

# T-Systems?

Deutsche Telekom / T-mobile

T-Systems



- Mobile network operator
- IPTV
- Online und Cloud Services.

Consumer Customer

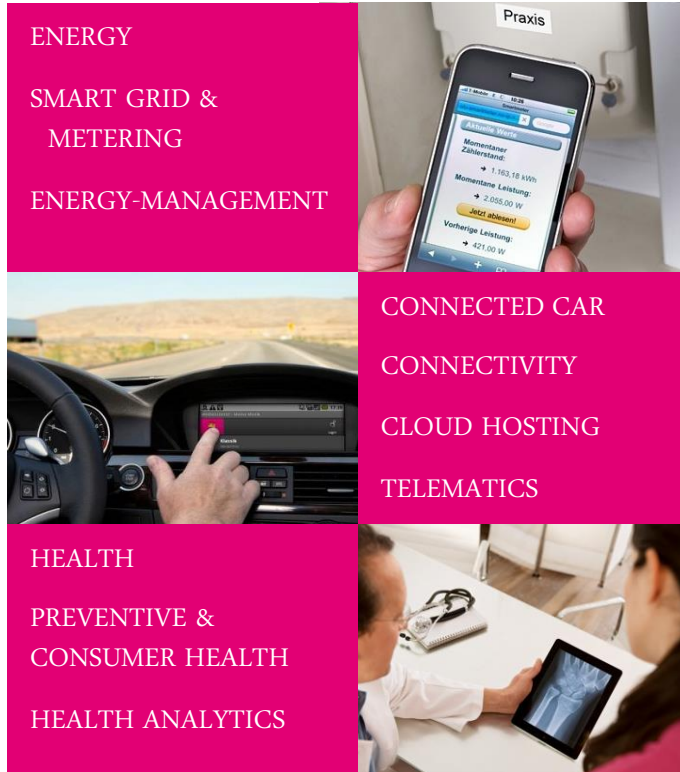


- Mobile network
- Business services

Business Customer



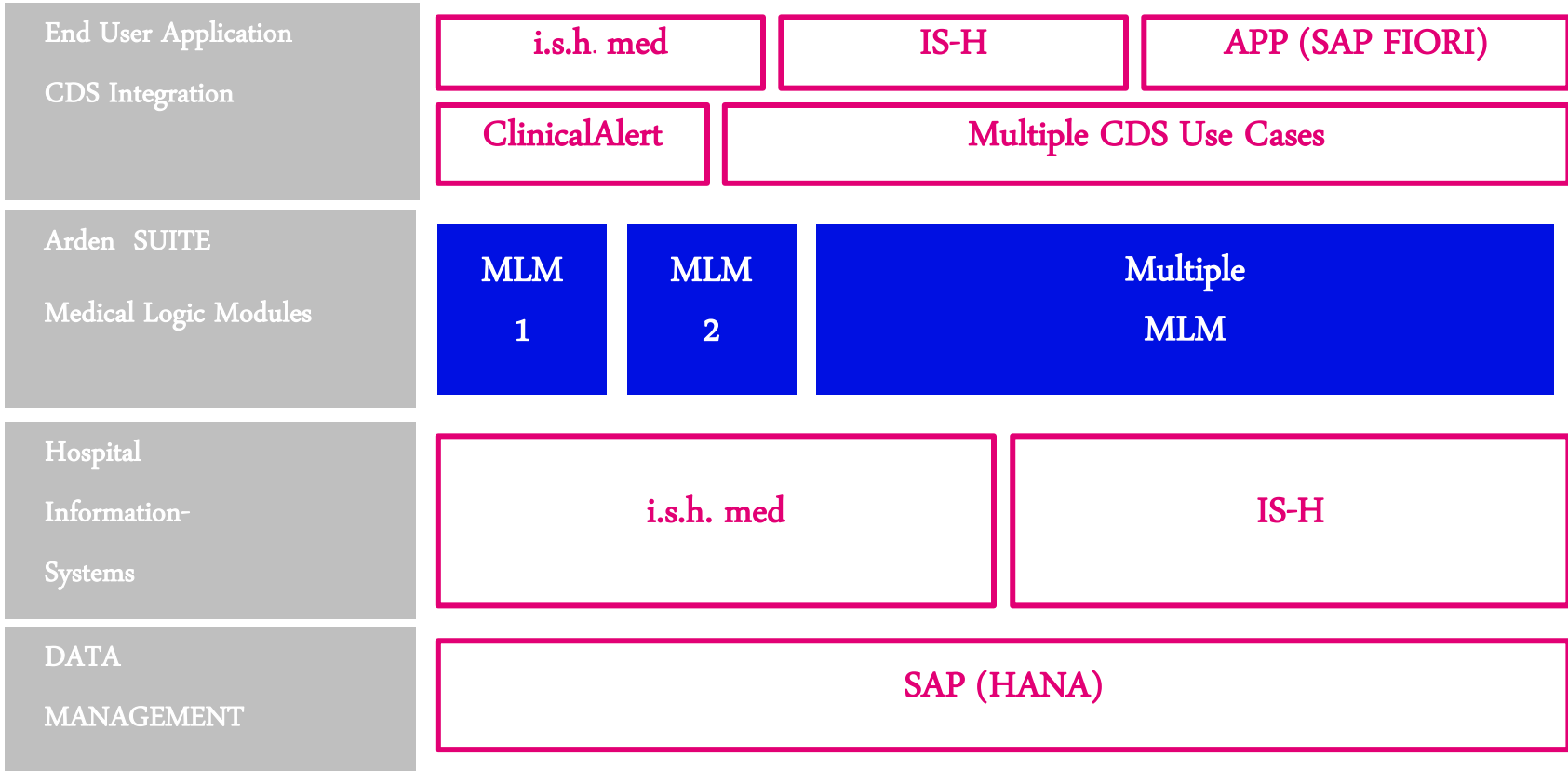
- Integrated ICT-solutions for companies and public institutions



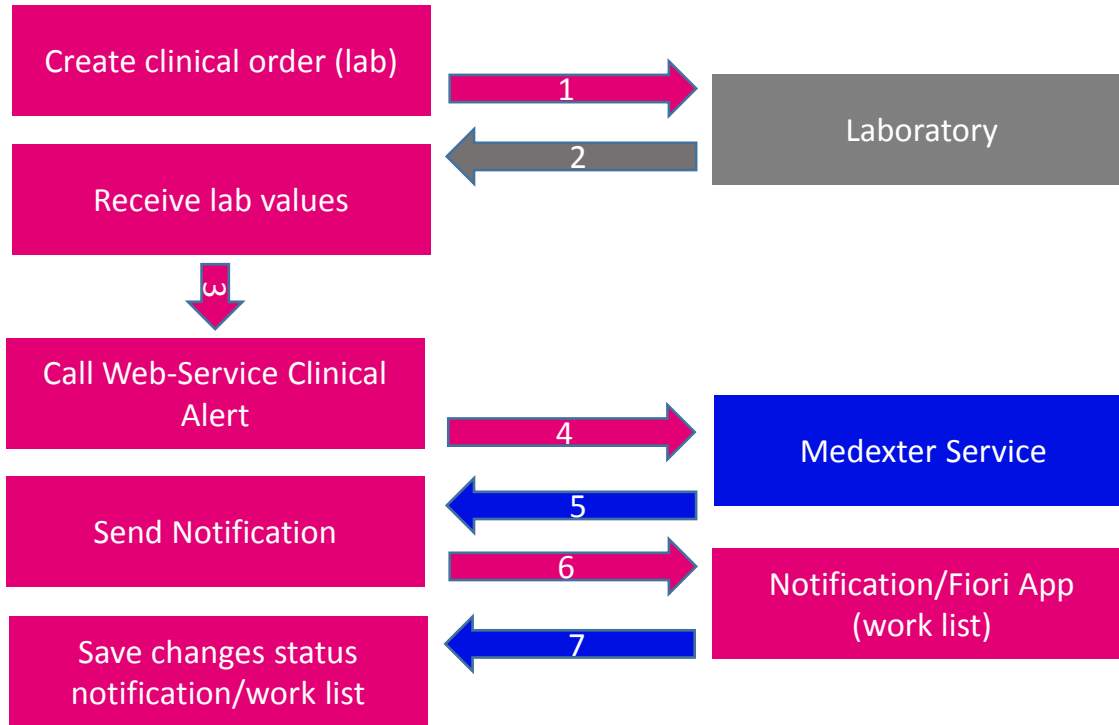
## INTELLIGENT NETWORK SOLUTION OPENING-UP OF NEW BUSINESS MODELS

- Services relating to the highly complex energy grid of the future
- Integrating the vehicle into the internet and corporate processes
- Solutions for the interconnection of doctors, patients, hospitals, health insurance companies and care facilities

# T-Systems – Medexter and CDS



# “Clinical Alerts” – process view



## USE CASE DESCRIPTION

- Multiple Lab findings are integrated to the patient record
- Even there is no value out of „normal“ range serious diseases can appear
- Combining the measured values of the current lab finding with past measurements and other data of the patient record the Medical Logic Modules can predict possible diseases

# Use Case – clinical Alerts: Step 1: create Clinical Order

Clinical Workplace: view Occupancy 1 MEDCUA -> create clinical Order

**Occupancy Planning 1MEDCUA**

Forms Defaults Change Selection Hold Selection (On/Off)

Work Environment

- Occupancy Planning 1SURCUC/D
  - Occupancy 1SURCUC/D
  - Arrivals 1SURCUC/D
- Occupancy Planning 1MEDCUA
  - Occupancy 1MEDCUA**
  - 1MEDCUA Arrivals

Arrivals Case List Patient Organizer Smart UI Patient Profile Diagn. Nur. Classification Enter Vital Sign Values

123 Nursing Plan Nursing Overview Nursing Worklist Add Nursing Profile Subsequent Nursing Report

Clinical Order Docu Lab Findings Admission Transfer Visit Discharge

Pathway Patient Pathway Med. Order Scan document Situation

**Occupancy 1MEDCUA On 20.05.2016 11:15 With 8 Patients**

Room	Bed	Patient	OBS	VitalS	nursing re	Lab	Clin A	Disch	D
1MEDCAR1	1MEAR1B1	Nane Banu (F, 40)							
	1MEAR1B2	Meyer Sue (F, 48)							
	1MEAR1B3	Pembe Nilay (F, 45)							
	1MEAR1B4	Tan Ethan (M, 40)							
1MEDCAR2	1MEAR2B1	Machacek Bernhard (M, 37)							
	1MEAR2B2	Yildirim Mohamed (M, 40)							
	1MEAR2B3	Alkan Ahmet (M, 73)							
	1MEAR2B4	Emin Mehmet (M, 62)							

Functions

- Raffles Pick\_Fill Demo
- IS-H\*MED: Patient Allergies/ADE's
- IS-H: Clinical Process Builder
- IS-H\*MED: Call Patient Organizer

# Use Case – clinical alerts: Step 1: create clinical Order

## Clinical Order: Type LAB

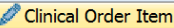
Order

Initiator  Org. Unit  Med Care Unit A  Filler

Initiating Dept. OU  Medical Departm

Order Types

M... RAD SUR LAB Others...

 Clinical Order Item

Possible Orders	Quantity	U	Start	End	Text 1
<input checked="" type="checkbox"/> Laboratory					
<input checked="" type="checkbox"/> Complete Blood Count (CBC)					
<input type="checkbox"/> Lipids Panel					
<input type="checkbox"/> Thyroid-Stimulating Hormone (TSH)					
<input type="checkbox"/> Amino Acids Quantitation, 24 hrs Urine					
<input type="checkbox"/> Blood Culture					
<input type="checkbox"/> Creatinine 4 hour calculated					
<input type="checkbox"/> Chemistry Panel					
<input type="checkbox"/> Cholesterol					
<input type="checkbox"/> Ferritin					
<input type="checkbox"/> Glucose, Random					
<input type="checkbox"/> Osmolality, Blood					
<input type="checkbox"/> Phosphorus					
<input type="checkbox"/> Triglyceride					

# Use Case – clinical alerts: Step 2: insert lab.-values

Values for laboratory-parameters are stored in laboratory document.  
Simulation: create document

The screenshot shows a software window titled "Create Document: Management Data". It contains several input fields and a table. The "Document" section includes fields for Document Type (LAB Laboratory), Document Ctgry (N2 LABOR), Document Date (23.05.2016), and Description. The "Document Status" is IP and the "Version" is 1. The "Assignments" section includes Documenting OU (1MEDCUA), Empl. Resp. (100300), Patient (1702), and Case (2008001579). The "Movements / Services" table has columns for MovNo, Movement Type, Date, Time, ServiceNo., Service, and Service Name. The first row shows MovNo 1, Movement Type Adm. normal, Date 29.04.2014, and Time 09:58:46. The table also includes a small grid icon and navigation arrows.

MovNo	Movement Type	Date	Time	ServiceNo.	Service	Service Name
1	Adm. normal	29.04.2014	09:58:46			
			00:00:00			
			00:00:00			
			00:00:00			

# Use Case – clinical alerts: Step 2: insert lab.-values

Simulation: Insert values

**Lab Data Create: B.Machacek, Scrn 1(0002) Status: IP**

Get Data Next Status

**Patient Data**

Institution  Case

Patient    DoB  Sex

Order No.  Date  Time  Sys  Status

**Findgs Data**

S	Service	Text	Result	Unit	Normal	Ab...	Comment	Ed.	Date
F	L-CRP	CRP	5.0	mg/l	0.0-10.0				23.05.
F	L-HB	Hb	13.5	g/dl	13.0-17.5				23.05.
F	L-HST	Harnstoff	33.0	mg/dl	10.0-45.0				23.05.
F	L-S_K	Kalium	4.28	mmol/l	3.50-5.10				23.05.
F	L-KREA	Kreatinin	1.0	mg/dl	0.6-1.3				23.05.
F	L-LEUKO	Leuko	10.55	G/L	4.40-11.30				23.05.
F	L-TNIE1	Troponin I	0.04	ng/ml	0.00-0.05				23.05.
F	L-TSH	TSH	1.05	µU/ML	0.49-4.67				23.05.



# Use Case – clinical alerts: Step 2: insert lab.-values

Simulation: Release lab document: status changes from IP (in process) to RL (released)

**Lab Data Create: B.Machacek** | **Lab Data Display: B.Machacek, Status: RL**

Get Data | Status Log | Status Network

**Patient Data**

Institution: 1  
Patient: 1702 | Machacek  
Order No.: | Date: 23

**Findgs Data**

S	Service	Text	Result
F	L-CRP	CRP	5.0
F	L-HB	Hb	13.5
F	L-HST	Harnstoff	33.0
F	L-S_K	Kalium	4.28
F	L-KREA	Kreatinin	1.0
F	L-LEUKO	Leuko	10.55
F	L-TNIE1	Troponin I	0.04
F	L-TSH	TSH	1.05

**Findings Data**

S	Service	Sub	Text	Result	Unit	Normal	Significant	Catalog	Date
F	L-CRP		CRP	5.0	mg/l	0.0-10.0			23.1

# Use Case – clinical alerts: Step 3: call web-Service

Trigger: call web-Service with lab- and patient data

Received alerts are stored in customer table and icon in row Clin.Alert appears

**Occupancy Planning 1MEDCUA**

Forms Defaults Change Selection Hold Selection (On/Off) Raffles Pick & Fill Demo IS-H\*MED: Patient Allergies/ADE's

Arrivals Case List Patient Organizer Smart UI Patient Profile Diagn. Nur. Classification Enter Vital Sign Values

Nursing Plan Nursing Overview Nursing Worklist Add Nursing Profile Subsequent Nursing Report Clinical Order Docu Lab Findir

Admission Transfer Visit Discharge Pathway Patient Pathway Med. Order Scan document Situation

**Occupancy 1MEDCUA On 23.05.2016 13:57 With 8 Patients**

Room	Bed	Patient	NAN	Norton Sca	NPE	Nrs. Sv...	OBS	VitalS...	nursing re	Lab	Clin A.	Disch...
1MEDCAR1	1MEAR1B1	Nane Banu (F, 40)										
	1MEAR1B2	Meyer Sue (F, 48)										
	1MEAR1B3	Pembe Nilay (F, 45)										
	1MEAR1B4	Tan Ethan (M, 40)										
1MEDCAR2	1MEAR2B1	Machacek Bernhard (M, 37)										
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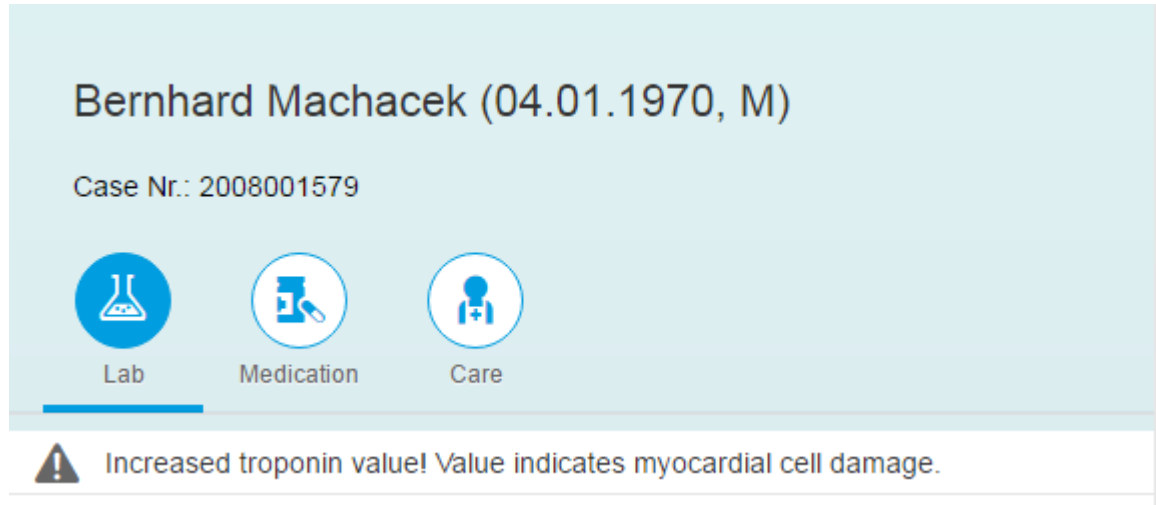
# Use Case – clinical alerts: Step 3: call web-Service

Web-Service are called with lab parameter values from the last 2 days (inpatient).

<b>Cumulative Findings: Findgs 1 To 4 Frm 4</b>			
Standard cumulative findings			
1 T-Systems Austria Clinic 1030 Vienna		Report RN2LN212 User DORNHOFER	Date Page Eval
Mr. Machacek, Bernhard Born on: 07.06.1978			
Patient no.: 1702		Case no.: 2008001579 Nursing OU: Med CU A	
Order number			
Date		23.05.2016	23.05.2016
Time		13:31	13:37
4.40-11.30 G/L Leuko		10.55	10.55
Sepsis, Entzündung			
0.0-10.0 mg/l CRP		5.0	5.0
Creatinine			
0.6-1.3 mg/dl Kreatinin		1.0	1.0
3.50-5.10 mmol/l Kalium		4.28	4.28
10.0-45.0 mg/dl Harnstoff		33.0	33.0
Triglyceride			
0.49-4.67 µU/ML TSH		1.05	1.05
Unknown			
0.00-0.05 ng/ml Troponin I		0.02	0.03

## Use Case – clinical alerts: Step 4: notification (mobile)

A notification (push) is sent to the mobile of e.g. resp. employee.







# Use Case – clinical alerts: Step 4: notification (mobile)

☰ Patient details

Bernhard Machacek (04.01.1970, M)

Case Nr.: 2008001579

 Lab    Medication    Care

 Increased troponin value! Value indicates myocardial cell damage.

Lab data (8)

Lab parameter	Value	Normal
L-CRP	5.0 mg/l	0.0-10.0
L-HB	13.5 g/dl	13.0-17.5
L-HST	33.0 mg/dl	10.0-45.0
L-S_K	4.28 mmol/l	3.50-5.10
L-KREA	1.0 mg/dl	0.6-1.3
L-LEUKO	10.55 G/L	4.40-11.30

Mark as Read

SAP Fiori app: employee can trigger the necessary steps and/or close the work item




# Use Case – clinical alerts: Step 5: show Messages


Customer-function: show clinical alerts  in clinical workplace (Fiori App)

Patient details

Bernhard Machacek (04.01.1970, M)

Case Nr.: 2008001579

 Lab    Medication    Care

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