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Digitization of Healthcare
Game changing business models

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VIDEO – The Future of Pharma
https://vimeo.com/105917911

Agenda

Page

Defining the Digital Health Space

1

For the purpose of defining our Digital Health Strategy we're considering the space in a broad sense

mHealth / eHealth

Big Data

Gamification

convergence of the digital and genetics revolutions with healthcare, driving "4P" medicine: **predictive, preventive, personalised & participatory**

Wearable Computing Quantified Self
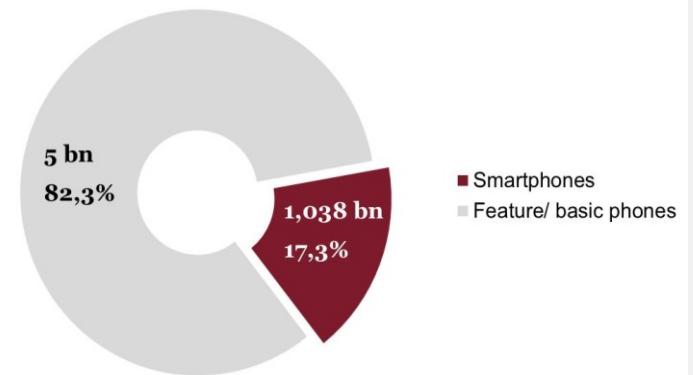
Health IT

Connected Health
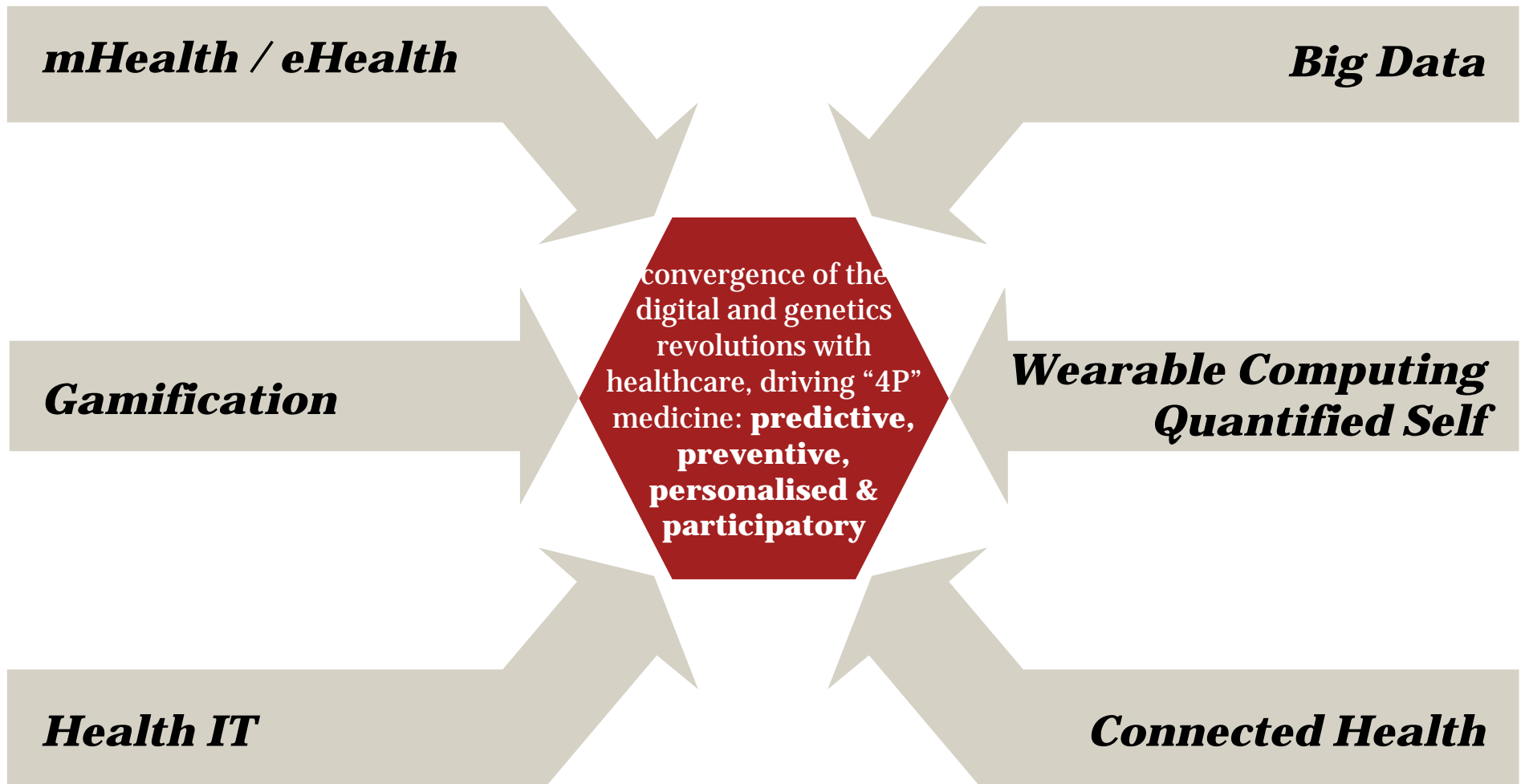
Game changing business models - Digitalization will lead to new challenges for stakeholder's digital strategies …
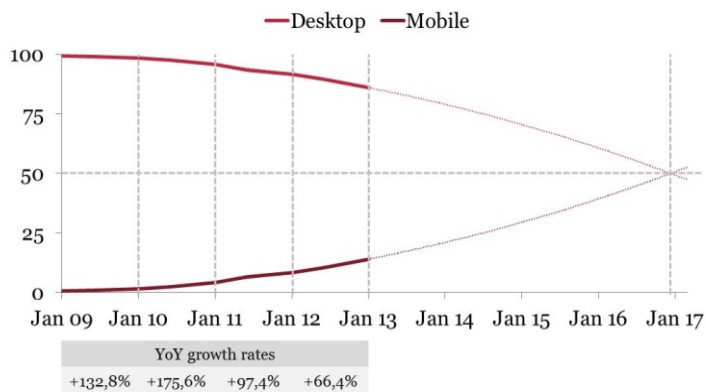

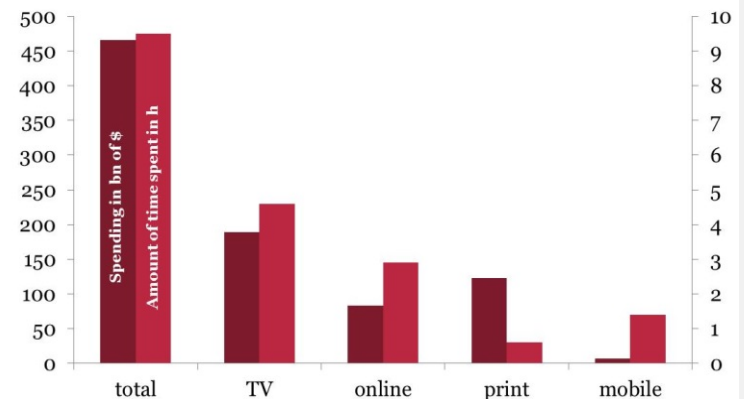Shipment numbers: Smartphones vs. Feature phones
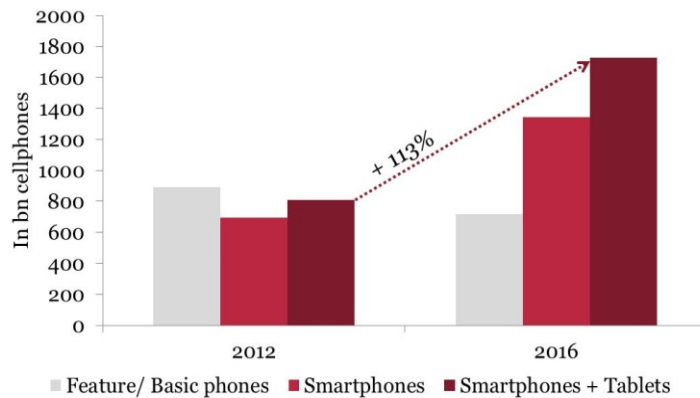
Global smartphone penetration

Internet traffic: Desktop vs. Mobile (in %)
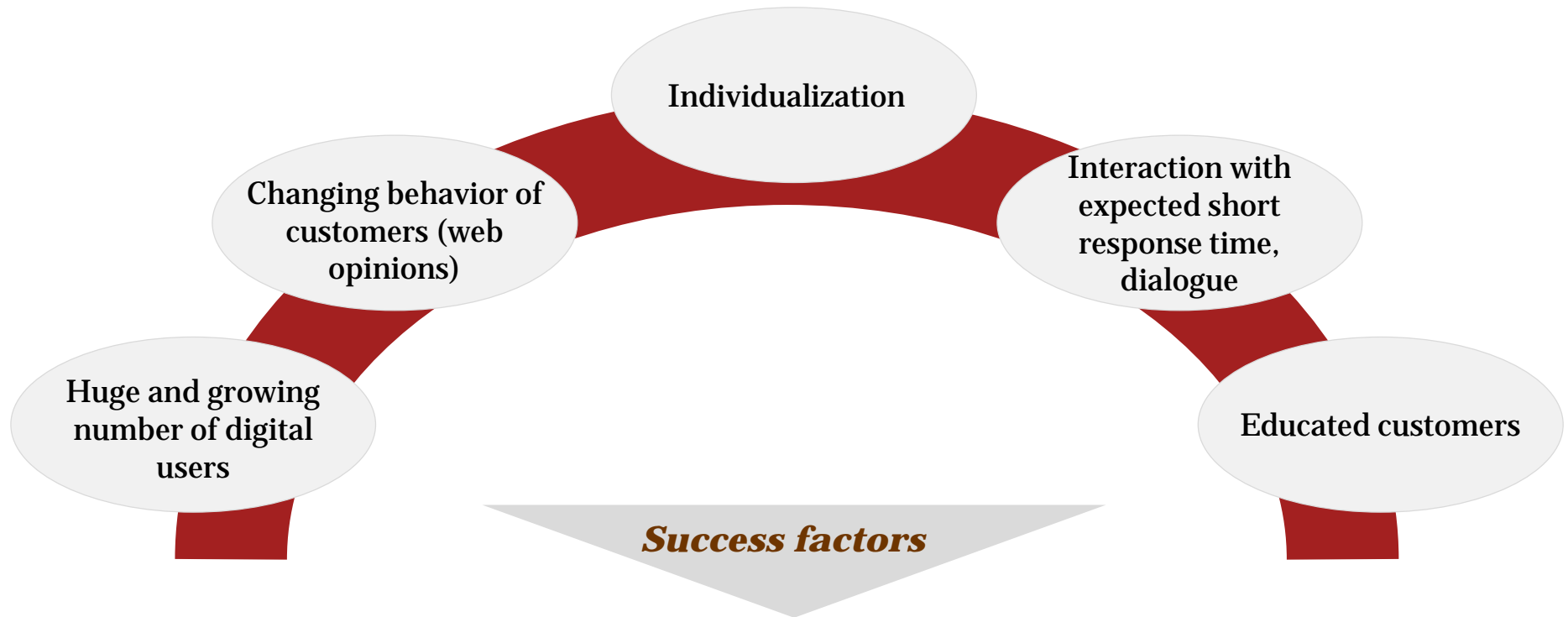

Global ad spending by media type compared to average time spent on media type (in the U.S.)

... and change the behaviour of the patients and health care professionals

- Growing significance of digital communication channels.

- Different and more personalized way to get in contact with patient and health care professionals.

- Cultural change regarding healthcare delivery.

Digital Health Solutions can be grouped into two segments – those that support the patient and those that support the provider/payer

Patient Pathway Solutions

What is it: Solutions that entail direct touch-points with patients and improve elements of the patient journey

Real-life examples include:

- Remote therapy such as <u>Home Team Therapy</u> which uses online video and the Microsoft Kinect sensor to help patients perform physiotherapy exercises at home

- Supporting patient's therapy adherence through mobile devices such as <u>Pilljogger's</u> smartphone app for reminding and incentivizing individuals to take their medicine and a tablet based solution for reducing hospital readmissions during the critical 30 day period post-discharge

- Tele-diagnostics, such as that offered by <u>NoviMedicine</u> for the remote physician diagnosis of dermatological conditions

Healthcare System Solutions

What is it: These solutions aimed at improving the efficiency of healthcare providers in delivering patient care . E.g.:

- Treatment decision support
- Emergency response improvement
- Healthcare surveillance

Real-life examples include:

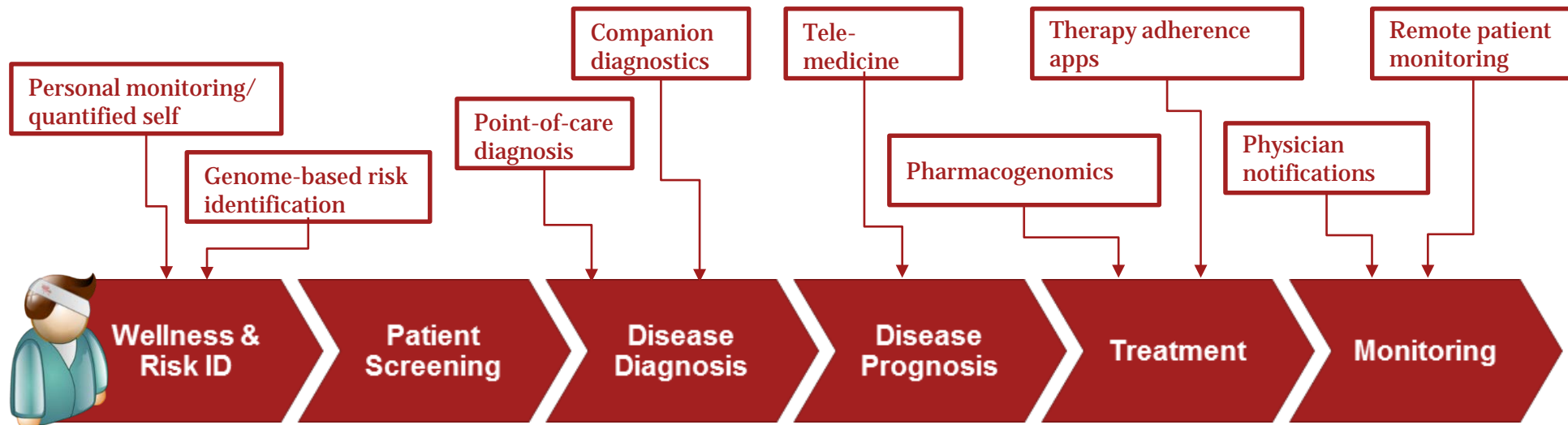- Emergency response tools such as <u>Beyond Lucid's MEDIVIEW™</u> software provides emergency response teams with robust logistical decision support functions and real-time information for regional resource planning

- Big Data Analytics providers such as <u>Explorys</u> which empowers healthcare leaders to leverage their data across the complete continuum of care to improve quality and optimize cost efficiency

Digital Health Opportunities

2

For Pharma, Digital Health offers an opportunity to differentiate the products and provide holistic services along the patient journey

Digital Health Solutions

Personal monitoring/ quantified self		Point-of-care diagnosis	Companion diagnostics	Tele-medicine	Therapy adherence apps	Remote patient monitoring
	Genome-based risk identification			Pharmacogenomics	Physician notifications	

Wellness & Risk ID	Patient Screening	Disease Diagnosis	Disease Prognosis	Treatment	Monitoring

Example Value Propositions

Provide prevention & education services to patient , **building earlier relationships**	More sophisticated understanding of population needs can **direct pipeline investments**	Select **effective, personalised** treatment options, thus **increasing medication compliance** and improving the value proposition for **payer reimbursement**	Telemedicine increases convenience for patients, so **more present in the system and receive treatment**	**Improved adherence and compliance through digital tools;** pharmacogenomics can **reduce side-effects and improve selection of target populations,**	Identify complications and disease progression at an earlier stage, thus pre-emptively being able to **adjust course of treatment**.

To categorize the digital health landscape, we can look at 3 different value chains, across a number of stakeholders

Distinct Value Chains for Industry Analysis
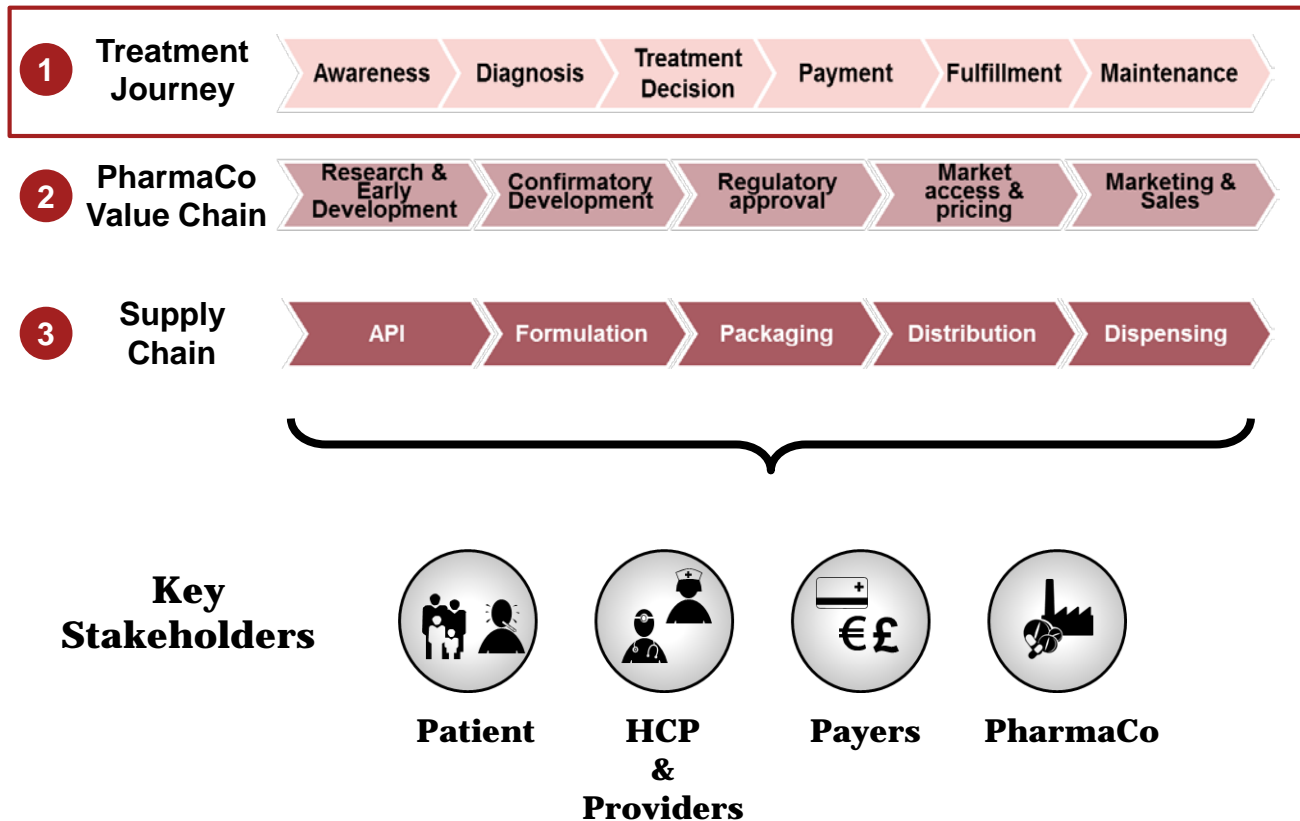
- Value chain and stakeholder logic can be used as basis for analysis for all digitization discussions

- Additional value chains may also be relevant, e.g. hospital admin. processes

- Client/discussion context will guide decision as to which value chain and stakeholders to focus on
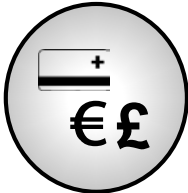
Needs addressable by digitization have been identified throughout the treatment journey (1/2)
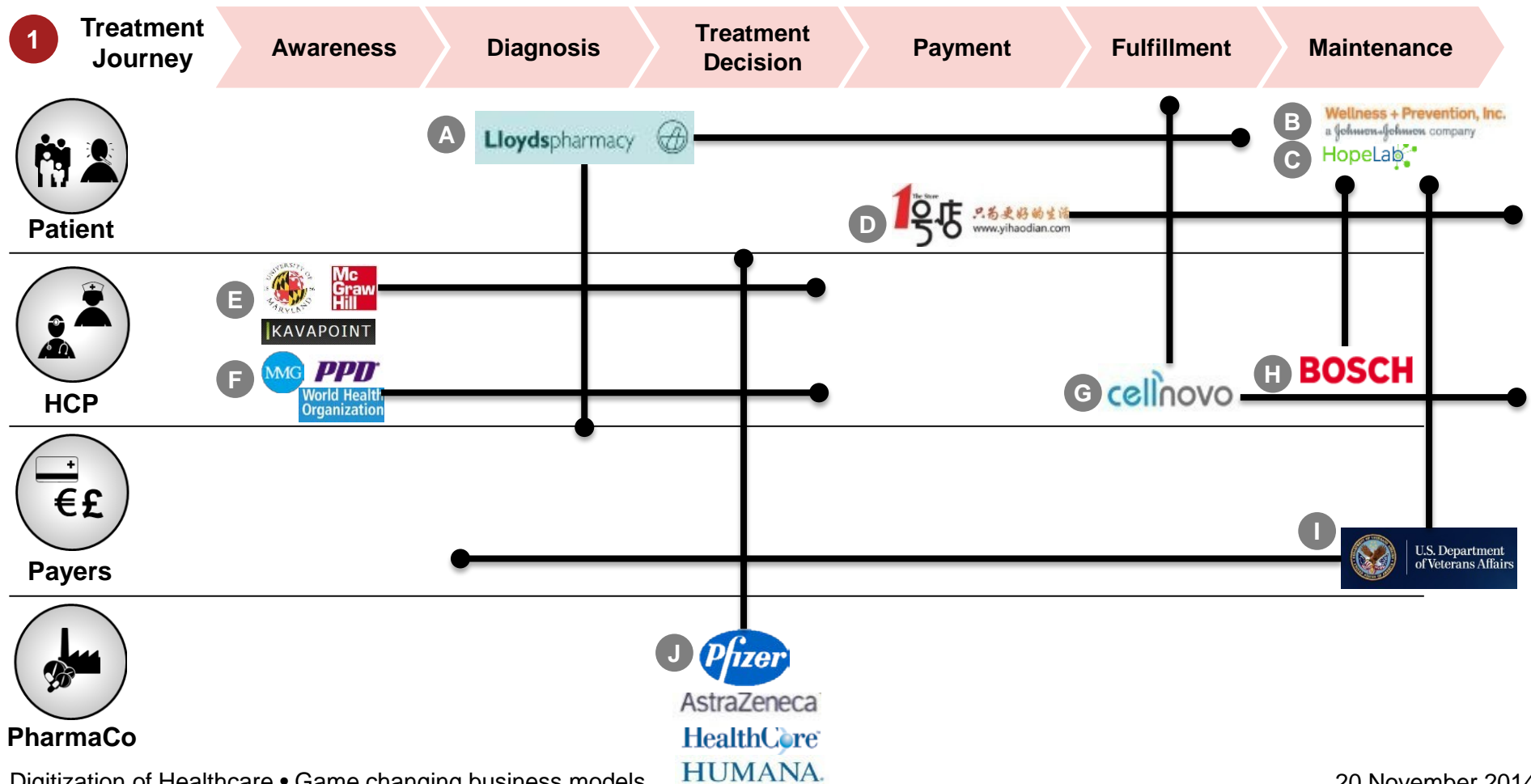
Key Needs Addressable by Digital Solution

(1) Treatment Journey	Awareness	Diagnosis	Treatment Decision	Payment	Fulfillment	Maintenance
Patient	▪ Seek information on health issues, particular diseases and prevention	▪ Access to HCPs ▪ Access to diagnostic test and results ▪ Manage fears and anxiety ▪ Understand prognosis	▪ Understand options to inform decision ▪ Understand lifestyle changes ▪ Practical help with treatment	▪ Understand funding and reimbursement options ▪ Access to financing support ▪ Payment execution	▪ Access to medication and medication delivery device ▪ Support & training on medication delivery	▪ Track progress ▪ Monitor vitals ▪ Obtain medical advice when required ▪ Stay on treatment (adherence) ▪ Obtain emotional support
HCP (Health Care Professional)	▪ Guidance and information to patients on diseases and prevention ▪ Obtain information on latest research and clinical results	▪ Info & data on diagnosis ▪ Conduct diagnosis ▪ Advise and explain diagnosis ▪ Condition specific information	▪ Gain knowledge of treatment options and efficacy ▪ Explain options and support or make decision ▪ Gain expertise on treatment plan	▪ Receive payments ▪ Provide guidance and information on funding options ▪ Support enrolment into funding programs	▪ Prescribe drugs ▪ Support access to medication in convenient manner ▪ Support & provide guidance on medication delivery process	▪ Monitor and track patient outcomes ▪ Monitor and measure vitals ▪ Support patient adherence ▪ Avoid relapses or exacerbations ▪ Manage outcome data

Needs addressable by digitization have been identified throughout the treatment journey (2/2)

Key Needs Addressable by Digital Solution

1 Treatment Journey	Awareness	Diagnosis	Treatment Decision	Payment	Fulfillment	Maintenance
Pharma Company	▪ Provide information on disease prevalence and societal impact	▪ Deliver information on disease symptoms ▪ Offer support for correct diagnosis	▪ Provide information on efficacy of different treatment options ▪ Deliver data on overall costs	▪ Provide information on different financing and reimbursement options ▪ Deliver on differential pricing programs	▪ Ensure patients can deliver medication appropriately	▪ Support patient adherence ▪ Collect and analyse data on medical outcomes
Payers (Insurers, gov. agencies)	▪ Seek information on disease prevalence and prevention	▪ Optimise diagnosis process to contain costs	▪ Understand different treatment options, respective efficacy and costs	▪ Make necessary payments / reimbursements ▪ Collect co-payments and other fees	▪ Understand uses and costs of drug delivery devices	▪ Support patient adherence and reduction in relapses ▪ Collect and analyse data on medical outcomes

While full integration across stakeholders & stages is still rare, we increasingly see solutions address different steps of journey – selected examples
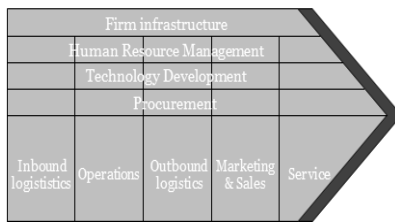

1 **Treatment Journey** | Awareness | Diagnosis | Treatment Decision | Payment | Fulfillment | Maintenance

Patient

HCP

Payers

PharmaCo

New Business Models and Market Entrants

3

Digitization and mHealth is ultimately about changing your business model

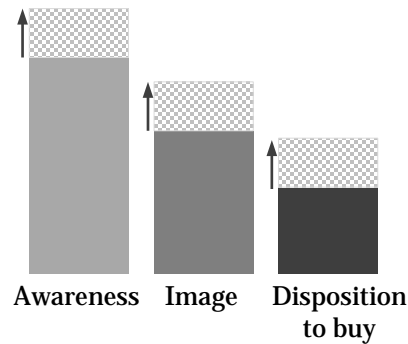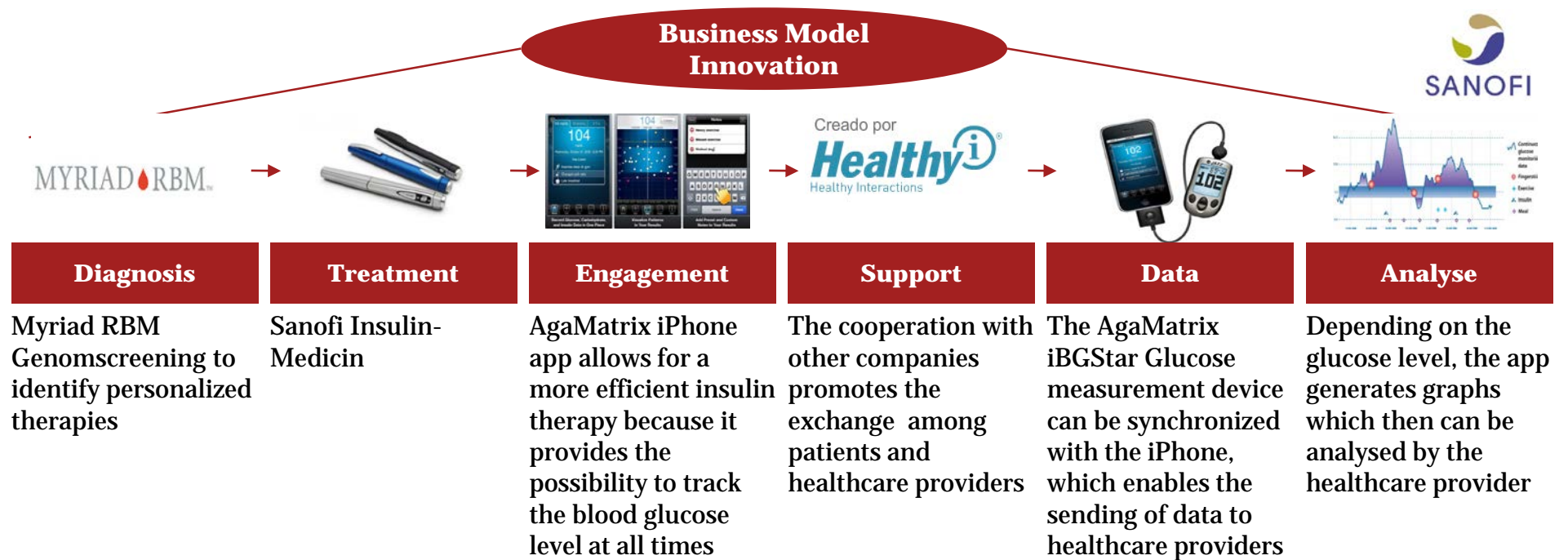| Reducing costs	Increasing revenue	*Becoming a health solution provider*
	Awareness Image Disposition to buy	PharmaCo
Digitalization and mHealth drives down costs by improving: ▪ Business processes (e.g. automatic approval process of promotion) ▪ Individual workflows (e.g. all time access to clinical data) ▪ Marketing (e.g. automatic updates on sales material)	Digitalization can increase revenues by: ▪ Improvement of direct distribution (e.g. increasing reach of sales channels) ▪ Improvement of indirect distribution (e.g. better connection to HCPs for an OTC drug)	A health solution provider adopts efficiently to the changing healthcare market by: ▪ Becoming a corporate health driver ▪ Offering end-to-end solutions ▪ Creating value for patients ▪ Increasing medical adherence ▪ Benefitting of efficiency potentials

mHealth technology fuels business model innovation in the pharmaceutical industry

Diagnosis	Treatment	Engagement	Support	Data	Analyse
Myriad RBM Genomscreening to identify personalized therapies	Sanofi Insulin-Medicin	AgaMatrix iPhone app allows for a more efficient insulin therapy because it provides the possibility to track the blood glucose level at all times	The cooperation with other companies promotes the exchange among patients and healthcare providers	The AgaMatrix iBGStar Glucose measurement device can be synchronized with the iPhone, which enables the sending of data to healthcare providers	Depending on the glucose level, the app generates graphs which then can be analysed by the healthcare provider

It was possible for Sanofi to achieve a 15% growth in revenues of insulin, by becoming a „360°"-Partner for its customers and by offering the possibly best therapy in form of an integrated solution.

Increasing global M&A activity reveals increasing competition from new entrants into the healthcare sector

76% of the Fortune 50 are now in the health industry or have a health division
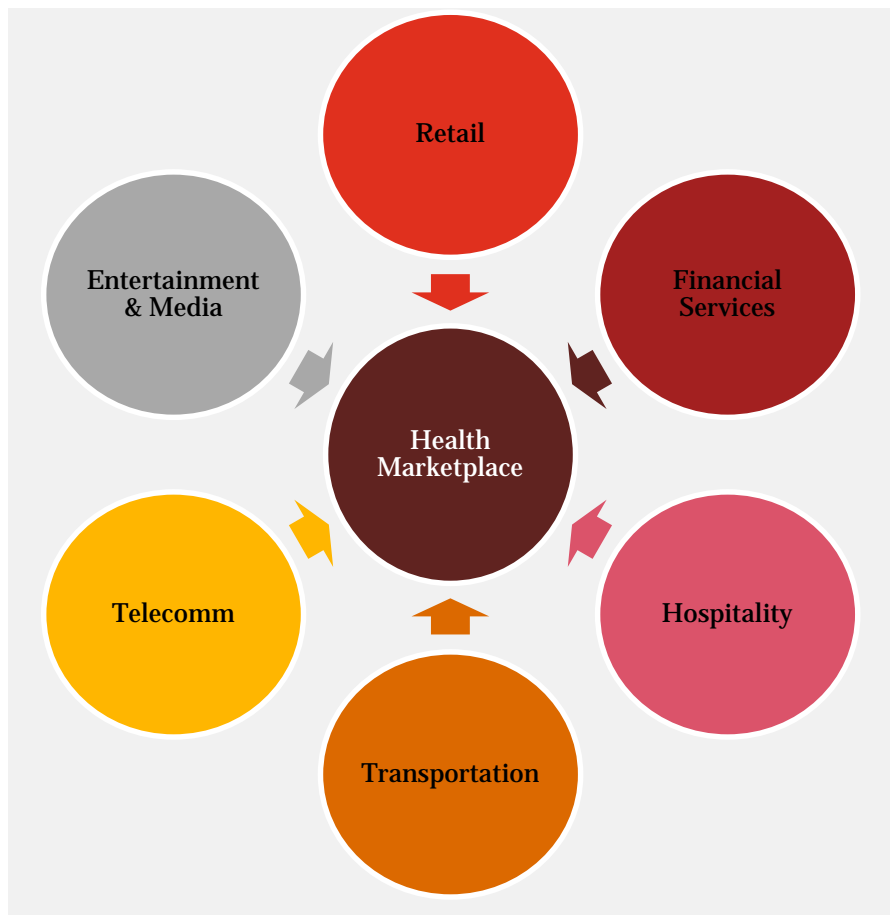
Examples of ways companies are entering the healthcare market

In Q3 2014, Telstra, Australia's largest telecommunications company, acquired Medinexus, another eHealth company, in order to strengthen its Health division

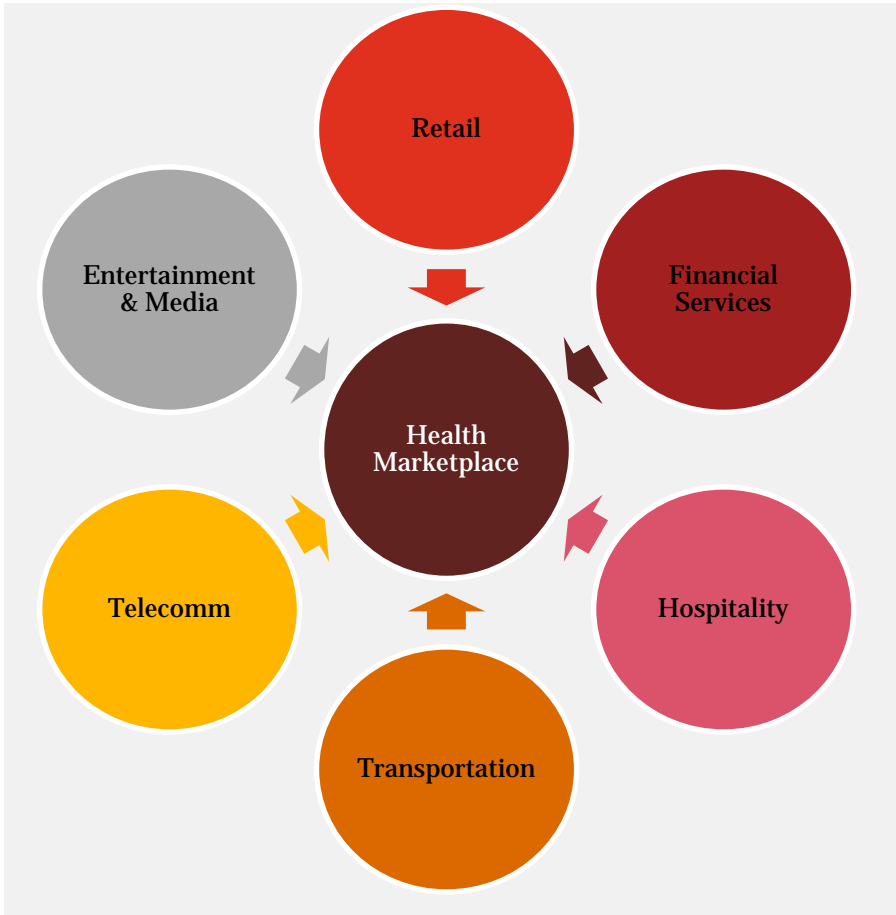In Q2, 2014, medical device giant Covidien acquired sports and medical wearables company Zephyr Technology

Deutsche Telekom announced in Q4 2013 to acquire BrightOne GmbH, a provider of hospital ERP solutions, to strengthen its Healthcare division.

In Q2 2013, China -founded medtech company Mindray announced it will acquire ZONARE Medical Systems, an U/S leader based in California

New entrants are entering the healthcare sector and challenge established players

76% of the Fortune 50 are now in the health industry or have a health division

- Retail
- Financial Services
- Hospitality
- Transportation
- Telecomm
- Entertainment & Media
- Health Marketplace

Examples of ways companies are entering the healthcare market

WELLDOC™

WellDoc provides „BlueStar", the first prescriptive App that achieved FDA approval in Q2 2013 for the treatment of type 2 diabetes

KLARA

KLARA offers an App for the diagnosis of skin disease

HealthVault

HealthVault is Microsoft's web-based platform to store and maintain health and fitness information. It addresses both individuals and healthcare professionals

dacadoo It's all about you.

Dacadoo provides a smartphone app in order to track and benchmark your health, fitness and well-being via a health score

Thank you!