

Optimization of Workforce Planning at Schindler

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Schindler



- Founded in Switzerland in 1874, the Schindler Group is a leading global provider of elevators, escalators and related services.
- Schindler mobility solutions move **one billion** people every day all over the world.
- Behind the company's success are over 50,000 employees in more than 100 countries.
- The Headquarters is in Ebikon, Lucerne,

Service & Maintenance

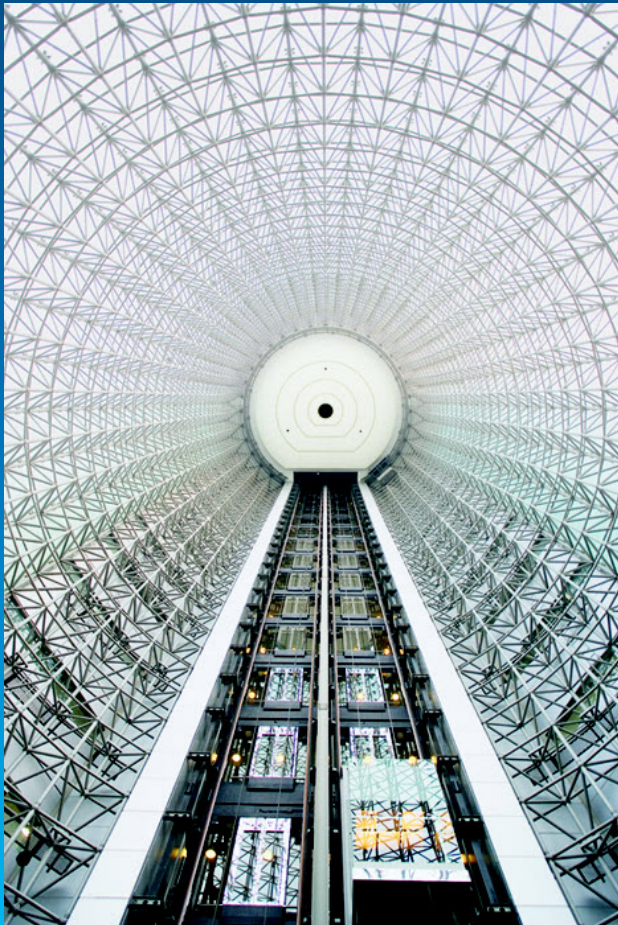


There are 28'551 employees working in installation and maintenance worldwide (End 2013)

One of the goals was
Increase productivity

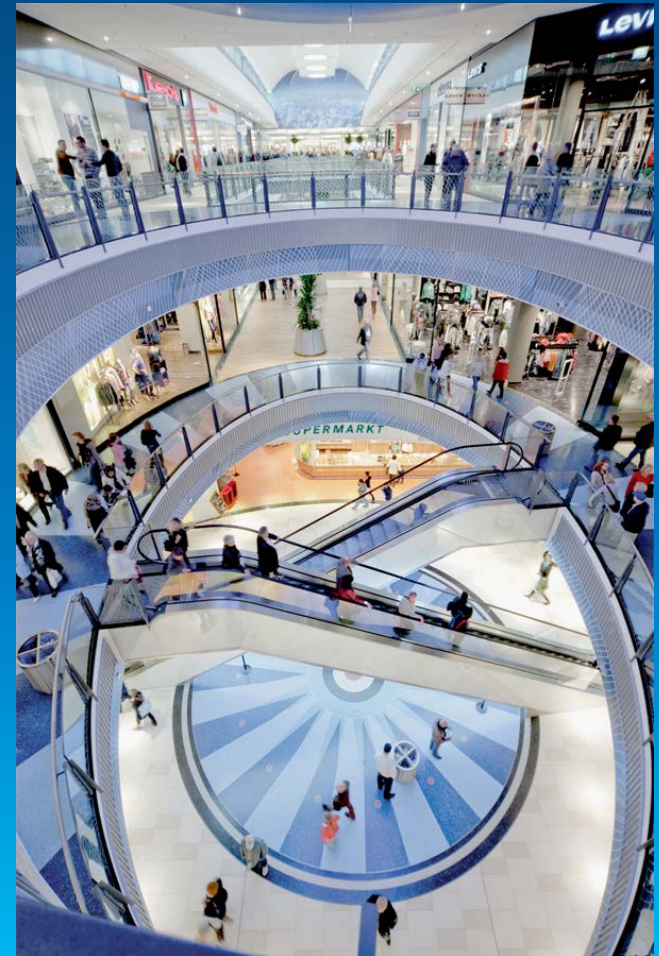


**and efficiency to be
more competitive and
serve better the customers**



Route Optimization Project - Goals

- A simple way of GIS based planning and optimizing for service routes and service technicians
 - Reorganisation of service routes for 28'551 employees
 - Cutback of travel time and costs
- All integrated in the SAP ERP

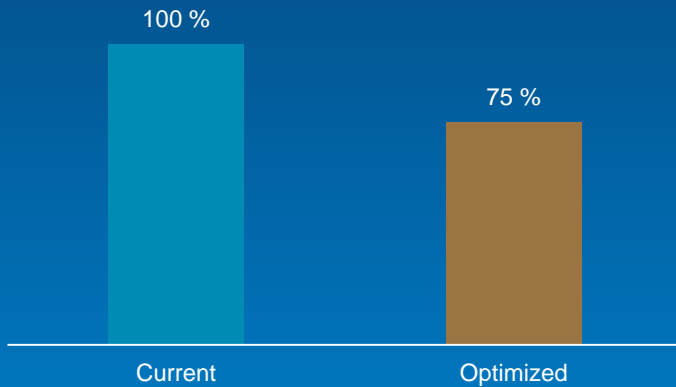




Route Optimization – POC results (example)

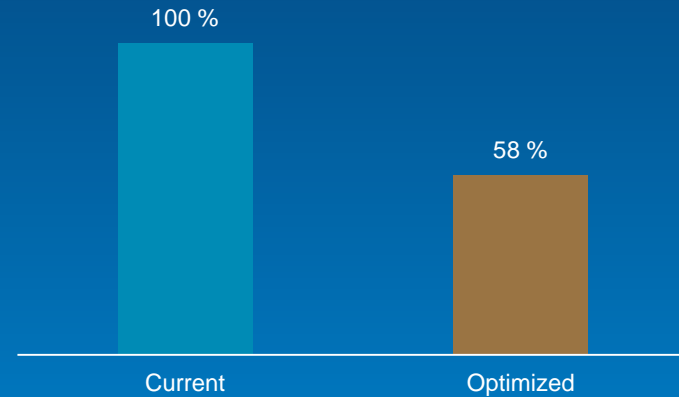
Average travel time

■ Current ■ Optimized



Workload deviation

■ Current ■ Optimized



POC was in a laboratory environment and needs to be confirmed in real life conditions with additional constraints

Geocoding (Location of assets)

- Automatic and interactive Geocoding
- Address cleansing

Functional Location 10508869

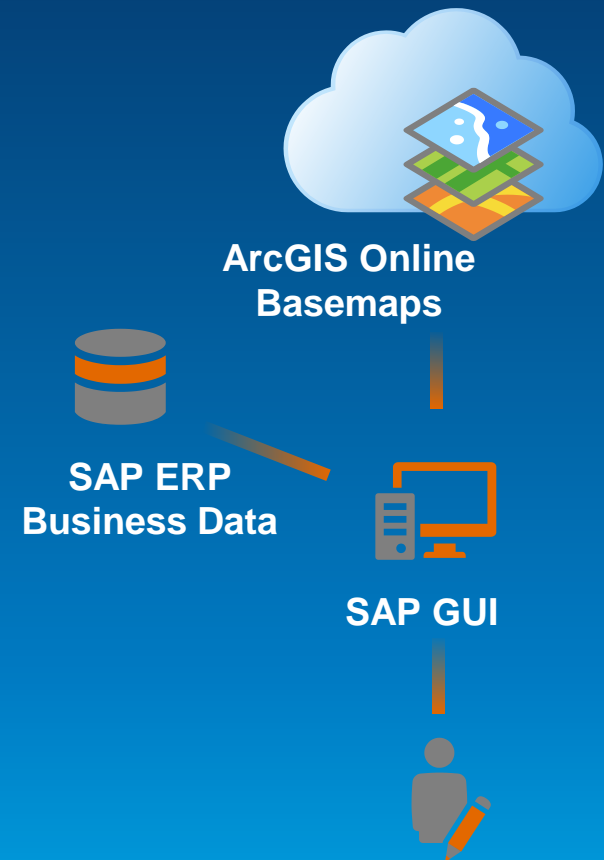
lat: 51.214141 | lon: 2.870987

Id	Address	Addr. Type	Score	Status
	Papaverstraat 11, 8400, OOSTENDE, BE			
A	Papaverstraat 11, 8400, Oostende, Mar...	StreetAd...	100	■

Functional Location 4202029458

lat: 51.133739 | lon: 2.677685

Func. Loc.	Descriptn	Equipment	Object type	Equipment descriptn	SerNo.
4202029458		42000106935	YAE_ELT	SECTIE 3 A RECHTS	
		42000106936	YAE_ELT	SECTIE 3 B LINKS	



Organisation of the Service Routes

System Help

YAE: WPC - Work package clustering tool (Display)

Open simulation

Productive situation (Revised)

Business model: **Hattrick 2**

	MNT-T	MNT-I	MNT-L	CBK	REP	COR	CLA
Inspektion		✓	✓				
Reparatur					✓		✓
Service 2	✓			✓		✓	✓

Name	Pers.#	Capacity	Assigned Capacity	Assigned Workload
		5.616	100	5.616 26 1.470
		318	100	318 61 194
		2.586	100	2.586 40 1.044
		2.712	100	2.712 9 232

Total/Work Package/Techni...	Description/TechName	Act...	Cap...	Work ...	As...
5.616					
1.293	LU01-112	Inspe...		1.293	✗
32	LU01-222	Inspe...		32	✗
32	LU01-333	Repar...		32	✗
1.060	LU01-444	Servic...		1.060	✗
2.687	LU01-101	Inspe...		2.687	✗
0	LU01-102	Inspe...		0	✗
513	LU01-S01	Servic...		513	✗

SL	Work Pac...	ActGrp	Capacity	Workload	Wkd %	KPI	new KPI	TT MNT	MNT-T	MNT-I	MNT-L	MNT Tr...	CBK	REP	OBR	DOBR	CLA/SAL	COR	AssTech	MNT visits	Equipments
151			5.616	1.470	26	20,3	20,3	630	265	229	0	0	147	148	135	13	18	33	3	641	65
	LU01-112	Inspe...	1.293	768	59	19,3	19,3	570	0	198	0	0	0	0	0	0	0	0	1	439	52
	LU01-222	Inspe...	32	15	48	38,4	38,4	0	0	15	0	0	0	0	0	0	0	0	1	52	8
	LU01-333	Repar...	32	135	426	22,1	22,1	0	0	0	0	0	0	135	135	0	0	0	1	0	65
	LU01-444	Servic...	1.060	419	40	22,1	22,1	0	227	0	0	0	134	12	0	12	17	30	2	120	59
	LU01-101	Inspe...	2.687	45	2	8,8	8,8	29	0	16	0	0	0	0	0	0	0	0	2	18	5
	LU01-102	Inspe...	0	0	0	0,0	0,0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Current selection (0/0)

SAP

Advantages of using HERE maps in Esri Solutions

- ✓ **HERE is an Esri Platinum Partner: for over 10 years both product development teams work closely to deliver best in class integration of HERE maps data in Esri solutions**
- ✓ **HERE data is used in a wide variety of Esri products such as ArcGIS Online and StreetMap Premium so will ensure data compatibility across applications.**
- ✓ **HERE Maps deliver worldwide coverage with highest accuracy and industry relevant content such as: Point Addresses, Truck attributes and historical and real-time Traffic information.**
- ✓ **HERE content in Esri's File Geodatabase format is technically optimized for use in ArcGIS and provides you with improved usability, optimized performance and removed limitations.**

For more information on the advantages of using HERE content in Esri's File Geodatabase format please see: <http://www.esri.com/news/arcuser/0309/files/9reasons.pdf>

Route Planning for Service Routes

System Help

YAE: SOM - Service Operations Management Tool (Display)

Selection

Plant: 5400
Work center: LU01-444

Navigation

- Menu
 - Equipment
 - Operation Plan
 - Visit Plan
 - Maintenance Scheduler
 - Work center
 - Work Balance Functions
 - Sequence route Functions**
 - Grouping Functions
 - Monitoring Functions
 - Print Functions
 - Upload Functions
 - Workplace
 - Reporting
 - Fulfillment
 - Progress of visits
 - Workticket status
 - Evaluation of time
 - Equipment history
 - Maint Lock and Text
 - Capacity planning
 - Day to day activity monitoring

Sequence route

Sequence	Equipment	PCd/City	StreetHouseNo
	10357954	CH-6010 KRIENS	Wichlemstrasse
1	1000123	CH-6022 GROSS...	Eichzelg 2
2	1002862		Dorfstrasse 7
3	1002834		Feld 1
4	1002822		Huben 1
5	1002823		Huben 2
6	1002820		Wüschiswil 7
7	10357957		Wüschiswil 5
	10357962		
	1002821		
	10357961		
9	1002855	CH-3556 TRUB	Napf 277
10	1000171	CH-6010 KRIENS	Bergstrasse 9
11	1002839	CH-6003 LUZERN	Oberhochbühl 2
	1002838		
	1002837		
12	1002840		Gütschhöhe 27
13	1002842	CH-6004 LUZERN	Sankt Karl-Strass
	1002844		
	1002845		
	1002846		
	1002847		
	1002848		
14	1002841		Kantonsspital 16
15	1000132	CH-6030 EBIKON	Zugerstrasse 5
16	10001892	CH-8002 ZÜRICH	Seestrasse
17	1002835	CH-6032 EMMEN	Unter Spitalhof
18	1002849	CH-6020 LUZERN	Reusseggstrasse

Basemap

0 5 10km

SAP

Feedback from Schindler Service-leaders

- At least a little bit of graphic in SAP. The graphical integration into SAP is great (6 answers)
- Very refreshing what is possible with SAP now
- Friendly. Mapping is really a plus. Travelling time reduction is clearly a plus. Best will be the dynamic optimization of jobs (travels)
- At the beginning we will have a larger effort but when the basis is done it will pay off



Thank you