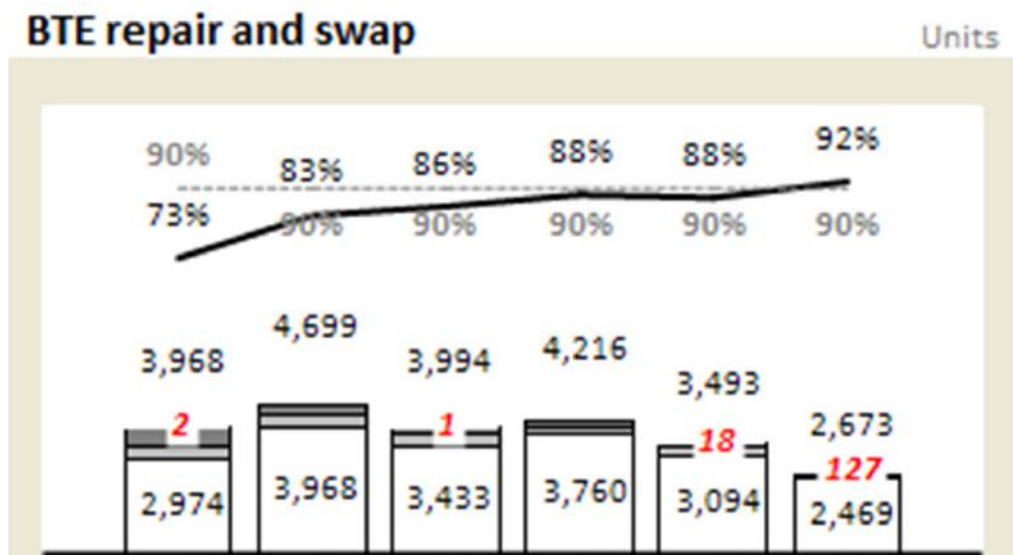
ReSound GN

Deliver – Cadence Launched on March 1st



Develop Excellence, *Deliver Excellence*, Drive Excellence

Deliver – Improved Performance



Develop Excellence, *Deliver Excellence*, Drive Excellence

“Green” Hours – Plant-wide



Develop Excellence, Deliver Excellence, Drive Excellence

Lessons learned

- Teamwork
- Accountability
- Narrow scope, look at the whole Value Stream Map (VSM)
- Not sustaining
- Just do it. Most likely it won't be perfect the first time (That's OK)

Thank you!

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Manufacturers Alliance
Thank you for joining us!

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