

Controlling complex logistics processes with SAP



About Dematic

Dematic is a global leader providing an impressive range of intelligent logistics and materials handling solutions. With a global knowledge network of more than 4000 highly skilled logistics professionals, Dematic is able to provide its customers a unique perspective in world class materials handling solution design.

This means for you: Even in international projects, you only have one point of contact. Dematic takes into your logistics projects with overall responsibility for throughput and availability.

SAP EWM/TM
SAP LES
SUB-SUITE

Partnerships and portfolio

SAP and Dematic are connected through strong partnerships and cooperations for many years. These partnerships allow Dematic to adjust its own software and hardware components to SAP's latest software releases for your benefits.

Automated logistics systems are designed to meet customer requirements for use of an average of 10 to 15 years. Anyone looking for a new solution should consider carefully which of the offered concepts is actually sustainable. Modern solutions that still meet the requirements tomorrow are desired.

This applies not only to new installations. The logistic environment, logistic processes and the IT landscape may change in existing plants as well. New requirements should be easily implemented.

- Partnerships between SAP and Dematic ensure Dematic's advance in SAP know how.
- Dematic knows at an early stage in which direction SAP moves and develops solutions which are future-proof.
- Dematic has implemented numerous SAP logistics projects both in manual and highly automated environment and thus has the best qualification for competent SAP consulting for your logistics.

Today's consultation focus is on the implementation of SAP EWM and SAP LES. This is regardless of whether you have a pure IT project (stand-alone IT), intend to modernise an existing facility or build a new logistics centre. Dematic develops logistics solutions on the basis of established and innovative components which are tailored to the customer's business processes.

Dematic is specialised in integrating all systems – top down from host to material handling equipment – into a complete system. Dematic also implements highlights such as triple-deep storages.



Dematic SAP service portfolio



Breaking new ground

SAP EWM as a part of SAP SCM

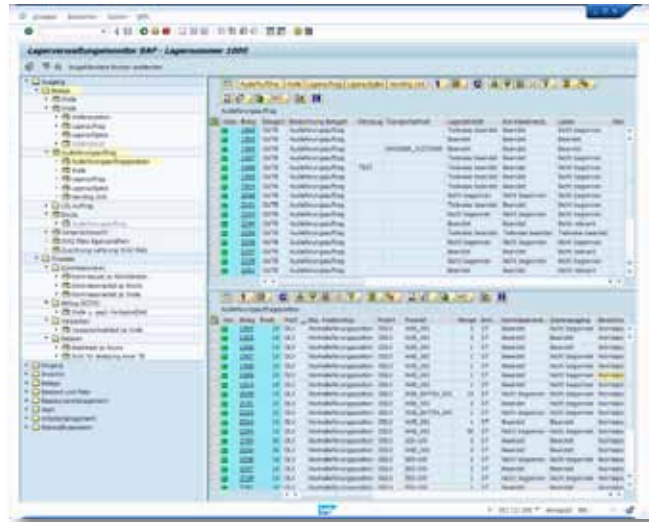
In complex warehouse and distribution centres the classic basic functionality of a warehouse management system – such as support of goods-in and goods-out, replenishment and inventory management – is no longer sufficient. In fact additional functions support complex processes such as cross-docking, returns processing, additional logistics services and multi-customer warehouses are required.

Also the mapping of the material flow components with direct link to the programmable logic controllers is becoming increasingly important. To counter the cost pressures, in addition, a resource and labour management is required.

Since 2006 SAP offers with SAP EWM (Extended Warehouse Management) a new solution for warehouse management. The performance of this solution goes beyond the existing and widely available SAP LES WM module.

SAP EWM is part of SAP Supply Chain Management (SAP SCM) and supports inventory management and movement of goods in warehouses. The multi-client warehouse management solution was designed for large distribution centres with complex and highly automated processes.

Inventory management and goods movements are closely linked. A warehouse can be mapped in the system down to storage bin level. The affiliation to SAP SCM has the advantage of a strong integration in supply chain planning, collaboration, and supply chain visibility. EWM solutions implemented by Dematic meet the needs of users who want to use standard software on the one hand, on the other hand need a solution tailored to individual needs.



SAP EWM warehouse monitor

Additional organisational structures

- Storage locations can be grouped in EWM to activity areas (e. g. storage). Warehouse tasks can be sorted according to activity (e. g. “fork lift truck required for task”).
- Yard management: With a high volume of traffic gates can be assigned selectively.
- Managing staging areas in stock.

Storage and retrieval strategies

Strategies for automatic storage and retrieval of goods are taken from EWM’s master data for goods-in/goods-out. Common services such as FIFO, LIFO, partially opened packages first, best before date, fixed locations, etc. are directly supported.

Storage and retrieval strategies can be expanded and adjusted by Dematic’s business add-ins. Furthermore the Dematic solutions offer the possibility to process goods movements manually, as well as changing source and destination locations which are normally determined automatically.

Visualisation


Dematic has the knowledge to implement visualisations directly into SAP. These visualisations can be in the form of 3D images of the warehouse topology or a live stream from a webcam. For example Dematic has developed a solution with a webcam mounted on a stacker crane.

Support of handling units

Handling units are a special SAP feature. They characterise a physical unit of packaging – such as carton or pallet – and packed material. Handling units contain information such as batch or serial numbers and can be nested. The Dematic solution offers status reports to all handling units as well as a history on their whole lifetime.

Warehouse management monitor

The warehouse management monitor is characterised by a variety of pre-defined reports as a central control and information tool. Additional workflows can be associated, controlled and tracked directly from the warehouse management monitor.



Like all products from Dematic, Multishuttle can be optimally integrated into a SAP EWM solution

- Load types: Plastic tote box, cardboard carton, trays
- Load weight: up to 50 kg
- Variants:
 - Static Telescopic load extractor (fixed length & width)
 - Belted Belt conveyor load deck
 - Flex Telescopic load extractor; expands/contracts, accommodates a range of load sizes
- Suitable for chilled storage
- Storage density: single or multiple-deep

Alert monitor

The alert monitor provides an overview, if any errors have occurred within the material flow. For example the system shows the priority, the time, and a description of the error. If available, the system displays additional information such as sender, recipient, source or destination of the message that caused the error.

Logistic value-added services

The possibility of offering value-added services (such as labelling, kitting, assembly, etc.) becomes more important and gives you a competitive advantage.

SAP EWM supports you with value-added services where appropriate steps between the storage and retrieval are provided.

These orders determine which product finishes will be carried out, for example at work stations.

Wave picking

Along with handling several picking orders, EWM supports wave picking. Here multiple picking orders are bundled, processed together and afterwards separated again. The compilation of waves takes place automatically or manually according to activity areas, routes or products on the basis of provided rules. Dematic has special know how in generating these rules.

Multi-customer warehouse

If you intend to take over logistics services for your clients, the following features are important to you:

- Separation of the various customer stocks
- Connection to customer host system (SAP and non-SAP systems)
- Depending on customer service
 - Different number ranges
 - Different print layouts
 - Separate inventories
 - Custom storage/retrieval strategies

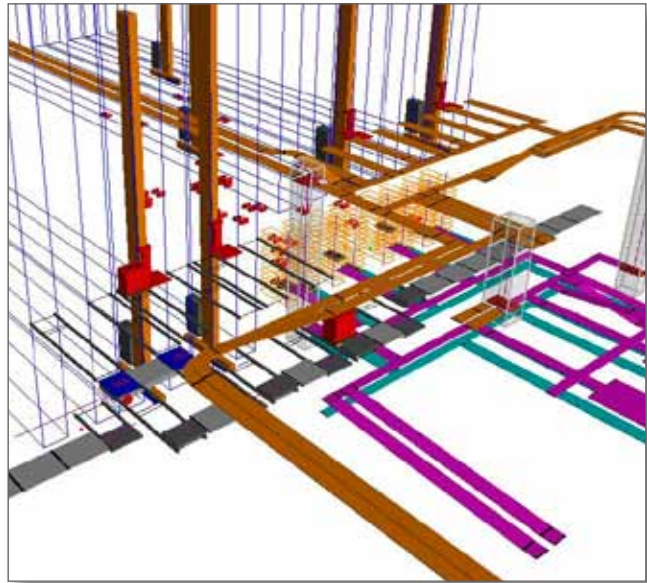
Dematic EWM standard templates

Fast, low-risk implementation

An EWM implementation in a highly automated warehouses presents a special challenge. To simplify the system implementation, Dematic offers own EWM templates, which are implemented in customisable tables.

This standardisation offers you a rapid, low-risk implementation and a simple support of the system in a production environment. The Dematic EWM standard templates support the following functions:

- Dematic Multishuttle strategies
- Complex sequencing strategies
- Double load handling for stacker cranes
- Multi-deep storage locations
- Connection Kardex
- Direct connection of layer de-palletising robots including full functionality
- Emulation with 3D warehouse model



Emulation 3D warehouse model

Warehouse modules within SAP ERP

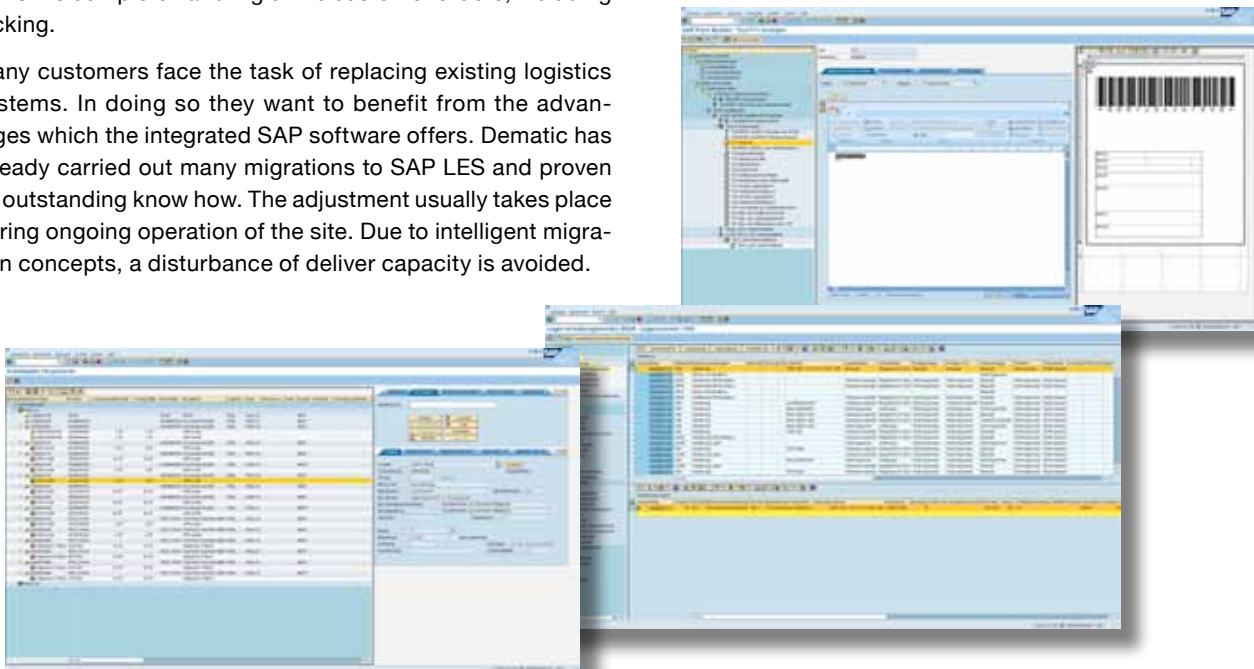
SAP LES Logistics Execution System

SAP LES is a part of SAP ERP. The application scope of this component includes manual and automated warehouses. Besides management of inventory and resources, LES supports the complete handling of the customer orders, including picking.

Many customers face the task of replacing existing logistics systems. In doing so they want to benefit from the advantages which the integrated SAP software offers. Dematic has already carried out many migrations to SAP LES and proven its outstanding know how. The adjustment usually takes place during ongoing operation of the site. Due to intelligent migration concepts, a disturbance of deliver capacity is avoided.

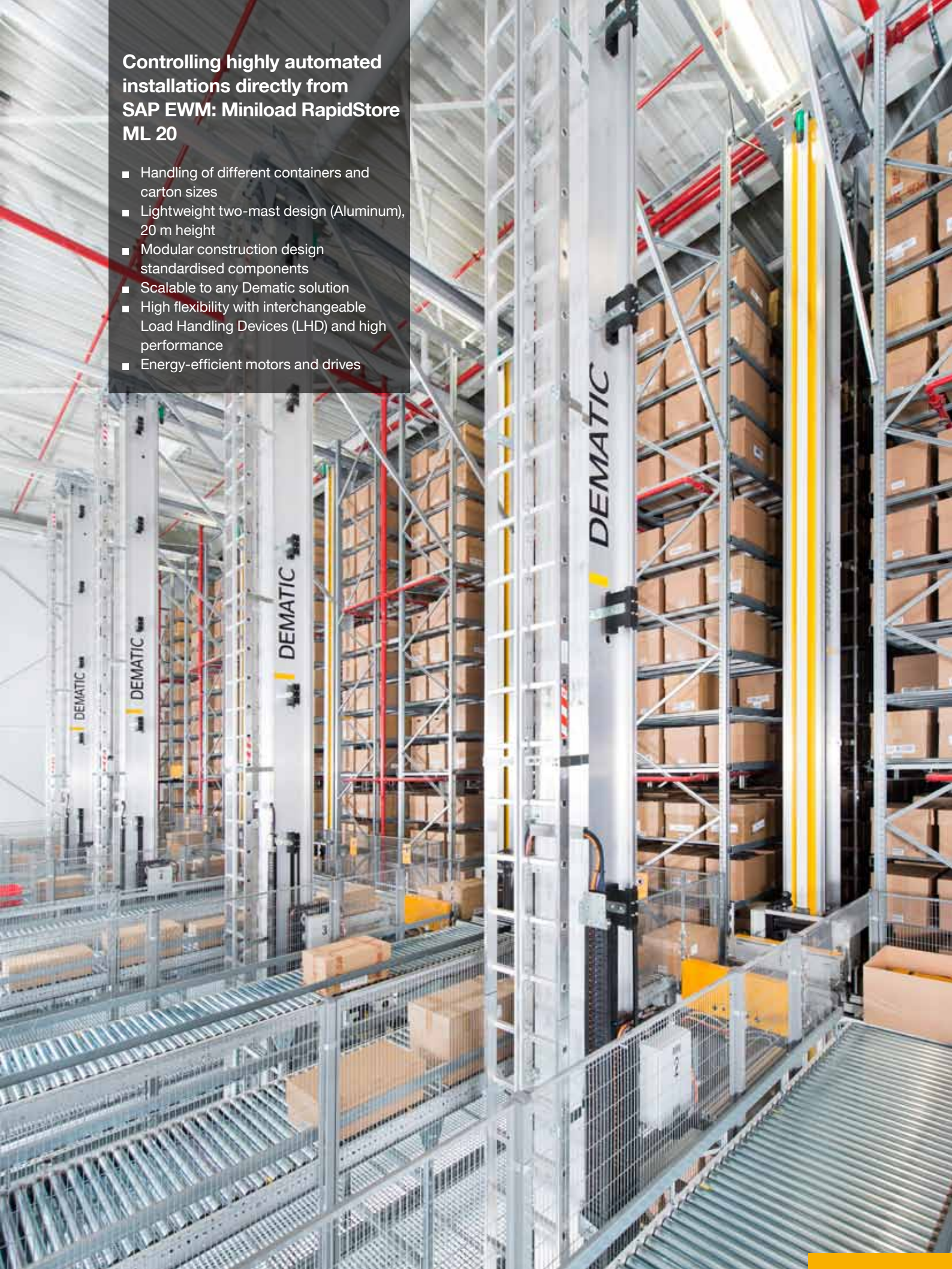
SAP WM Warehouse Management

If the SAP warehouse module is not installed as a centralised solution (LES), but within a central ERP system, then you can use the SAP WM warehouse module.



Controlling highly automated installations directly from SAP EWM: Miniload RapidStore ML 20

- Handling of different containers and carton sizes
- Lightweight two-mast design (Aluminum), 20 m height
- Modular construction design standardised components
- Scalable to any Dematic solution
- High flexibility with interchangeable Load Handling Devices (LHD) and high performance
- Energy-efficient motors and drives



SAP Transport Management (TM)

With increasing globalisation supply chains are getting faster and more complex. With the Transport Management (TM) SAP therefore offers a special module within SAP SCM, which includes all activities associated with the physical movement of goods from one particular place to another.

With SAP Transportation Management, you calculate freight costs based on actual shipments and freight rates. This information can then be used to check the calculations of shipping agencies and other service providers.

Thereby Dematic provides you a comprehensive know how from intralogistics to global transportation logistics.

With SAP Transport Management you can:

Optimise transport processes, assign shipping agencies and advertise shipping orders

Consolidate orders and transports both optimised centrally and for each office

Select shipping agencies, calculate and billing of shipping costs, print receipts

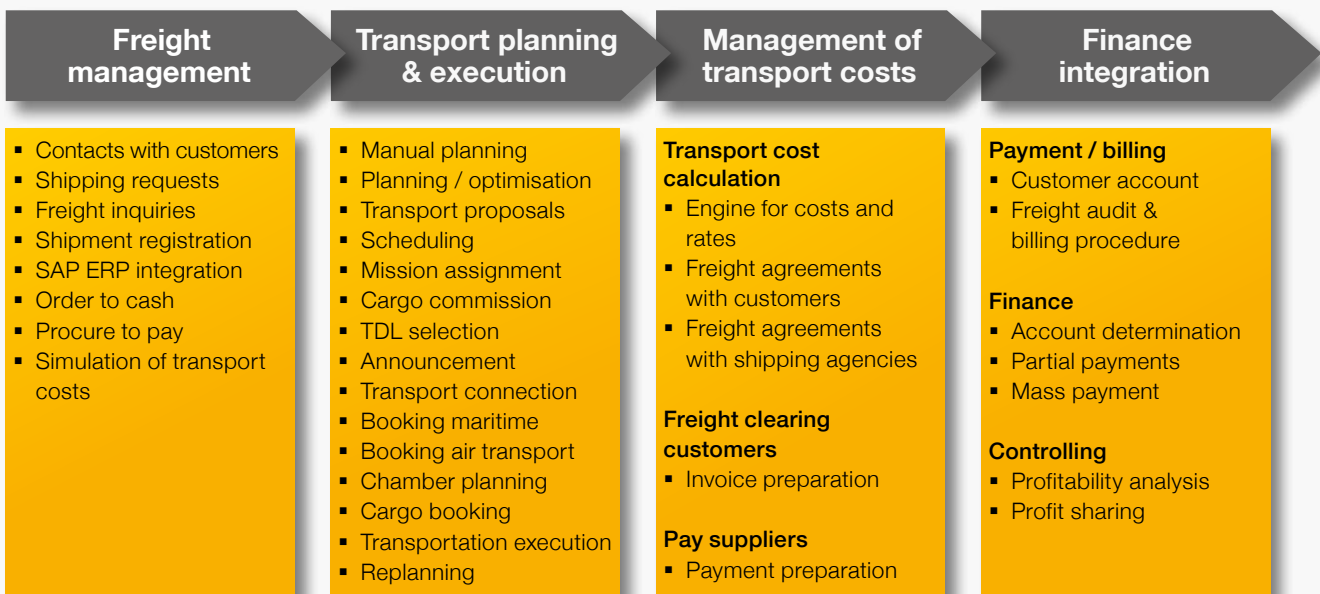
Exchange information with shipping agencies and carriers online via web platform

Use sanction and embargo lists for international shipping



Analytics in SAP TM

Functional overview of SAP TM (excerpt)



Integration in Supply Chain Execution Platform (EM, GTS, EWM)

Analytics (business intelligence)

SAP Mobile

Integration 3rd party



Dematic SAP EWM solutions support Dematic RapidPick picking stations

- Delivery of containers and cartons
- Intelligent and flexible feeding sequence (heavy goods first, fragile items last)
- Short changeover time of pick and put containers (< 1s)
- No manual handling of containers (time savings)
- Ergonomically optimised

Dematic Sub-Suite 2.0

Solution to support bi-directional communication between SAP and sub-systems

The Dematic Sub-Suite meets the needs of many users who want a simple and efficient solution to connect their sub-systems, such as Pick-by-Voice, Pick-by-Light or PLC control systems.

The material flow component of Dematic Sub-Suite offers a pure SAP solution in which the functionality of a material flow system is shown completely in SAP LES. This allows adjustments to be made to the software at any time by the customer in SAP.

The device-related connection is carried out by a controller in the cabinet. The Dematic Subdriver translates SAP XML and RFC communication in TCP/IP socket communication understandable for PLCs. Data exchange takes place via messages.

The advantage of this solution is that the middleware is completely eliminated and a technological rupture, resulting from the use of different software systems, is avoided. The result are cost effective, streamlined and practical solutions, especially for modernisations, in which old procedures will be replaced by a SAP-based solution.

The illustration below shows an example of a PLC control system and the different integration scenarios that are offered to the user:

Benefits of Dematic Sub-Suite

Cost savings due to elimination of:

- Hardware for hosts and middleware
- Licenses for database and operating system
- Paid updates
- Maintenance costs for hardware and software
- Additional implementation effort

Independence of middleware software vendor:

- Using open source in SAP ABAP
- Service and expansion by SAP in-house department
- Simple and low spare part management

Rapid implementation:

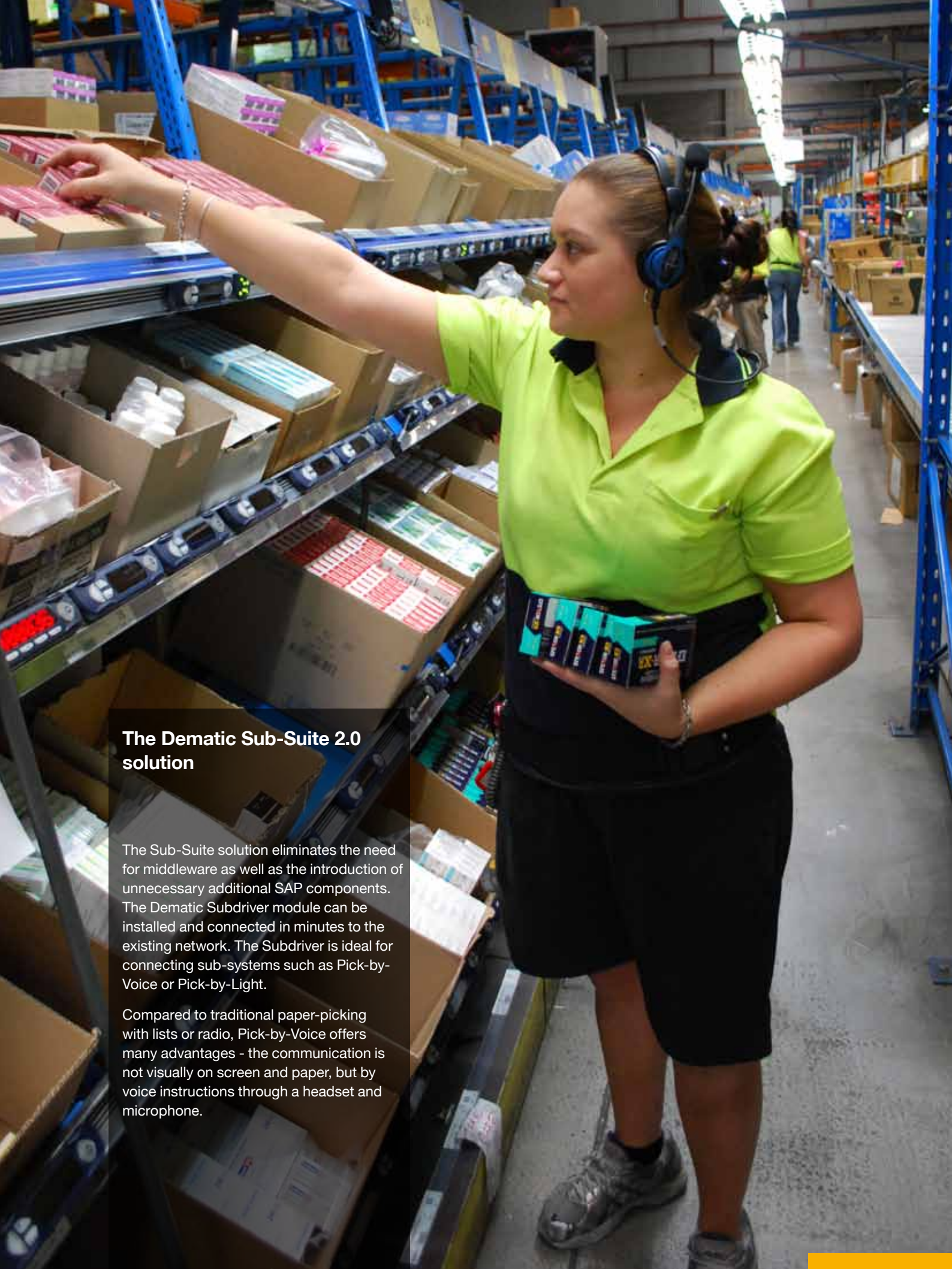
According to experience the implementation effort for a Sub-suite solution is just a few days.

Subdriver in the control cabinet



Integration scenarios for a direct linking of sub-systems

Host Level	ERP	SAP ERP	SAP ERP	SAP ERP
Warehouse Management System	Dematic WMS	SAP LES	SAP State-of-the-art solution with direct link of subordinate controls level	
Material Flow Control	Dematic MFC	Dematic MFC	SAP LES SUB-MFS	SAP EWM SAP MFS
PLC Level	PLC	PLC	PLC	PLC
Hardware (Conveyors, Sorters, ASRS, Picking)				



The Dematic Sub-Suite 2.0 solution

The Sub-Suite solution eliminates the need for middleware as well as the introduction of unnecessary additional SAP components. The Dematic Subdriver module can be installed and connected in minutes to the existing network. The Subdriver is ideal for connecting sub-systems such as Pick-by-Voice or Pick-by-Light.

Compared to traditional paper-picking with lists or radio, Pick-by-Voice offers many advantages - the communication is not visually on screen and paper, but by voice instructions through a headset and microphone.

Profitability and highlights

Besides functionality and sustainability for daily use of a solution, economic criteria play a decisive role.

Open for changes

With varying markets and company relevant changes, demands towards logistics can change quickly as well. Therefore it is very important that solutions be designed to cope with basic modifications, such as automation of manual processes, or that the implementation of a new picking method can be accomplished easily. Dematic solutions are open for changes so that investments are protected.

System administration

System administration of SAP solutions can be covered by already available SAP system administrators. Additional help can be provided by the inexpensive remote assistance functions offered by Dematic.

Release capability

Dematic focuses on standards. When implementing SAP, only interfaces provided by SAP are applied (IDocs, RFCs, BadIs, customer functions, etc.). As a result applications are very robust towards release changes.

Quality standards and system security on a high level

Planning and implementation of Dematic projects are quality controlled. Customers benefit right from the beginning: from professional consultation and smooth commissioning to the point of reliable site operation with low downtimes and minimised service efforts.

High system availability

In addition to the stability of SAP systems, Dematic uses its own safety mechanisms for mechatronics which provide a controlled warm start in case of a plant shutdown.

TCO / ROI

When planning and implementing logistics systems also a TCO analysis of the customer is taken into consideration. In addition, many projects have introduced a fast ROI in short time, thus improving the competitiveness of the customer.

Dematic Services

Added value from your lifecycle partner

After commissioning, Dematic offers comprehensive support for your system solution including hardware and software. On-demand 24-hour service is available all year long.

With the customer's approval, support and monitoring of the software can be carried out via remote maintenance. This service can be offered at a reasonable price since travel expenses do not apply.

Maintenance Services

- Technical phone support 24/7, remote maintenance
 - Diagnostic inspection and troubleshooting
 - Software updates, system support
 - Emergency services
 - Supplemental resident support
 - Consulting & training
-

Maintenance Based Services

- Handling of change requests
 - Modernisation and upgrading
 - Service consulting
-



Dematic Services

With our complete service and support packages, you can be sure to exhaust your investment at any time perfectly.

That means: to increase the operational time of your investment, minimise downtime and to have the security that you can always rely on your system – even if you need to operate at full capacity.

DEMATIC
SERVICE



Standardised methodology for project success

Feasibility studies

Complex SAP projects often start with a feasibility study which evaluates project risks and is a foundation for later SAP implementations - even during day-to-day business. Dematic also analyses customer requests to make recommendations concerning SAP EWM versus SAP LES.

SAP logistics consultation

Expertise in developing logistics solutions in combination with excellent knowledge of industry specific business processes and well-founded SAP know how characterise the high level of Dematic's SAP logistics consultation. For existing facilities, we support you in process optimisation and re-design.

Business blueprint

The business blueprint is the detailed specification of your requirements. Your processes are initially recorded and analysed. Together with you we will then determine how the processes and functions are to be mapped to the new system and what actions are required for implementation. In the blueprint, this is documented in writing.

Emulation

In automated warehouses we always create a 3D emulation of your warehouse architecture. Changes in your processes can therefore be tested very quickly against the emulation, first ground tests should be performed on the customer site before the actual commissioning. By this the on-site commissioning time is reduced, errors are avoided and risk is minimised.

Implementation

The implementation of your requirements starts once the details are clarified. The precise clarification of details in the previous business blueprint phase saves implementation time and allows adjustments during ongoing operations.

In principle realisation is carried out with the aim of using the SAP standard. If additional developments are still necessary, they must be implemented by Dematic standard development guidelines.

Test phase

Dematic focuses on an adequate trial period to ensure the quality of the project. The necessary tests are carried out in several successive steps:

- Single function test
- FAT (Factory Acceptance Test)
- Load test
- Integration test
- Installation test



Migrations

Dematic takes over the complete migration of legacy systems and carries out all necessary steps for enterprises which would like to shift their existing logistics systems to SAP EWM or SAP LES. The large sum of experiences, gathered in many projects, allow a seamless changeover during ongoing operation. Normally a parallel operation is not necessary.

Integration of sub-systems

As one of the clear leaders in logistics automation, Dematic has special expertise in connecting sub-systems. Dematic strictly keeps up with standards, so that the system is open to later changes.

Training and information

Information events and training are very important for the users, particularly with regard to modernisation projects. Acceptance of a new solution can be increased considerably by early information events and by tuning up the installation faster after commissioning.

Implemented projects

Industries

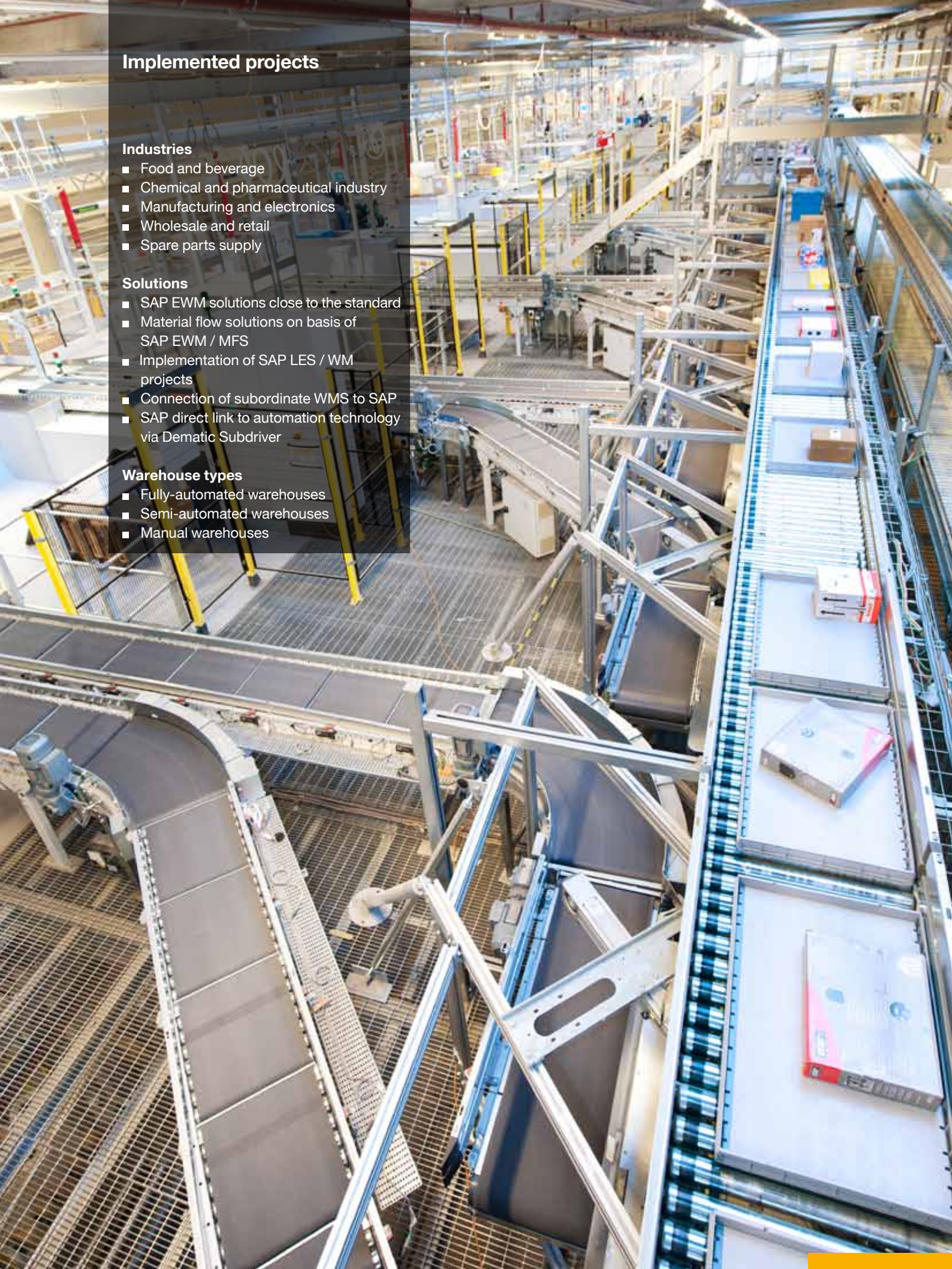
- Food and beverage
- Chemical and pharmaceutical industry
- Manufacturing and electronics
- Wholesale and retail
- Spare parts supply

Solutions

- SAP EWM solutions close to the standard
- Material flow solutions on basis of SAP EWM / MFS
- Implementation of SAP LES / WM projects
- Connection of subordinate WMS to SAP
- SAP direct link to automation technology via Dematic Subdriver

Warehouse types

- Fully-automated warehouses
- Semi-automated warehouses
- Manual warehouses



Dematic Headquarters

Dematic Group S.à r.l.

2-8, Avenue Charles de Gaulle
1653 Luxembourg
Luxembourg
T +352 27 48 59-60
F +352 27 48 59-99
press@dematic.com

Corporate Strategy & Development Office

Dematic Europe GmbH

Lyoner Str. 9
60528 Frankfurt / Main
Germany
T +49 69 58 30 25 0
F +49 69 58 30 25 150
info@dematic.com

SAP Competence Centre

Dematic GmbH

Marienbergstr. 94
90411 Nuremberg
Germany
T +49 911 70401-0
F +49 911 70401-2530
anfrage@dematic.com

Customer Contacts Europa

Austria

Dematic Services GmbH
Hirschstettnerstr. 19-21 / Z 201
1220 Vienna
Austria
T +43 1 205 522-0
F +43 1 205 522-999
info.at@dematic.com

Baltic States

Dematic Kaunas
Raudondvario Pl. 107
47186 Kaunas
Lithuania
T +370 37 328410
F +370 37 328409
info.lt@dematic.com

Benelux

Dematic Services GmbH
Europalaan 4c
5232 BC Den Bosch
Netherlands
T +31 736 460-460
F +31 736 460-469
info.nl@dematic.com

Denmark & Scandinavia

Dematic Scandinavia
Skottenborg 12-14
8800 Viborg
Denmark
T +45 8669 9796
F +45 8725 5152
info.dk@dematic.com

France

Dematic S.A.S.
6, Avenue Gutenberg
77600 Bussy Saint Georges
France
T +33 1 64 76 45-00
F +33 1 64 76 45-99
info.fr@dematic.com

Germany

Dematic GmbH
Carl-Legien-Str. 15
63073 Offenbach / Main
Germany
T +49 69 8903-0
F +49 69 8903-1299
anfrage@dematic.com

Italy

Dematic S.r.l.
Via Firenze 11
20063 Cernusco sul Naviglio (MI)
Italy
T +39 02 92 90 54-1
F +39 02 92 90 54-902
info.it@dematic.com

Eastern & South East Europe

Dematic GmbH
Micurinova 36/1
21000 Novi Sad
Serbia
T +381 21 530422
F +381 21 530422
info.see@dematic.com

Russia / GUS

Dematic GmbH
Russian Representative Office
ul. Bakhrushina 32/1
115054 Moscow
Russia
M +7 926 2718 598
info.ru@dematic.com

Switzerland

Dematic Schweiz
Birmensdorfer Str. 87
8902 Urdorf
Switzerland
T +41 43 455 60 60
F +41 43 455 60 70
info.ch@dematic.com

Spain & Portugal

Dematic Logistic Systems S.A.
Alemania, 2-4
28820 Coslada, Madrid
Spain
T +34 91 205-7700
F +34 91 205-7910
info.es@dematic.com

United Kingdom & Ireland

Dematic Ltd
Beaumont Road
Banbury, Oxon OX16 1QZ
United Kingdom
T +44 1295 274 600
F +44 1295 274 808
info.uk@dematic.com

Turkey

Izmirli Mühendislik Lojistik
Danismanlık Denetim ve Proje
San. Tic. Ltd. Sti.
Çavusoglu Mah. Sanayi
Caddesi
Sade Sanayi Sitesi B-Blok No:8
34873 Kartal-Istanbul,
Turkey
T +90 216 374 8666
M +90 532 724 4833
info.tr@dematic.com

South America

Brazil

Dematic
Sist. Equip. Mov. Mat. Ltda.
Av. Embaixador Macedo
Soares, 10735
4º Andar - Vila Anastácio
São Paulo
05035-000 - Brazil
T +55 11 3627-3100
F +55 11 3627-3101
info.br@dematic.com

North America

United States

Dematic Corp.
507, Plymouth Avenue NE
Grand Rapids, Michigan 49505
USA
T +1 877 725-7500
F +1 616 913-7701
usinfo@dematic.com

Canada

Dematic New Berlin
2855 S. James Drive
New Berlin, WI 53151
USA
T +1 262 860-7000
F +1 262 860-7010
usinfo@dematic.com

Canada

Dematic Limited
6711 Mississauga Road,
L5N 2W3 Mississauga-ON
Canada
T +1 877 567-7300
F +1 905 363-6969
usinfo@dematic.com

Asia Pacific

Australia

Dematic Pty Ltd
24 Narabang Way
Belrose NSW 2085
Australia
T +61 2 9486-5555
F +61 2 9486-5511
info.anz@dematic.com

China

Dematic Shanghai
Floor 18, No. 763 Meng Zi Road
Xinfugang Center
200023 Shanghai
T +86 21 6086 2999
infochina@dematic.com

Korea

Dematic Korea
S05, 9th Floor, Garden5 TOOL
292 Moonjung-Dong, Songpa-Gu
Seoul, Korea 138-962
T +82 2 6925 4763
info.asia@dematic.com

Malaysia

Dematic Malaysia Sdn. Bhd.
12-03A, Level 12, Plaza Masalam
Jalan Tengku Ampuan Zabedah 9/E
Section 9, 40100 Shah Alam
Selangor, Darul Ehsan, Malaysia
T +60 3 5512 2688
F +60 3 5511 2688
info.asia@dematic.com

New Zealand

Dematic Pty Ltd
Eastside - Building 7, 15 Accent Dr
East Tamaki, Auckland
New Zealand
T +65 6398 3980
F +61 9 273 0064
info.anz@dematic.com

Singapore

Dematic S.E.A. Pte Ltd
10 Eunus Road 8
#09-01A Singapore Post Centre
Singapore 408600
T +65 6398 3980
F +65 6398 3999
info.asia@dematic.com

Additional Contacts

For more local offices, service
locations and partners in Finland,
Israel, Poland and South Africa,
please refer to our homepage
www.dematic.com/europe