

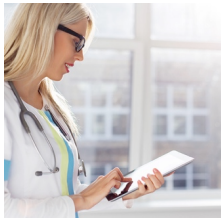


European Federation of Pharmaceutical
Industries and Associations



Integrated Approaches in Diabetes Care – The 4 Ds

Author: Jochen Maas, General Manager R&D Germany, Date: 24/05/2018



**“Unlocking
Tomorrow’s Cures”**



Tempora mutantur ... et nos in illis



Definitions

Drug

A product intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease.

Device

An instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or similar article intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease.



Klasse I



Klasse IIa



Klasse IIb

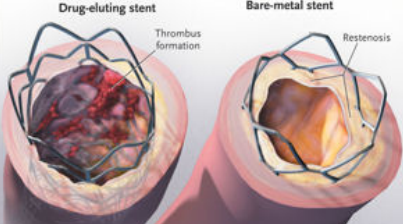


Klasse III

It **does not** achieve its intended purposes through chemical action in man and it is not dependent upon being metabolized to achieve its primary purposes.

DRUG / DEVICE

Historical Examples for Convergence



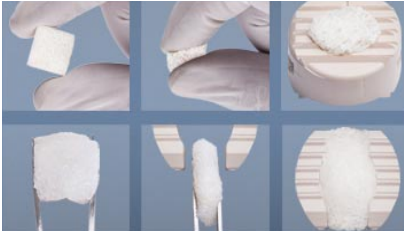
Drug-eluting stent
Thrombus formation

Bare-metal stent
Restenosis

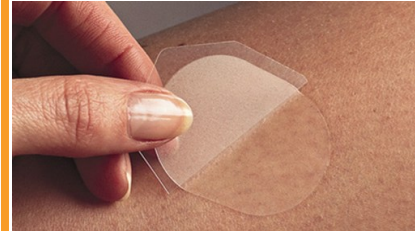
Drug-eluting stents that open and prevent restenosis in coronary and peripheral arteries



Implantable polymer wafer that releases a chemotherapy agent to a specific site



Bone grafting scaffold/sponge coated with a growth protein that promotes bone regeneration




Transdermal patch that transports drugs locally and systemically through the skin



Infusion pump

Implantable, programmable pump that delivers a drug/biologic in small, timely doses



Pre-filled, metered dose syringe, injector or inhaler

DRUG / DIAGNOSTIC

Historical Examples for Convergence



Screening test for the presence of a specific gene or protein coupled with targeted drug therapy



Passive tracers as contrast agents for PET-scanner

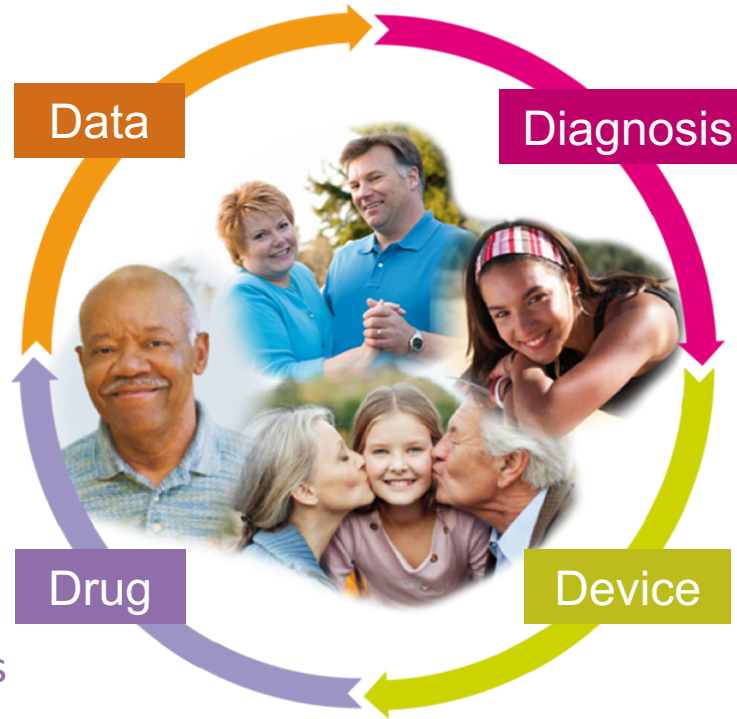
The integrated approach for Diabetes

Services

Disease management
Patient education
Nutrition
Algorithms

Therapeutic solutions

Oral therapies
(Metformin, Sulfonylureas, DPP-IV); SGLT-2-Inhibitors)
Insulin & other injectables
(Insulins, Biosimilars, GLP-1-Agonists, combinations)
Regenerative medicines



Diagnostic devices

Blood Glucose
Monitoring
Classical monitoring devices
New implantable sensors

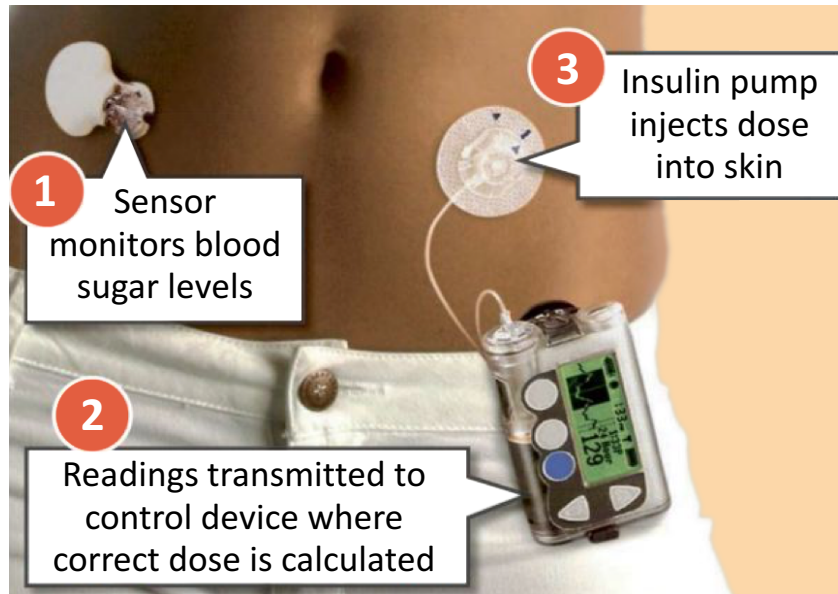
Delivery devices

Reusable Pens
Disposable Pens
Pumps (external and
internal)

THE ARTIFICIAL PANCREAS

A further example to combine the 4 Ds

Diagnostic / Drug / Device / (Data)



Artificial pancreas

works already well during the night, but has some optimisation potential:

- * Implanted sensors and pumps
- * Two hormones (Glc/Ins)
- * More rapid response times
- * etc.

THE MILLION DOLLAR QUESTION

Can an integrated approach for patients be managed by one company alone („a one-stop service “)?

THERAPEUTIC ECOSYSTEM

Each ecosystem optimized to specific drug and patient population

All elements are adherence-data enabled

Seamless integration for value-based healthcare outcomes

Providing long-term customer retention and brand preference

Injectable Drug

- Subcutaneous administration
- Liquid or lyophilized
- Prefilled or fill-at-time of use
- Room temperature or refrigerated
- Injection frequency
- Environment of care (home or other)

Drug Delivery System

- Hand-held or wearable
- Disposable or reusable
- Preconfigured injection speed and duration
- Data connectivity via Bluetooth LE etc.
- Touch-screens, drug warming, RFID scanning
- Supplied ready to use or needing preparation

Smart Phone App

- Download features inc. therapy calendar, reminders / prompts, preferred settings
- Upload features such as close schedule and completion, rates of persistence
- Data security
- Call center / hotline

Data Hubs

- Need to assign level of stakeholder access
 - Prescriber
 - PBMs / GPOs
 - Drug provider
 - Insurance provider
 - Government
 - Regulatory
- Collaborations with data specialists

Diagnostic Tools or Other Accessories

- Biosensors or bioinformatics systems
- Integrated into delivery system or ancillary device

COLLABORATIONS

Who needs partnering?

- * Strong Emphasis on Diagnostics and Integrated Care



- * Traditional Pharma Model („Drugs, drugs, drugs“)



No pharmaceutical company covers all 4 Ds

COOPERATION

Potential Partners

As integrated care is getting more important new partnering options arise and there are numerous great companies out there:

**Boston
Scientific**

 **Dako**
An Agilent Technologies Company

SIEMENS
Healthcare


essilor

Baxter

 **LabCorp**
Laboratory Corporation of America

 **GE Healthcare**

B | BRAUN


CardinalHealth

stryker®


QIAGEN



DANAHER


... and many more ...

Example for diagnostics


COOPERATION

New "Player" in the Field



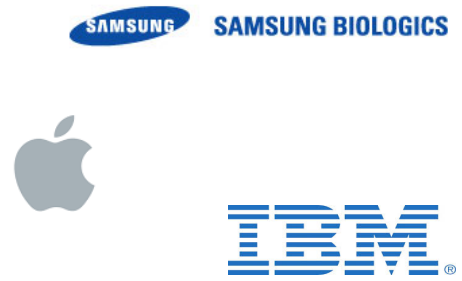

Posted 22nd November 2017 by – Tina Woods
Founder - Collider Health

Will Google Become The Next Big Pharma?



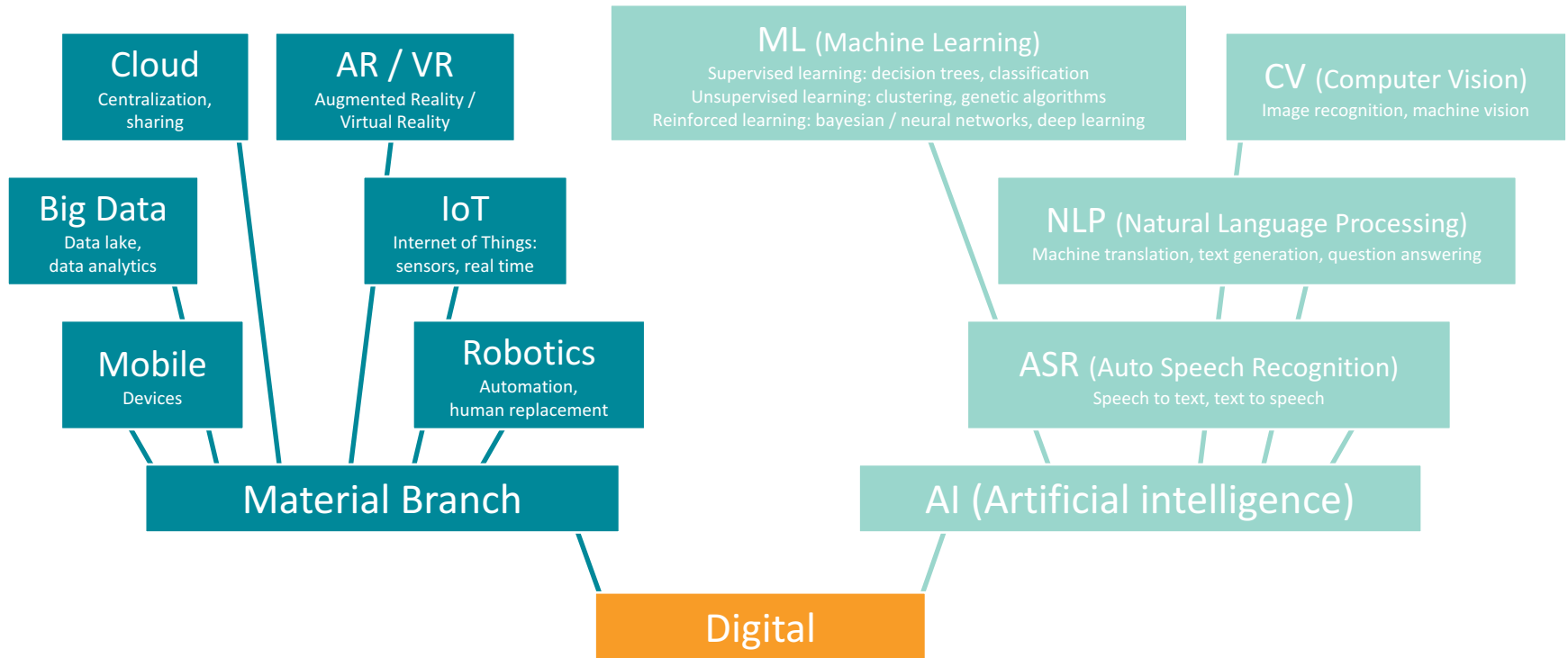
Disruption in healthcare is happening now, what can the industry do to keep up?

Since 2000 digital disruption has demolished 52% of the Fortune 500, with tech disrupting many industries such as music, publishing and retail. There are many cases already of established players who failed to ignore customer demands and reacted too slowly. Remember Blockbuster? We now have Netflix. Other examples abound:



“THE DIGITAL TREE”

Digitalization in Pharma is more than Big Data ...



„DR. SMARTPHONE“

Potential Approaches



Doctor Smartphone

Possibilities of diagnosis using apps and devices

Smartphone apps and additional measuring instruments make it possible to monitor patients' health status, without great technical effort. These affordable and portable devices also make life easier for doctors.

Particularly patients with chronic diseases can regularly check their medical data and thus recognize changes early. This quick examination method could also help in deciding whether a visit to a doctor is needed.

Significant Impact on...

- * Therapy
- * Relationship Physician-Patient
- * Pharmaceutical Industry
- * Medical Products
- * Diagnostics
- * ...

FOUR BASIC ASPECTS FOR FUTURE CO-OPERATIONS:

4D-collaborations – How should they look like (*semantic*)

- * Each partner has to stick to their expertise and has to be accepted by the other(s)
- * New „spirit“ in co-operations
- * More intelligent incentives for all partners than only money
- * Awareness of new players in the field

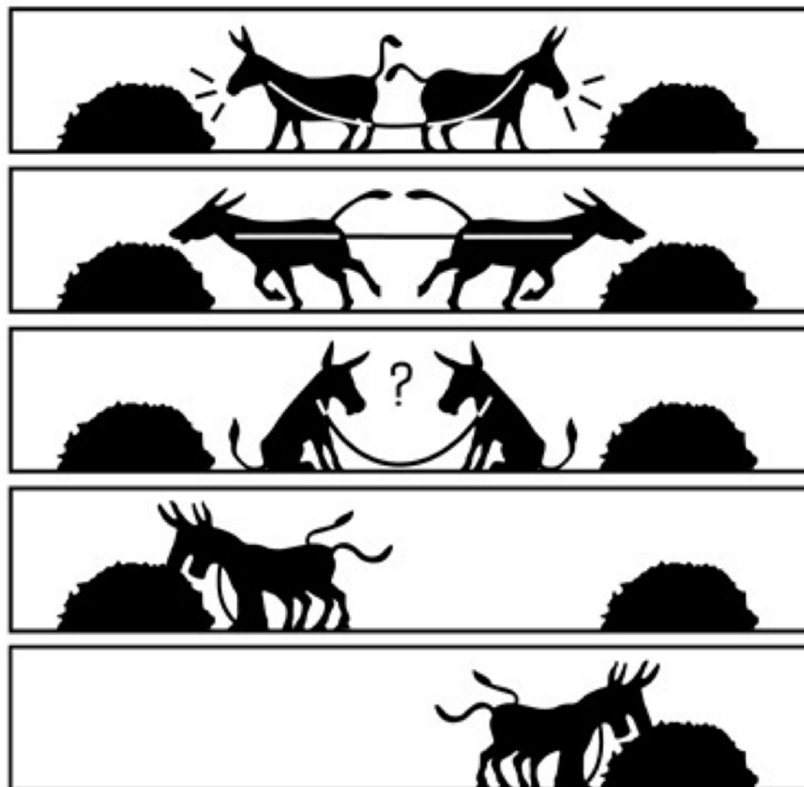
SEAMLESS INTEGRATION OF NEW TECHNOLOGIES

The Impact on Stakeholders in Healthcare

* To achieve the seamless integration of new technologies in these sectors, we need to fundamentally rethink how we organize ourselves.



4D-collaborations – how should they look like (*pictorial*)



THANK YOU!

Q&A

UNLOCKING
TOMORROW'S
CURES

efpia