

Overview about Consulting Services

- Experience profile in general
- Trouble shooting, Adjudication, Expert reports
- Business analysis for Private Equity Companies
- Consulting System Design and Basic Planning
- PM-Training und Ramp-up-Management/Support
- Strategic consulting (Innovations, Business concepts)



V8.2

16.02.2017

We kindly ask for keeping the informations concerning the involved business cases confidential

Overview about experience of Karl-Heinz Dullinger in logistics business areas

Analysis of business units in the field of:

- System suppliers of Material Handling Systems
- System integrators / turnkey business in Material Handling
- Supply Chain Management and production logistics for specific business areas

Areas of experience

Airport logistics
(Baggage & Air
Cargo)

Seaport logistics
(Yard
operations)

Warehouse &
Distribution
Logistics

Production logistics
in specific business
areas

Supply Chain
Management
(Inventory
Management,
etc.)

Troubleshooting
Adjudication
Experts report
Strategic
Consulting

Project
Management
Main contractor
business

The focus of the analysis are:

- System Design (Technology, processes, etc.)
- Strategic aspects (business strategy, KPI, etc.)
- Organisational aspects
- Experts reports

Type of clients:

- Logistics service providers
- Material Handling companies
- Private Equity companies
- Manufacturing companies

Project Management Skills:

- Management of large scale projects
- Main contractor projects
- Author of PM manuals
- PM-Training

LSCC17.11.2013

Trouble - Shooting

Ausgangssituation:

Ein Generalunternehmer hat ein sehr anspruchsvolles und vollautomatisches System für ein Distributionszentrum geliefert. Der vertraglich vereinbarte Leistungsumfang konnte auch nach fast einem Jahr nach Betriebsaufnahme nicht geliefert werden.


Der Endkunde droht mit dem vertraglich vereinbarten Rücktritt vom Vertrag, falls nicht binnen einem Monat das System zur Zufriedenheit läuft.



- HRL Stahlbau und Gebäudehülle
- AKL
- Sprinkler
- Brandschutz
- Beleuchtung
- Neu- u. Umbau der vorhandenen Fördertechnik
- Steuerung und Lagerverwaltung

As consultant for
Klinkhammer, Nürnberg

Co author of expert report for court dispute, ADR process



RAPPORT DE MISSION

Pour l'expertise

Du terminal Tri bagages TB-E-F-Mbis


à Roissy.


Etude : N.2010-008.A.FM/KEYLOG – 30 Août 2010

CEGELEC GLOBAL SYSTEMS & SERVICES
SIGMA Division
A l'attention de Monsieur Stéphane Lemarchand
10 avenue du Stade de France
93200 SAINT-DENIS

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sogaris 159 – Bât. Administratif
Avenue de Versailles
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Site : www.keylog-is.com





PROJEKTABSCHLUSSBERICHT

Supply Chain Optimization

FrancoTyp-Postalia Holding AG

Projektnummer:	2163
Account-Verantwortung:	Christian Zott
Projektleiter:	Markus Ackermann
Aktuelles Datum:	27.05.2009
Version	3.3

In cooperation with
Keylog, Paris

In cooperation with
Fraunhofer IFF, Magdeburg

08.03.2017

Karl-Heinz Dullinger

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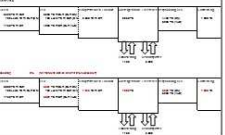
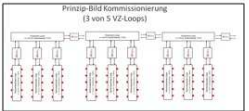
Adjudication for a very complex and large DC
(Multi Channel Business)

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**Vorgaben zur
Materialfluss-Planung**

Vorbemerkung: Hinweise für die Handhabung des Dokumentes
Teil A: Grundlagen und Prämissen für die Systemauslegung
Teil B: Planungsdaten basierend auf den Datenanalysen
Teil C: Validierung der Planungsdaten

Prinzip-Bild Kommissionierung
(3 von 5 VZ-Loops)



Version V1.3
12.05.2015



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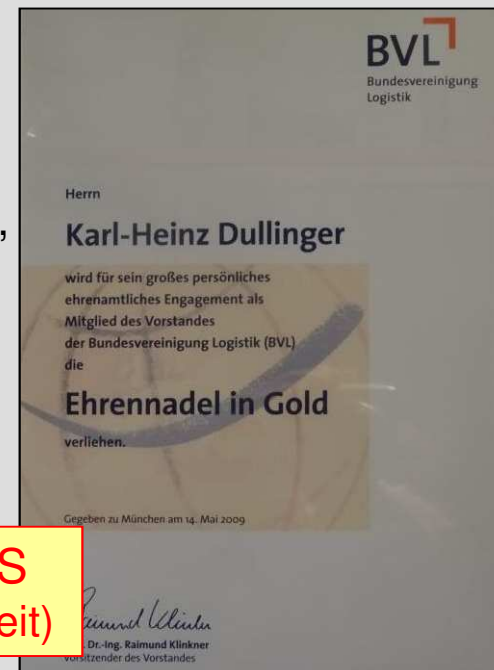
**System - Analyse
BLG Multi Channel**

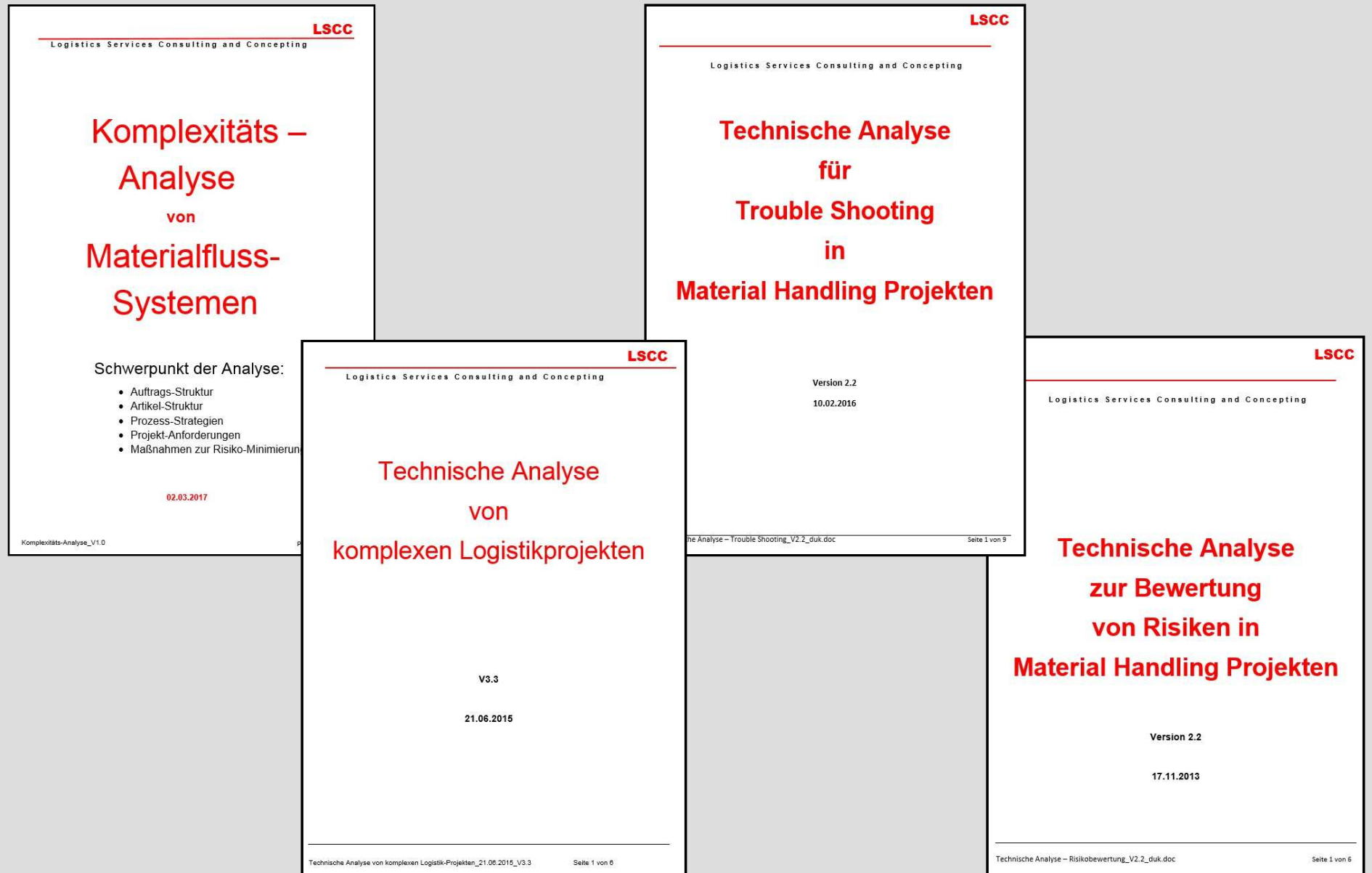
**Statusbericht
Lenkungsausschuß**

Version V1.1
Erstellt am 16.12.2014
(Redaktionsschluss am 15.12.2014)

- Deep understanding of logistics processes including the technical aspects
- Experience in handling of projects with the following characteristics:
 - Large complexity
 - Large requirements concerning dynamic/static capacity
 - Many parties involved
 - Large interpendances between building blocks/areas/sectors
- Acceptance of both parties due to:
 - Skills in negotiating (20 years in Executive Management)
 - Large experience in Project Management (see Vita)
 - Widely recognized personality
 - 12 years in board of logistics associations (BVL, DGfL)
 - > 25 years of VDI guideline activities
 - All activities concerning guestspeaker, lecturer and consulting were initiated from outside in the last 6 years. (no promo needed)
- Neutrality

Experience in procedures according DIS
(Deutsche Institution für Schiedsgerichtbarkeit)





Listed at Alphasights, London
(Specialist for Experts recruiting
for Private Equity Companies, Financial Institutes, etc.)

Consulting volume for Private Equ. Companies:

- Technical advisor
- Support for Due dilligence process
- Analysis of business strategies, products, sales and operations, service business, R&D, projects, quotations, etc.
- Expert reports



Experience in business analysis due to negotiations and overtaking of companies
(at Siemens and at Vanderlande Industries)

The focus is
solution based business
in Material Handling

Business analysis Check list & Guide

Project ANGEL
29.10.2016

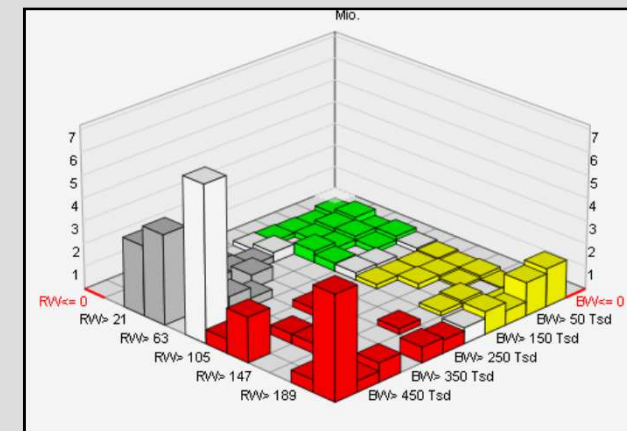
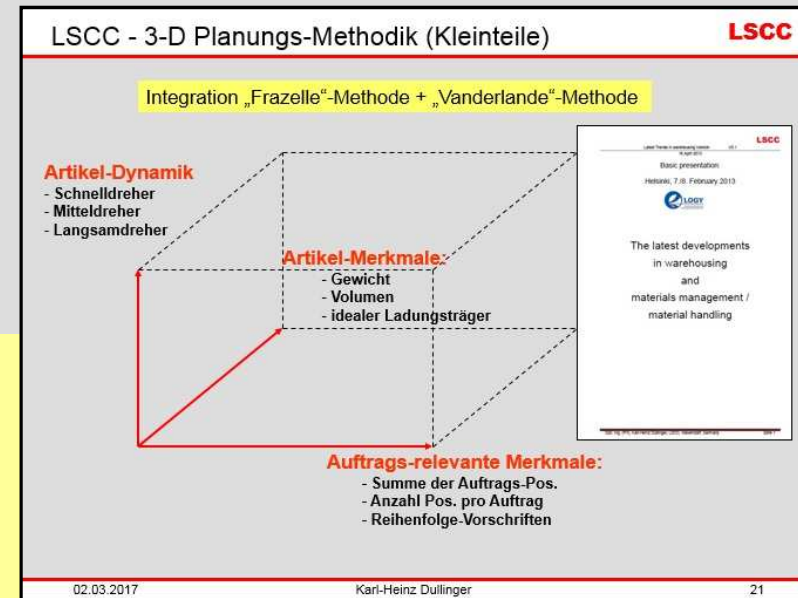
V1.1

Draft version

LSCC Logistics Services Consulting and Concepting	
Inhaltsverzeichnis	
1) Vorbemerkung	
2) Markt-Recherche / Markt-Übersicht	
2.1) Marktbetrachtungen generell	
2.1.1 Generelles zur Markt-Betrachtung	
2.1.2 <u>Baggage</u> Handling	
2.1.3 <u>Parcel</u> & Flats	
2.1.4 Warehouse & Distribution	
2.2) Market Mapping	
3) Geschäftsfeld-Analyse	
3.1) Vorbemerkung	
3.2) Generelles Vorgehen bei der Analyse	
3.3) Struktur und Zeithorizont der zu untersuchenden Daten	
3.4) Geschäftsstruktur / Geschäftsarten / Strategische Ausrichtung	
3.5) Marktstruktur / Wettbewerber / Position im Markt	
3.6) Aufbau- und Ablauf-Organisation / Wertschöpfung im Generellen	
3.7) Produkt- und Systemgeschäft / F+E	
3.8) Service-Geschäft	
3.9) Immaterielles Vermögen (im weitesten Sinne)	
3.10) Kernkompetenzen / USP (Zusammenfassung)	
4) Analyse von Produkten / Systemen	
4.1) Generelles Vorgehen	
4.2) Detail-Analyse (mit Musterbeispiel)	
5) Risiko-Analyse von Projekten	
5.1) Projektauswahl / Stufenweises Vorgehen	
5.2) Vorgehen im Detail	
5.3) Analyse-Fragen / -Themen Kundenprojekte	
5.4) Analyse Entwicklungs-Projekten	
5.5) Zusammenfassung der Risiko-Analyse (<u>Red Flag</u> -Report)	
6) Zusammenfassung der gesamten „Technischen Analyse“ (Management Summary)	
LSCC Logistics Services Consulting and Concepting	

Scope of Supply

- Analysis of System Design
- Evaluation of System Design:
 - planning principles, basic solutions
 - WMS-functionality, etc.
- Creating sample solutions for comparison
- Analysis of RFQ`s and quotations
- Feasibility studies / Basic planning
- Main focus: Material Handling aspects



Example: A very large project for footwear & apparel

The image shows three overlapping document covers for LSCC (Logistics Services Consulting and Concepting) design guides. The top-left cover is titled 'Design Guide for shipping sorter' and is dated 28.10.2016, Version V1.0. The middle cover is titled 'Slotting Guide for zone picking systems' and is dated 17.10.2016, Version V1.0. The bottom-right cover is titled 'Design of sortation system for xxxxxxxxx – various designs' and contains a 'Table of content' with five items: 1) Basic requirements / basic remarks, 2) Consolidation / Sequencing via sorter only, 3) Order Station Picking (Use of put walls / shelving area for consolidation, Amazon concept), 4) Consolidation buffer via accumulation conveyors, and 5) Consolidation buffer via Shuttle Based system. The bottom cover also includes a footer with 'Slotting Guide Zone picking V1.0' and 'page 1 from 7'.

Design Guide for shipping sorter

28.10.2016
Version V1.0

Slotting Guide for zone picking systems

17.10.2016
Version V1.0

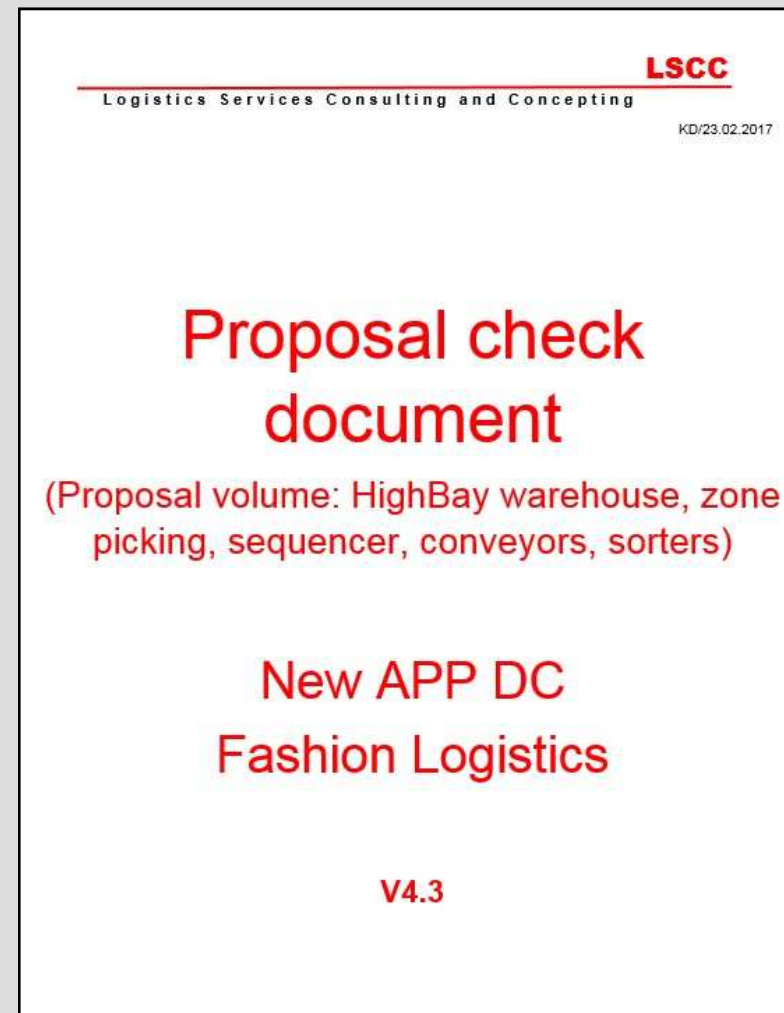
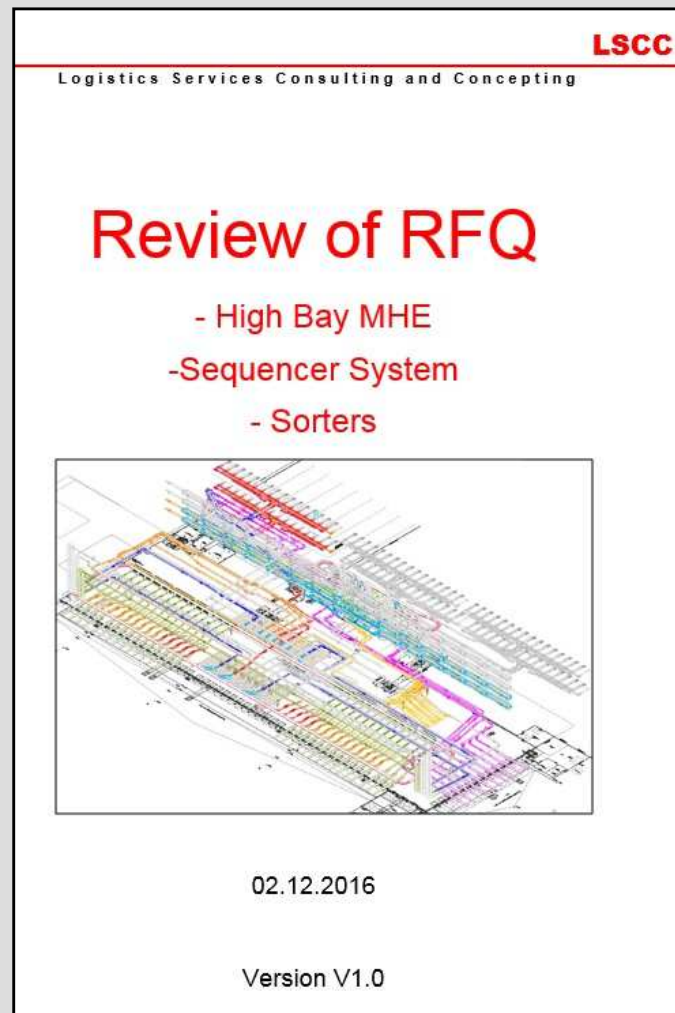
Design of sortation system for xxxxxxxxx – various designs

Table of content

- 1) Basic requirements / basic remarks
- 2) Consolidation / Sequencing via sorter only
- 3) Order Station Picking (Use of put walls / shelving area for consolidation, Amazon concept)
- 4) Consolidation buffer via accumulation conveyors
- 5) Consolidation buffer via Shuttle Based system

Slotting Guide Zone picking V1.0 page 1 from 7

Example: A very large project for footwear & apparel



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Logistics Services Consulting and Concepting
KD/11.02.2017

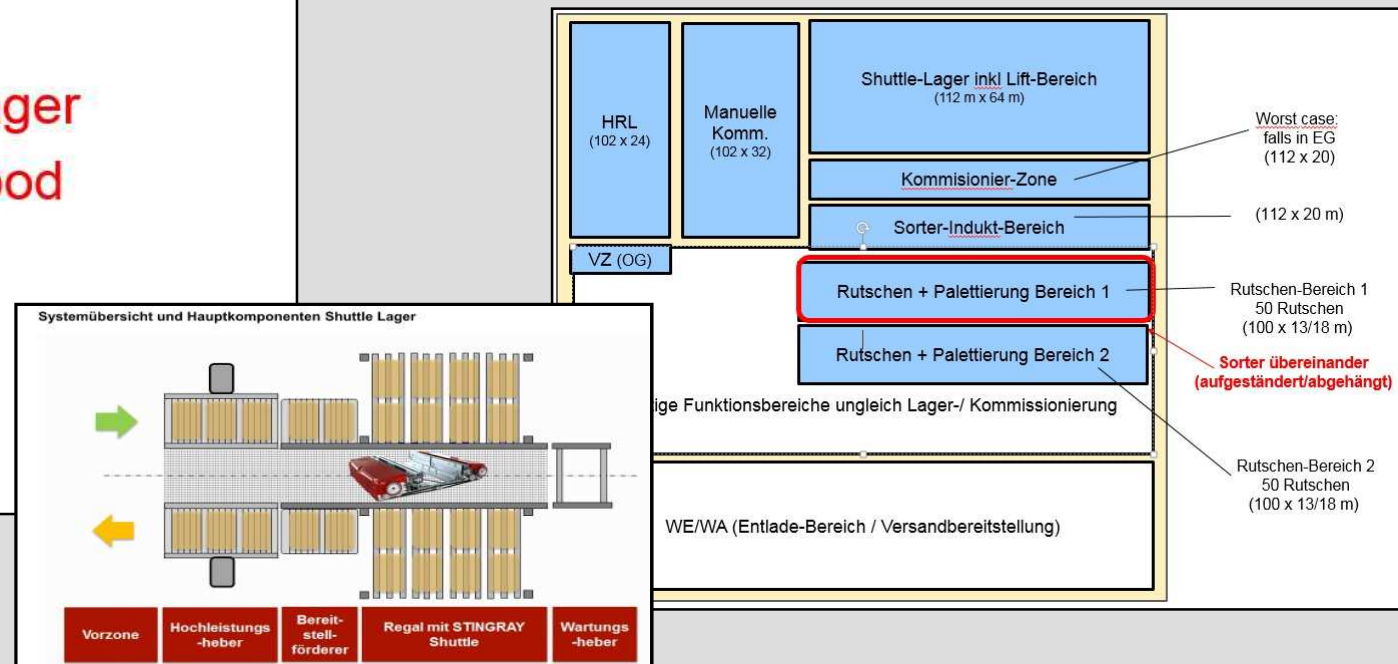
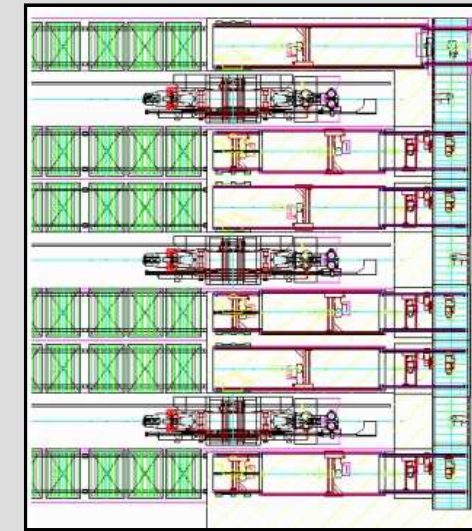
Machbarkeits-Studie

System-Auslegung, Kosten-
und Flächen-Schätzung

Zentrallager Near Food

V1.71

		A = 80% der Orderlines B = 95% der Orderlines C = 100% der Orderlines			A = 80% der TU B = 95% der TU C = 100% der TU		
Anzahl Artikel in ABC-Kategor		Zellen			TU		
		A	B	C	A	B	C
0702, PFLANZENPFLEGE	119	119	99	111	83	143	
0901, BEAUTY	2873	819	902	2411	1113	1070	
0902, KÖRPERHYGIENE	1147	97	36	1111	130	39	
0903, SELF CARE	425	33	2	404	50	6	
1005, DAMEN WÄSCHE	1280	2216	1237	342	2332	1459	
1007, DAMEN STRUMPFWAREN	949	712	680	868	849	624	
1103, HERREN WÄSCHE/SOCKEN	804	925	1096	745	1209	871	
1302, BABY NAHRUNG	273	36	8	246	59	12	
1303, BABY HAARWAREN	187	86	20	158	110	25	
1305, BABY WÄSCHE/STRUMPFWAREN	391	758	258	234	806	367	
1402, SPIELWAREN	1102	1077	588	680	1302	785	
1403, KINDER WÄSCHE/STRUMPFWAREN	648	1695	653	420	1676	906	
1502, CATEGORY VERBRAUCH	1058	167	25	954	258	39	
1503, CATEGORY HAUSHALT ACC.	1807	810	32	1337	1252	60	
1504, CATEGORY KÜCHE	1069	245	6	962	350	8	
1505, CATEGORY TISCH	1562	524	24	1349	714	47	
1506, PAPETERIE	1289	480	81	1050	671	129	
2115, MODUL SM/VM	217	85	82	170	117	97	
2401, HYGIENE WELLNESS	109	51	21	114	49	18	
2402, SOUND	68	55	36	68	48	43	
2407, TELECOM	88	27	48	82	28	53	
2410, ZUBEHÖR HHE	101	33	17	88	47	16	
2411, ZUBEHÖR UE	96	104	113	75	116	124	
2413, BATTERIEN/AKKUS	132	21	5	107	46	5	
2424, UHREN	101	135	81	98	147	72	



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Logistics Services Consulting and Concepting

Basisdaten Logistikplanung

Version 3.0
04.09.2009

Basisdaten Logistikplanung V3.0_duk.doc Seite 1 von 1

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Logistics Services Consulting and Concepting

Planungssystematik

Datenerfassung und Analyse

Erfassung und Auswertung von Daten zur Konzept- und Systemfindung

Version 2.0
11.11.2008

Analyse_V2.0_duk.doc Seite 1 von 14



LSCC

GERMAN INSTITUTE OF SCIENCE AND TECHNOLOGY - JÖNKÖPING

JACOBS UNIVERSITY

Quo Vadis
Material Handling
Karl-Heinz Dullinger
Band 2

Friedrich-Alexander-Universität
Erlangen-Nürnberg

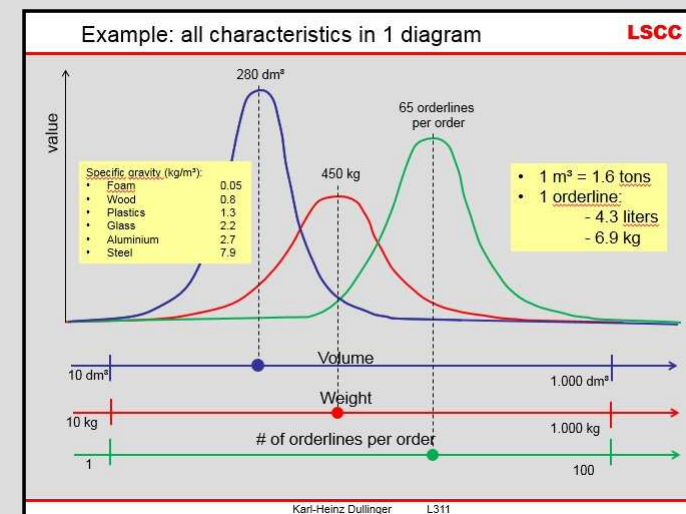
SRH

Planning Basics

V11.1

6-step method
to design a warehouse
from scratch

2.03.2017 Karl-Heinz Dullinger L311 1



Project Management Trainings-Kurs

V2.0

- Verantwortungs-Umfang eines PM
- Projekt-Phasen und wesentliche zu beachtende Aspekte
- Multi Projekt Planungs-Tool
- Komplexitäts-Analyse
- Risk- & Opportunity Management
- Methoden der Risiko-Minimierung
- Eskalations-Strategien
- Health & Safety



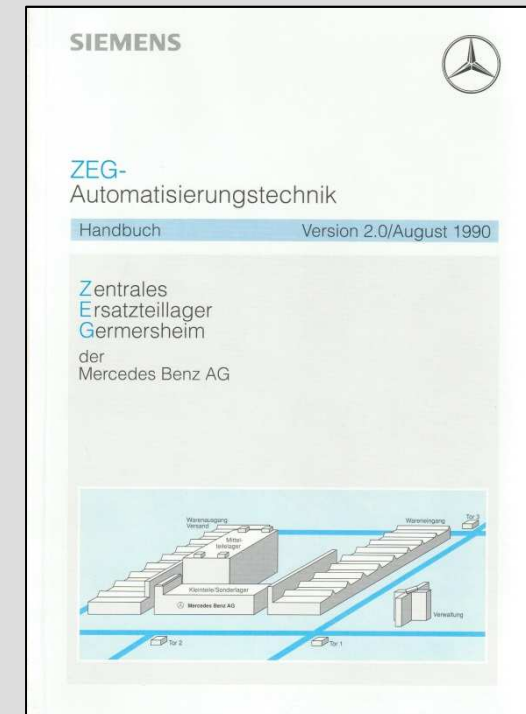
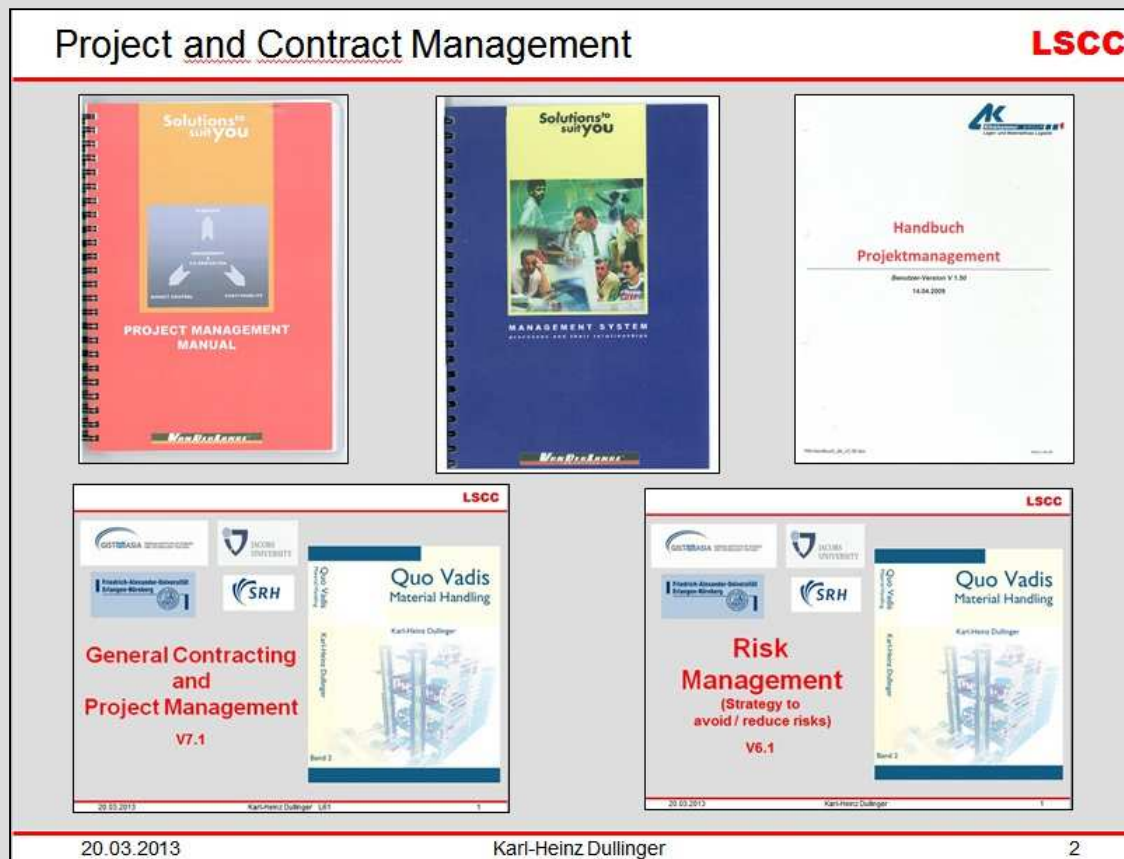
Presentation uses data from Vanderland and Klinkhamm

Ramp up-Management V 1.2

- **Warum Anlauf-Management**
- **Vorgehen und Inhalte (Phasen-Konzept)**
- **6 Erfolgsfaktoren**

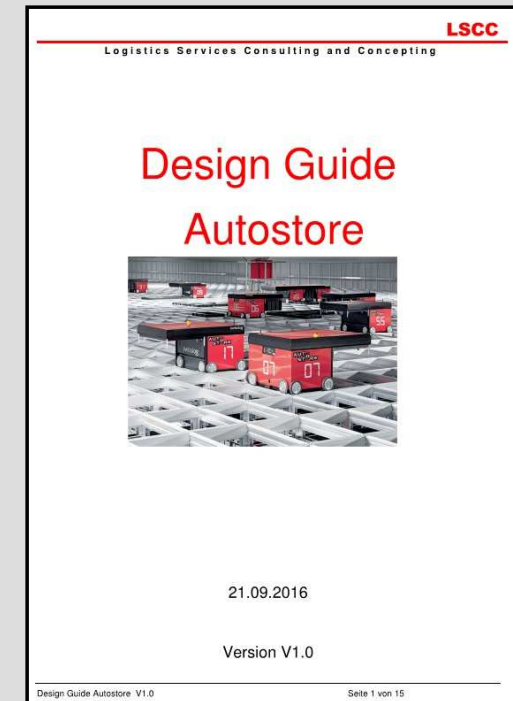


- Project Manager for large scale main contractor projects (Global spare parts Center Daimler Germersheim, etc.)
- Author of manuals for PM
- Training in PM
- Lectures in PM, Contracting and Risk Management



Scope of Supply

- Business analysis concerning logistics strategies
- Main focus: Material Handling aspects
- Innovation Management (examples attached)
- Supporting Top Management with logistics expertise, E-Commerce approach, etc.
- Supporting other consulting companies with logistics expertise



- Analyse über Einsatzmöglichkeit von neuen cyberphysikalischen Ansätzen in den Prozessen
- Analyse bzgl. Gefahr von Game-Changer im Geschäftsmodell

LSCC

Innovation Management - Study

**Trends and Forklift trucks
of the Future**

V4.0

Results of analysis of literature, workshops with

Themenfelder

- Vorbemerkung
- Workshop- / Konzept-Ziele
- Allgemeine Trends / Allgemeine Info
- MH-Branche
- Definition Industrie 4.0
- Trends Technik allgemein
- Kommissionieren
- Lagertechnik (Systemkomponenten und IT)
- Roboter
- Gabelstapler der Zukunft
- Wichtige Branchen , E-Commerce
- Geschäfts-Modelle
- **Cradle to grave-Konzept**
- Planungs-Kompetenz
- Abschließende Folie

Voraussetzung für ein „Cradle to grave“-Konzept

LSCC

Die wesentliche Voraussetzungen sind:

- Total modularer Aufbau des Produktes / Systems
- Volle Wiederverwendbarkeit aller Systemelemente
 - Diskontinuierliche Transport-Prozesse (nur AGV)
 - Einsatz von mobilen Roboter für Handlingsfunktionen
- Cyberphysikalische Struktur des Systems
- Integration moderner Fertigungs-Technologien (3D-Druck)
- Prozesskette durchgängig digitalisiert



Airports:	Amsterdam, Berlin, Bremen, Düsseldorf, Frankfurt, Hamburg, Hannover, Hongkong, München, Nürnberg, Paris, Stuttgart, Wien, Zürich
Automotive Industry:	AUDI, BMW, Continental, Daimler, Denso, Fiat, Ford, Lear, Opel, Schäffler, Volvo, VW, ZF
CEP-Business:	DHL, DPD, FEDEX, Post Austria, Swiss Post, TNT, Transoflex, UPS
Electric /Electronics:	ABB, Pepperl & Fuchs, Infineon, Motorola, Siemens
Household:	Bauknecht, Rotho, WMF
IT:	SAP, Inconso, mSE, TRAXON
Fastener /Tools:	Förch, Hilti, Hoffmann, Würth,
Machinery, vehicles, airplanes:	Airbus, Deutz, KUKA, MAK, TMHE, KION
Meat production:	Bell, Egetürk,
Retailer Electronics:	Arrow, Future Electronics, Micronica, Sonepar, 20-mobile
Retailer Food/Nonfood:	ARGOS, Carrefour, Edeka, Kaufland, Globus, Migros, Müller, WalMart
Retailer E-Commerce/Multi channel:	Amazon, Otto, Tchibo,
Retailer Mail order	Baur, Klingel, Neckermann, Quelle
Transporting company:	Deutsche Bahn, Hapag Lloyd, Lufthansa Cargo, Imperial Group
Textile business / shoes:	Gabor, Nike, Rieker
Terminal operators:	Cegelec, Eurogate, Jurong Port, Neska, PSA, TRICON
Third party logistics:	BLG, Dachser, Dirks, Fiege, Geis, Kühne & Nagel, Schedl, Schäflein, Stute Pan Asia Logistics,
Logistics consultants:	Agiplan, Integral, I & O, ITM, IWL, Keylog, Logplan, Metroplan, Miebach, Pierau, SIMPLAN
Logistics Research Institutes:	Fraunhofer Institutes (IML, IFF, IPA, IFT,), TUM-FML, IRP
Universities	FAU Erlangen-Nürnberg, TUM Asia Singapore, Jacobs Bremen, SRH Hamm, TU Berlin, Magdeburg, Dortmund, Niederrhein
Material Handling Supplier:	Alstef, Bito, Beumer, Daifuku, Daihen, Data Logic, Dematic, Grenzebach, Jungheinrich, Klinkhammer Group, Knapp, Lödige Group, Rober, Schäfer, Swisslog, TGW, Vanderlande Industries, Vitronic, Witron
Other Business.	Datev, Herma, KNO, Ruag, Varta, McKinsey