Product development: how we drive innovation

Product, Technology and Strategy Day – 4 May 2018
Global innovation development teams

- Universal access to CW1, PAVE, GLOW, Universal Customs Engine
- Global development team over 500 people across 20 countries, leveraging local knowledge
- Multi-language support
We achieve with relentless engineering to remove constraints to scaling innovation

- Culture supports **bold ideas and innovation**
- “Tech creatives” achieve in a supportive environment of **“freedom and responsibility”**
- High performance innovation cycles – we **strive to solve complex, perennial industry–specific problems**, attacking root cause
- “**Test first, fail quickly, improve rapidly**” approach ensures rapid application development at high quality with efficient resource use
- Flat, low hierarchy management, small teams, open hubs, eclectic hires and skill development
- Architectures: PAVE + GLOW + Universal Customs Engine
Product commercialisation and monetisation processes and timeline

High innovation to commercialisation ratio – product designed for CW1 platform + global customer base

Rich ideation

Industry expert teams solve across sectors and countries:
- Regulatory compliance (eg SOLAS, ACE)
- Inefficiencies and pain points (ie automating or eliminating manual work)
- Productivity, quality, control and visibility enhancements (incl machine learning, AI, grouping big data and global integrated services)

Innovation cycle

Product leads and architects leverage global data, integrated platform and layered visibility to build breakthrough solutions

Rapid commercialisation

- Global platform availability of released product/functional enhancement
- Dev’t partners and early adopters
- Early low cost or free deals signed
- Standard price list and terms published

Grow usage and revenue

- Commercialised final release
- Early adopter deals expire
- Revenue grows exponentially over time

1-3 months
Small to mid size functional enhancements

3-15 months
Large new modules and major architectures

Piloting 6-12 months

Revenue stream forever

Seed usage ahead of revenue from monetisable transactions across platform
New component released on-demand, free trials, easy access to testing
Customers start using without locked-in, fixed-term, fixed feature contracts

Revenue grows exponentially over time
Innovation investment

Significant pipeline of longer-term innovations across existing verticals and new adjacencies

- **~600** product upgrades and enhancements annually
- **37%** of revenue invested in FY18
- **50%** of employees focus on innovation and product development
- **>670,000** unit tests executed every 45 mins
- **>$200m** invested FY14-FY18F

Major development focus on:
- Productivity
- Global data sets
- Machine learning
- Natural language processing
- Guided decision making
- Global automations
- HVLV logistics (e-tail)
- Regulatory environment changes

Over 3,000 product upgrades and enhancements added to the global platform over last 5 years

Our FY18 commitment: >$65m in innovation and development

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**Work faster, harder, smarter**

- **PAVE**
  - Productivity Acceleration Visualisation Engine
- **GLOW**
  - ‘Build once’ architecture and ‘coding without coders’
- **Universal Customs Engine**
  - Accelerating complex customs localisations

**Reduce cost, time, error, risk**

- **WiseRates**
  - Global data sets
  - Real-time access
  - Immediate booking
- **Global Tracking**
  - Global air/ocean schedules, container and air waybill tracking
- **BorderWise**
  - Risk reduction
  - Due diligence
  - Cost efficiency

**Supply chain behavioural change**

- **GEOCODE**
  - Global address cleansing
  - Geocoding
  - Master data de-duplication
- **Global data sets**
  - Multi-modal rates, schedules, bookings
  - Compliance data
  - 3PL supply chain
- **Machine learning**
  - Process automation
  - Guided decision making
  - Natural language processing
BorderWise

Tracking & events

Rates & bookings

Global accounting, netting and invoicing

E-commerce

Know your customer, denied party, Master Data
Classification governed by the WCO Harmonised System (HS) and then each Government extends the 6 digit HS

Duty and tax determination requires interpretation using the WCO HS and the local variant, law, regulation, case law etc

Many other government agencies add requirements to import and export compliance

Incorrect classification can cause significant delays, fines, penalties, reputation and other risks

False or misleading information to customs and border protection is a strict liability offence

Hefty fines impacting the bottom line and/or individual employee

Over or under payment of duties & GST

Corporate/individuals liable for underpayments

Bad compliance record

Suspension/loss of corporate or individual licence

Potential dispute and/or loss of client

Dispute resolution – legal and court costs

Professional indemnity insurance increase
Innovation pipeline – BorderWise
Global data set + machine learning = powerful border compliance engine, market leading

WiseTech border compliance engine
+ Custom-built global data set
+ Adjacent acquisitions x 2
+ WiseTech machine learning and natural language processing (NLP)

Prototype testing to rapid deployment <6 months
Immediate customer base from ediTariff, Digerati and TradeFox
Attractive for large global 3PLs and non-logistics data providers

What’s in the box:
• Next generation of compliance management: comprehensive, integrated suite of legal books, technical documents, tariff-classification tools, and reference information.
• Provides the full breadth of customs publications from the World Customs Organization Harmonized System Explanatory Notes and the principles of valuation, to ratified treaties and local legislation.
• Global data set with real-time updates and alerts on legislation, publications and notices from regulatory bodies. Improves productivity, reduces compliance risk, fines, penalties and costs and can help customs and border protection agencies mitigate safety and security risks arising from the movement of goods across their borders.

Development:
• Over 60m past classifications and growing exponentially daily.
• Extensive global and local data set drive our machine learning and NLP techniques.
• NLP will allow levels of automated classification through the use of guided decision trees.
• Available standalone and integrated with CargoWise One.
• SaaS subscription licensing, cloud enabled.
• Launched in Dec 2017
• Rolled out to Australia, NZ and US
• In the future: Canada, Brazil, Germany, Italy, the EU, Mexico, Singapore, South Africa, Taiwan, UK, then ROW.
Innovation pipeline – Tracking & events

Data availability, speed, accuracy and quality is essential for all parties involved

Customer challenges

• Manual search of events, manual data entry, risk of error
• Too much data to monitor
• Loss of productivity
• Possible delays and penalties
• Missed connections, futile trips

Industry challenges

• Industry growth:
  • Over 20 million TEU in operation (650m TEU rotations per annum)
  • Over 50,000 merchant vessels including over 5,000 containerised
  • Hundreds of ocean carriers and airlines
  • 25 million AWB per month
  • ~36 million commercial flights a year (IATA 2017)
• Inability of multiple logistics players to share data electronically, and those who can only provide data to exporters as a response to electronic booking, leaving other logistics providers out

Information challenges

• VOLUMES and VOLUMES of information
• No two sources of data are the same
• Data duplication: similar data provided by different sources
• Data is available too late
• Cargo can be offloaded or split
• It is a configuration and data setup nightmare
Innovation pipeline – Tracking & events

Global data set, powerful, unique global tracking engine

Powerful global tracking for containers and vessels
  + Custom-built global data set – ‘one source of truth’
  + WTC proprietary advanced analytics and workflow automations
  + Embedded in CargoWise One and will integrate with acquired rates engines

Immediate customer base from CargoWise One global platform

Container tracking – adopted by DHL GF, Geodis, Rohlig & many others

Covering 36 top ocean carriers, representing over 90% of industry volume

- Fully embedded into CargoWise One: cloud enabled, transaction licensing for tracking, schedules in STL seat charge
- Launched container and associated vessel tracking, schedules for ocean and air, with further phased rollouts
- Large global set, cleansed, validated and designed to provide visibility of every ocean container, booking and master bills from 36 major ocean carriers covering over 90% of industry volume
- Container tracking provides critical timely and accurate updates on ~30 different statuses: eg carrier, government, customs and quarantine statuses, cargo pick-ups, loading, consignee receipts
- Built on top of powerful workflow engine, provides automated alerts to staff, customers, agents and third parties and automated triggering of downstream transactions
- Embedded in Freight Forwarding and Customs, designed to link to Rates, Warehousing, Land Transport and broader CW1 platform
- Inbuilt access to airline and ocean schedules provides planning tools and selection of most optimal routes with automated updates
- Real-time flight tracking provides real time information on flight departures and arrivals, alerts on possible delays and cancellations – available in pilot for selected customers
- Currently WTC receives over 12m air freight status updates annually for exporters
- Enhanced AWB tracking to be launched in the next phase: tracking targeting cargo movements inland and in the air, status updates for all logistics providers
- Continuous improvements to the existing data set
- Zero configuration from users, reduced headcount, penalties, delays, missed shipments, detention, risks = increased productivity
BorderWise

Tracking & events

Rates & bookings

Global accounting, netting and invoicing

E-commerce

Know your customer, denied party, Master Data
Innovation pipeline – Rates management

Data availability, speed, accuracy and quality is essential for all parties involved

Customer Challenges
- Ocean carrier contracts are highly complex and not standardized
- Manual entry of contract and rate information both costly and error prone
- Tight margins mean incorrect buy rates can reduce or eliminate profit on a shipment
- Inaccurate invoices lead to time consuming dispute processes and journal adjustments
- Shipments (cargo) can be held by a carrier due to lack of timely payment of invoices

Industry Challenges
- Freight forwarders:
  - Time consuming: estimated 24.4m hours per year spent by freight forwarding industry handling buy-rate management
  - Costly: Annual labor cost expended by the global freight forwarding industry to manage and/or find accurate carrier buy-rates is estimated to be US$500m
  - Inaccurate: inaccurate invoices reported as high as 12% to 20%
- Ocean carriers:
  - Distribution methods to customers still very ‘manual’ via email attachments, website updates
  - Confidentiality of contract rates, and rapidly growing spot market, pose distribution concerns

Information Challenges
- 1,000+ potential surcharges (average 9 per shipment)
- Can be 100+ different port pairs in a single contract
- Coding of freight charge types different per carrier and customer
- Different data and contract structures per carrier
Innovation pipeline – Rates management

Global data set of real-time, accurate rates

Powerful global data set of carrier rates
+ Real-time access to rates within your operational system
+ Embedded in CargoWise One and will integrate with acquired rates engines

What’s in the box (WiseRates/CW1):
- Provides a live, centralized, global data set on carrier rates
- Supports auto-rating of shipments
- Standardizes carrier rates and charge codes
- Directly optimizes profit margins of all CW1 supply chain quoting and billing operations

What’s in the box (CargoSphere):
- Neutral platform linking carriers and BCOs, freight forwarders & 3PLs
- Rates Mesh standalone and data integrated to CW1 customers
- Hapag Lloyd (top 5 ocean carrier) is the first to offer its customers automatic access to all their contract rates using CargoSphere’s electronic Smart Upload and Diagnostics Solution (eSUDS)
- CargoSphere provides rate management solutions and Rates Mesh to over 100 customers including Kuehne + Nagel, Dachser, M+R Spedag, and Livingston International

Development:
- Provide rate back to carrier within booking and shipping instruction
- Single sign on (SSO) for enhanced user experience for CW1 customers
- Integration with Cargoguide for air rates management
- Integration with land transport providers/integrators

“Eliminating the email distribution of spreadsheets and PDFs is an exciting moment for Hapag-Lloyd. We are committed to improving efficiency for our customers and ourselves, and this joint Hapag-Lloyd/CargoSphere integration achievement is an important contribution to the industry as it improves timeliness and accuracy”

Henning Schleyerbach, Senior Director Sales & Service Processes of Hapag-Lloyd
BorderWise

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Know your customer, denied party, Master Data
Challenges in 3PL accounting

Day-to-day business
- Issuing invoices, posting costs and tracking job profit for thousands of jobs per month

Invoicing compliance
- Tax determination
- Presentation of the invoice document
- Electronic invoicing compliance
- Fiscal compliance invoice vs invoice as ‘request for payment’

Settlement
- Complexity of transactions = disputes
- High volume = lengthy reconciliation processes
- Credit controls critical to reduce bad debt exposure
- Inter-agent settlements = high cost

CargoWise One solves globally – 130 countries

Invoicing and invoicing compliance
- VAT engine extended over time to meet the needs of 130 VAT countries - focussed on logistics industry businesses
- Cash basis VAT implemented generically for all jurisdictions
- Fiscal document classification + numbering engine
- Generic Transaction Compliance Reporting Engine
- Cost and revenue estimates linked to invoice cost + revenue invoice posting
- Job transactions automatically integrated into general ledger
- Universal XML model for accounting transactions

Settlement
- In-built payments + receivables management
- Integrated dispute management for claims + queries
- Bulk AR + AP data management

Inter-agent settlement
- Multi-lateral, multi-currency global invoice + payment netting
- In development partner pilot phase now
Innovation pipeline – 3PL requires specialised accounting

Complex network of applications replaced with CargoWise One

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**Payables**
- Cost estimation
- Invoice accuracy
- Invoice approval
- Payments management
- Supplier management
- Government reporting
- Dispute management
- Payables account reconciliation

**Receivables**
- Billing estimation
- Invoice accuracy
- Invoice presentation completeness
- e-invoicing (B2B & compliance)
- Collections management
- Dispute management
- Credit control
- Receivables account reconciliation

**Job profitability**
Management accounting reporting, total branch / department profitability reporting, GL revenue and cost recognition, cross-border and foreign exchange

**Compliance**
VAT determination, fiscal invoice vs debtor invoice, local fiscal invoice classifications and sequencing, exemption certificates management, sales and purchase list reporting, local general ledger reporting

**Core accounting**
General ledger accounting, cash book management and bank reconciliations, general ledger reporting, foreign exchange controls

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Multiple vertical execution + back-office applications for each country required

- Extra 3rd party application
- Proprietary application
- Complex network of applications replaced with CargoWise One

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Global GL and master data consistency
High volume transaction throughput controls
Universal data models and web services
Internal and external audit compliance
Two-way inter-agent invoicing

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Innovation pipeline – 3PL requires specialised accounting

Complex network of applications replaced with CargoWise One

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WiseTech GLOBAL
Innovation pipeline – CargoWise One delivers netting in addition to accounting

Netting reduces the number of payments and shortens the time taken for reconciliations.
International e-commerce solution designed for higher volume levels
Country agnostic – founded on the global customs strategy
Designed for seamless rollout to CW1 customers + their partner warehouses
Web-enabled, multi-user interface, multiple devices
Global rollout expected FY19

- Currently in prototype test with development partner, then roll out to existing AU & NZ customers.
- Phase 1 launch complete FY18 with destination depot. Phase 2 origin warehousing, courier integration and automations in FY19.
- Fully integrated, highly scalable, cross border solution for HVLV packages
- Next generation to our existing e-commerce product (AU)
- Full integration between freight forwarding, customs brokerage, warehousing, last-mile carrier management and online tracking
- Transaction-based licensing, cloud-enabled
- Immediate customer base from our existing e-commerce customers
BorderWise

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Know your customer, denied party, Master Data
Innovation pipeline – Geo compliance: the cost of shipping to a denied party

*Increasing government scrutiny, increasing fines and penalties*

**US Export Administration Act 1979**
- **Criminal penalties**
  - $1,000,000 per violation
  - 20 years imprisonment per violation
- **Administrative penalties**
  - $250,000 per violation, or twice the amount of the transaction, whichever is greater
- **Loss of export licence**

**Compliance thwarted by problem of scale**
- More than 120 lists globally
- Over 200,000 denied parties
- 3,000 changes per week

**“We are putting the world on notice: the games are over. Those who flout our economic sanctions and export control laws will not go unpunished – they will suffer the harshest of consequences.”**

Wilbur Ross – US Secretary of Commerce

<table>
<thead>
<tr>
<th>Year</th>
<th>Convictions / cases</th>
<th>Fines / penalties</th>
<th>Imprisonment</th>
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<tbody>
<tr>
<td>2013</td>
<td>52</td>
<td>$20.9M</td>
<td>73 Years</td>
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<tr>
<td>2014</td>
<td>39</td>
<td>$139.1M</td>
<td>47 Years</td>
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<tr>
<td>2015</td>
<td>31</td>
<td>$240.9M</td>
<td>40 Years</td>
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<tr>
<td>2017</td>
<td>35</td>
<td>$23M</td>
<td></td>
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</tbody>
</table>

**Record fine in 2017 $1.19bn**

ZTE was fined a record $1.19B in March for exporting communications equipment to Iran and North Korea

https://www.bis.doc.gov/index.php/enforcement/oee/penalties
Fully integrated screening of
• organisations and contacts
• vessels

 Stops document production for
• shipments and consolidations
• US customs declarations

List updates are automated

Match rates improved by:
• automated rescreening
• duplicate removal
• multiple fuzzy matching techniques
• address verification before screening (125m to date)

More than 2 million screens in 2017

<table>
<thead>
<tr>
<th></th>
<th>Screened</th>
<th>Denied</th>
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</thead>
<tbody>
<tr>
<td>Organisations</td>
<td>879,040</td>
<td>986</td>
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<tr>
<td>Vessels</td>
<td>52,780</td>
<td>98</td>
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<tr>
<td>Shipments</td>
<td>4,845,925</td>
<td>129,228</td>
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<tr>
<td>Consolidations</td>
<td>2,099,980</td>
<td>111,548</td>
</tr>
</tbody>
</table>

“For us, the address validation is a mandatory step for denied party screening... so we are fine with the validation! It’s VERY fast and now that the address validates as you are typing it into the organization module, it’s even better!”

Debbie Strojan – OIA Global