

'Automotive Logistics in a Demanding Climate'

*A Summary of Papers
at the
CEVA Automotive Logistics Forum at Buckingham*

July 2011

Professor Peter N C Cooke
Professor of Automotive Management
University of Buckingham

August 2011



'Automotive Logistics in a Demanding Climate'

Introduction

On the 13th July CEVA held its fourth Buckingham Automotive Logistics Forum.

It was a great pleasure to see the event attracting again a full audience of senior managers from across the range of vehicle manufacturers and the supply chain.

CEVA regretted having to limit the attendees as we were over-subscribed and the policy is 'strict numbers so everybody will have the opportunity to speak'.

The three presentations, covering technical, academic and operational topics within the Automotive Aftermarket were well received and encouraged debate - which continued over lunch. John Sparrow chaired the Forum excellently.

Our thanks to the three presenters; Nasos Papas of psb intralogistics, Professor Peter Cooke of the University of Buckingham and Andrew Blaber of Ford.

The next Buckingham CEVA Forum will be held on November 9th and we look forward to welcoming familiar and new faces to the Forum.

This is an excellent networking venue, the papers will be interesting, spaces limited and if you are not already on the emailing list, or you want a colleague added please contact kim.pittwood@buckingham.ac.uk to remedy the situation.

Simon Hobbs
Vice President
CEVA Logistics

July 2011

The Japanese Tsunami & the Automotive Industry
- Whatever happened to dual sourcing & the supply chain?

Summary of a presentation delivered at a CEVA Logistics Forum held at the
University of Buckingham on 13th July 2011

Professor Peter N C Cooke
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The Japanese Tsunami & the Automotive Industry

- Whatever happened to dual sourcing & the supply chain?

Professor Peter N C Cooke

The Japanese tsunami in March 2011 was both a human and economic tragedy. Should it also be seen as a wakeup call to global industry to reassess its supply chains, dual sourcing and strategic risk management?

These notes seek to address three principal issues at a very high level – first the immediate and practical issues of the Japanese tsunami, second highlight some of the strategic issues arising from the aftermath with reference to logistics and dual sourcing and thirdly comment on some of the longer term issues and a possible re-examination of dual sourcing policy.

Tsunami & the Aftermath

The March 2011 tsunami was, apart from the loss of 18,000 lives, an almost perfect storm. Not only was there a massive tidal wave which treated flood protection with contempt, but it wiped out a number of towns and villages in the north east of Japan. The earthquake itself damaged communications, factories, homes – and nuclear power installations.

Japan relies on nuclear power for a third of its electricity and its industrial might has a voracious appetite for power. An immediate response to the tsunami was to cut back on nuclear power generation and, as such, manufacturing industry across the country suffered – electricity was rationed and heavy users of power went onto load sharing work patterns to ensure the best use was made of capacity – even if that meant some activities moved to night or weekend working.

The immediate reaction to the tsunami was that productivity dropped significantly and some organisations have reported it could be the end of the year before they are fully back to pre March levels.

Within the automotive sector there have been a number of issues which have stretched way beyond the immediate tsunami. Consider some of them;

- Toyota reported that at the end of June they were missing some 30 critical parts.
- Mercedes have problems in terms of supply of a red paint pigment sourced in Japan
- Honda in the United Kingdom has been on part time working since the tsunami and anticipate coming back to full working towards the end of the year but their labour flexibility arrangements should help them catch up on lost production

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- Subaru in the United Kingdom has indicated it will have no new product until 2012 because of the destruction of a key electronics components facility. Dealers will have to make do with used vehicles and service business

Suzuki has confirmed that it will spend half a billion dollars on relocating an electronics facility away from the sea.

One could quote many other examples from across the whole of the automotive industry. Reports suggest that the biggest, often unperceived Achilles' Heel has been the tier 3 and tier 4 players which do not necessarily have the wherewithal to have contingency plans and elaborate schemes in the business to enable them to bounce back.

A number of organisations have expressed concern at this hidden weakness in the supply chain with single sourcing.

The tsunami impact could be called 'rolling' in that some players did not suffer immediately but only now are starting to feel the impact as the supply chain empties.

Dealers are having serious problems in that some whose new vehicle supplies have been cut off are having to rely on used vehicle sales to generate revenue – and hopefully keep new car customers on side until delivery restarts.

Further down the line, national sales companies and dealers may have been starved of single source aftermarket parts if those scarce supplies have been sucked back into vehicle assembly by OEMs or the supply chain.

Perhaps the biggest strategic impact of the tsunami will be its influence on Japanese nuclear power policy. The Japanese nuclear industry supplies a third of the country's electricity. Given the problems with the earthquake and tidal waves, the whole future location policy is under challenge and, indeed is the very future development of a nuclear industry. Japan has no significant sources of oil or coal.

The Demise of Dual Sourcing?

It might be claimed that traditional dual sourcing has been the victim of manufacturing and quality assurance.

Given a facility that produces to all intents an output with a one in a million or one in ten million issue why should a global player not take every advantage of that capability and seek to minimise material and sub assembly acquisition costs?

The problem has been perhaps, as already noted, with the tier 3 and tier 4 suppliers which may be providing very simple components or sub assemblies but, at the same time, have all of the expertise and unique production capability gathered in one small, but high volume facility or gathered in a single production line in a larger facility.

It would appear that electronics components and sub assemblies such as engine sensors, sourced from a single supplier are one of the major problems but a modern car cannot be built without them.

In the ceaseless hunt for lower costs there has been a steady growth in single sourcing because production has reached such a high level of perfection - a true victim of their own success indeed.

The ghost is only now starting to come out of the shadow as to what are the risks of single sourcing on a global basis. Not only will domestic finished goods capacity collapse, given any serious disruption, but a global operation could be halted all too easily.

While strategic reserves of a key finished product could be held in inventory, one must ask what would be the true total cost of such an activity, including the administration and emergency logistics. Would that 'product insurance cover' be economic – or does one take the chance of an occasional breakdown and write that off?

Prolonged disruption is a different matter. But consider the risk management issues associated with single sourcing.

Risk Management and Single Sourcing

Every organisation practices some form of risk management in terms of both the key generic issues and also some of the specific ones unique to the organisation, the product or the economics.

The principal risk management elements in any single source manufacturing decision might be summarised as follows;

- Economics; will production costs remain acceptable – and what might be the impact of any strategic changes in currency? Equally, one might add an issue regarding commodity and local input prices. Relationships between currencies appear to be changing – especially the historic under valuation of Chinese currency.
- Political; within that heading one might consider such issues as 'the Arab Spring' equally, one might ask regarding the political manifestations of the government in power. Is that a risk which may continue and spread to manufacturing locations? How secure, strategically, is China – and might critical sourcing be used as a political weapon?
- Technological; perhaps the most compelling reason for single sourcing are the benefits from a single state of the art plant – two maximum capacity plants may not be justifiable volume and investment-wise. Should one look toward significant strategic stocks with all the problems that can create?

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- Social risks; historically have been strongly linked with labour relations and the propensity to have strikes and other forms of disruption. A plant could be built in an area of low social risk but political landscapes can change quickly.
 - Climatic and geographical; historically perhaps not granted the visibility it deserves but climatic and geographical conditions are becoming more important. Global warming is causing increased unpredictability – whether through hurricanes, rainfall snow or other concerns.

With ever increasing globalisation and the emergence of four manufacturing blocs – North America, Western Europe, Far East and increasingly South America – is single sourcing no longer a realistic option? The geographic location of a single source plant, or dual locations can take on increased importance and with the migrating motor industry, are likely to become ever more important.

The risk of single global sourcing may also have serious implications for both locational and dual sourcing into the supply chain.

Dual Sourcing – A Strategic Dinosaur?

To my generation, dual sourcing is a mantra; single sourcing anathema – unless one could quickly bring a second source on line quickly and before stoppage of the first source had an opportunity to mess up.

There are perhaps three principal strategic risks beyond those highlighted in the previous paragraphs. Consider them;

- What would be the impact on unit costs and quality of moving to single sourcing when additional logistics and inventory costs have been built into the equation?
- Are there sufficient volume demands to justify dual sourcing or would two smaller scale production facilities be more risk adverse at a marginal increase in cost – a cost of security.
- Are there substitute products or redesigns which might be used if a single source facility were to fail?

Quite simply, given the growth in the wider spread of the global automotive industries, is it justifiable to rely on single sourcing for key components or should manufacturers look towards duplication within the supply chain to ensure secondary sources are available?

Product security would be the price of dual sourcing. It would be interesting to peer into the management accounts of the global automotive players to establish the true costs of the March tsunami. That figure might indeed act as a benchmark figure for the cost of dual sourcing.

Some Implications & Conclusions

The logistics sector of the automotive industries may have to bear a disproportionate part of any significant supply disruption. On the one hand, a supply disruption may cause a significant impact in logistics programmes and perhaps major cancellations. As product comes available again the supply chain and logistics providers are put under increased pressure to be able to handle ballooning demand for their services.

Dual sourcing – perhaps divided between two of the four major manufacturing bases may, in future, become a critical requirement. It's ironic that dual sourcing may not be an issue to be driven by the actual manufacturing process but by the environment in which the associated supply chain operates.

To quote the Spanish philosopher Paul Santayana 'who forgets history is condemned to repeat it'.

The Ideal Logistics Partner

A Personal View from a Service User

Summary of a presentation delivered at a CEVA Logistics Forum
Held at the University of Buckingham on 13 July 2011

Andrew Blaber
Ford Motor Company

The views expressed in these notes are those of the writer and are not necessarily shared by Ford Motor Company.

The Ideal Logistics Partner A Personal View from a Service User

'Partner' can be defined in a number of different ways depending on the relationship but for my purposes it needs to be fairly tightly defined – its part what it is, part what it isn't and part what I need. Try this;

The Ideal Logistics Partner;

- Not just someone who has wheels and/or a warehouse
- A company that will collaborate offering expertise and technology to develop the business
- A company willing to share the risks as well as the profits
- Offer a competitive price for the service required
- Be willing to drive down prices for the duration of the contract
- Offer a willingness to improve service levels across the contract

A pretty wide working definition and requirement but it serves the purpose; why should I need a logistics partner at all? My business says it all;

Why do I need a Logistics Partner at All?

- I have a product and a brand but no distribution infrastructure in a region/country
- I have an organisation structure that is not flexible enough to provide the services needed by my customers
- My business is volatile so it is financially ineffective to resource internally to cover the highs/build in redundancy

That sets the parameters as to what I really need – it could be provided in a number of different ways but I can tighten that down as to what I look for in a logistics partner. How about;

What do I look for in a Logistics partner?

- A company with financial strength to be a lasting partner
- With a management structure that compliments my business and has a collaborative style
- Understands my business sector and brings his own expertise
- Represent my company well and add to my company reputation
- Exhibit a proven record in my business sector – or similar
- Demonstrate regional/country expertise
- Have the size and scale to handle my business and its volatility

So far so good but one then needs to start refining those broad strategic parameters. Appearances are not everything – one needs to look deeper.

A company with financial strength to be a lasting partner

- Typical contracts are 3-5 years

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- Contract likely to be multi-million in value
 - Selection process is comprehensive, resource intensive and costly for my organisation so I don't want to change mid contract
 - Contract will need high level management sign off at my end
 - Therefore I need to know the partner can ride out any storms in the economy and my business sector in particular

Those areas are critical but they only represent a start of partner selection. Management structure in the potential partner is critical too.

Potential partner needs a management structure that complements my business and has a collaborative style;

- Is likely to operate in a number of sectors to meet the financial strength criterion
- Need to see a clear management structure that specialises in my business sector – and
- Has access to group resources to cross fertilize good ideas, practices and technologies from other sectors
- Willing to collaborate/share those improvements for our mutual benefit.

Any partner of mine needs to have an understanding of my business sector so I do not have to teach them; I am after all the client.

Understands my business sector and brings his own expertise;

- Understands the service level required – and why
- That my company and dealers are independent businesses in the supply chain unlike retail operations elsewhere
- I have a requirement for security and accuracy of operations in warehousing and transport

I would also look for a track record in my business sector or similar the ethos may vary between industries.

Exhibit a proven record in my business sector or similar;

- Required to give confidence to my dealers that the service will be competent
- Demonstrate an understanding of the service levels required
- Capability to provide operating metrics to demonstrate achievement of service levels requested
- Be proactive to use those metrics to overcome issues and identify areas for improvement.

Already the projected relationship is starting to get quite intense and personal in a business way.

Represent my company well and add to my brand reputation;

-
- I am trusting my customer touch-points every day to the partner – therefore;
 - Vehicles must be and look reliable
 - Drivers should look and behave in a professional manner
 - Warehouse staff must have a culture about doing the job well
 - Control/improvement processes that can be demonstrated to my customers, minimise errors, act fast to recover

Markets and regions are different, I would expect my partner would be able to manage those differences;

Demonstrate regional/country expertise;

- Understand the legal and social regulations/customs of the region/country
- Understand the geography
- Capability to interact positively with dealers on the market on a day to day basis and support sales and marketing programmes and meetings.

For the potential partner which has satisfied the requirements so far, there are still a few more.

Have the size and scale to handle my business and its volumes;

- Size and scale will be in the initial requirements
- Volatility is more difficult to write – but it must be understood
- Volume flexibility and seasonality and sales campaign support is also needed often within normal delivery patterns

If the would-be ideal partner has satisfied all of the demanding requirements noted above – remember three of the first requirements!

The final three;

- Satisfy all of the above at a competitive price
- Have a willingness to drive down price through the duration of the contract
- Offer a willingness to improve service levels across the contract

These may sound pretty demanding but in a competitive industry like ours we all have to work together; there is no room for compromise.

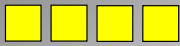
Andrew Blaber

July 2011

Innovations in Warehousing

Nasos Papas
psb intralogistics GmbH

psb Unternehmensgruppe



*Experience the
difference; Innovations*

psb intralogistics GmbH

(Foliennummer, z.B. psb 001)

© psb

Innovations in Warehousing

experience the difference

Hier Thema eintragen

Simple PBL or PTL or PBV



pick-by-light



© psb

Starting with a PBL (Pick-By-Light), PTL (Pick-To-Light), PBV (Pick-By-Voice, when operators use headphones and microphones). In these systems, the operatives get their picking instructions via, either digital displays, or voice messaging (PBV). Connection to WMS is fundamental to all operation principles.

experience the difference

Hier Thema eintragen

BMW Ringsorters x 3



BMW

3 ringsorters



© psb

Sortation with Ringsorters (3 off Ringsorters shown, BMW operation)

experience the difference

Hier Thema eintragen

Hier Folientitel eintragen, Hella cranes/storage



Hella



© psb

HELLA order picking operation. Totes, from high bay storage, go to a picking station (Goods-to-man principle), where orders are picked (help via screens and weighing scales, connected to WMS).

experience the difference

Hier Thema eintragen

Hier Folientitel eintragen, Hella picking station



Hella



Notes as per previous slide: *HELLA order picking operation. Totes, from high bay storage, go to a picking station (Goods-to-man principle), where orders are picked (help via screens and weighing scales, connected to WMS).*

experience the difference

Hier Thema eintragen

Hier Folientitel eintragen, Johnson controls



Johnson Controls



Johnson Controls system, JIT operation of car seats production and delivery to production line.

experience the difference

Hier Thema eintragen

Hier Folientitel eintragen, Johnson Controls



Johnson Controls



Johnson Controls system, JIT operation of car seats production and delivery to production line.

experience the difference

Hier Thema eintragen

Hier Folientitel eintragen, Lear



Lear



© psb

experience the difference

Product presentation
rotapick®



The word 'rotapick' in a bold, black, sans-serif font. A white, stylized orbital path with a registered trademark symbol (®) at its end loops around the letters 'o', 't', 'a', and 'p'.

The *rotapick*® is a picking system, to process
an increasing number of orders with
decreasing items/order(line) economically and
in good time

06/07/2011

Slide 4

Product presentation

© psb

Rotapick. This kind of system operation can give an individual picker the ability to pick up to 1000 (items picked) per hour.

experience the difference

Hier Thema eintragen

How Rotapick looks in reality



psb

rotapick



© psb

Rotapick. This kind of system operation can give an individual picker the ability to pick up to 1000 (items picked) per hour.

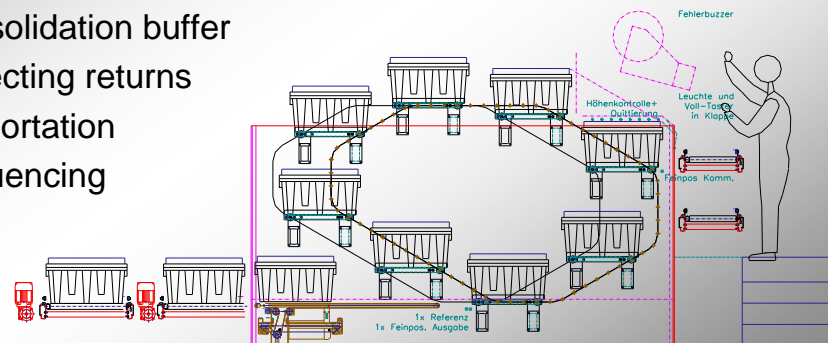
experience the difference

Product presentation rotapick® – Application fields



Application fields of the rotapick

- Batch picking of fast and medium movers
- Order picking of slow movers
- Consolidation buffer
- Collecting returns
- Bin sortation
- Sequencing



06/07/2011

Slide 12

Product presentation

© psb

Rotapick principle of operation. Individual "slices" (or "discs") rotate in order to present the appropriate totes to the picker. The operator can pick into (or out of) any tote(s) presented to him via the Rotapick. The whole operation is controlled via the WMS.

experience the difference

Product presentation

rotapick® – Concept »Top down supply«



Description

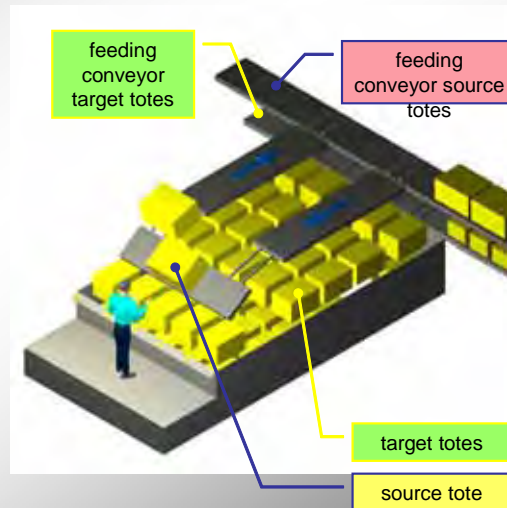
- Target totes reside in the *rotapick*®, source totes on tilt conveyor above

Application fields

- Suitable for all goods
- Order and batch picking, Collecting returns

Characteristics

- Medium high throughput of source totes (between »one/two disc integrated« and also less space consuming)



06/07/2011

Slide 16

Product presentation

© psb

Various ways of Rotapick being applied, for different demands of picking operations.

experience the difference

Product presentation

rotapick® – Concept »Pick&Pack«



Description

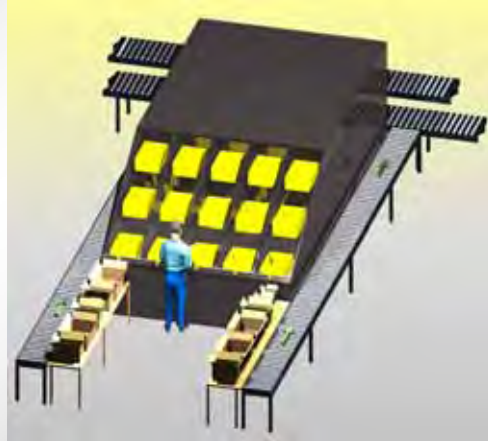
- Source totes reside in the *rotapick*®, targets are arranged laterally

Application fields

- Suitable for all goods
- Order and Batch picking, Pick&Pack, Consolidation

Characteristics

- High throughput and optimal sequencing of source totes



06/07/2011

Slide 17

Product presentation

© psb

Various ways of Rotapick being applied, for different demands of picking operations.

experience the difference

Product presentation

rotapick® – Concept »Integrated supply«



Description

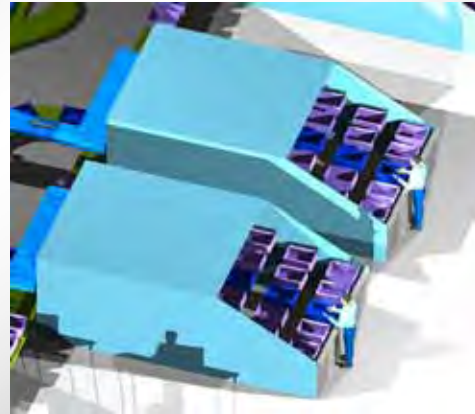
- Source and target totes reside in the *rotapick*®

Application fields

- Suitable for all goods
- Order Picking, Batch picking, Collecting returns, Consolidation

Characteristics

- Clearly arranged and homogeneous workplace
- Max. technical throughput approx. 500 totes/disc



06/07/2011 Side 13 Product presentation

© psb

Various ways of Rotapick being applied, for different demands of picking operations.

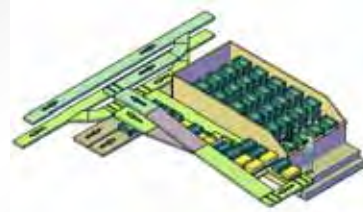
Product presentation

rotapick® – Other concepts



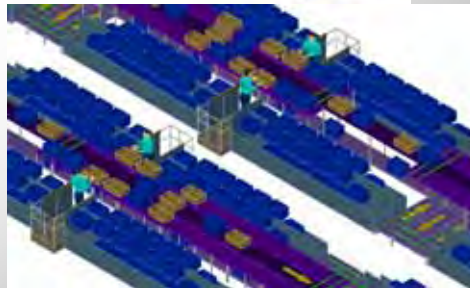
Concept »Lateral supply«

- Similar to »Frontside supply«
- Source/target totes can be interchanged



Concept »Butterfly«

- Source totes are supplied on conveyor, target totes reside in 2x2 rotapick® discs laterally
- Suitable for all goods, (Order and) Batch picking
- Throughput similar to »Frontside supply«



Various ways of Rotapick being applied, for different demands of picking operations.

experience the difference

Hier Thema eintragen

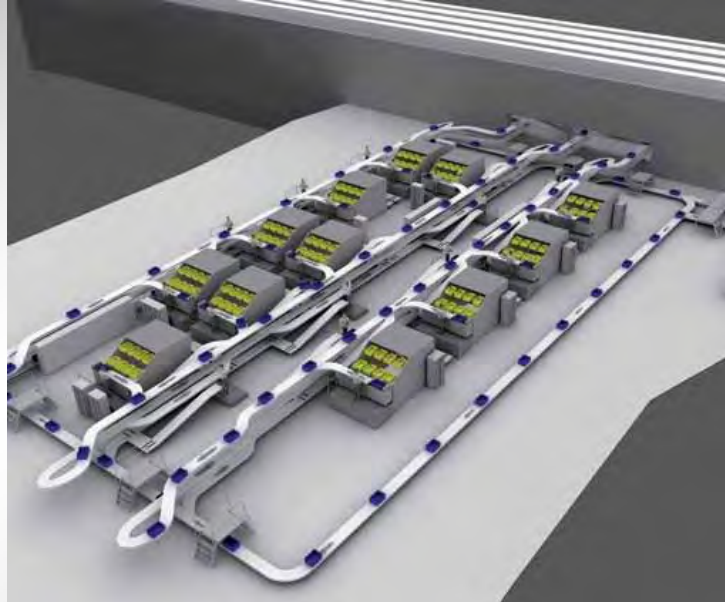
System 1 with Rotapicks & Variosprinters



3-D, layout

*rotapick
overview*

System1



© psb

Two different systems, installed already, with the combination of vario.sprinter shuttles and Rotapicks

experience the difference

Product presentation

rotapick® – Pictures



06/07/2011

Slide 24

Product presentation

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