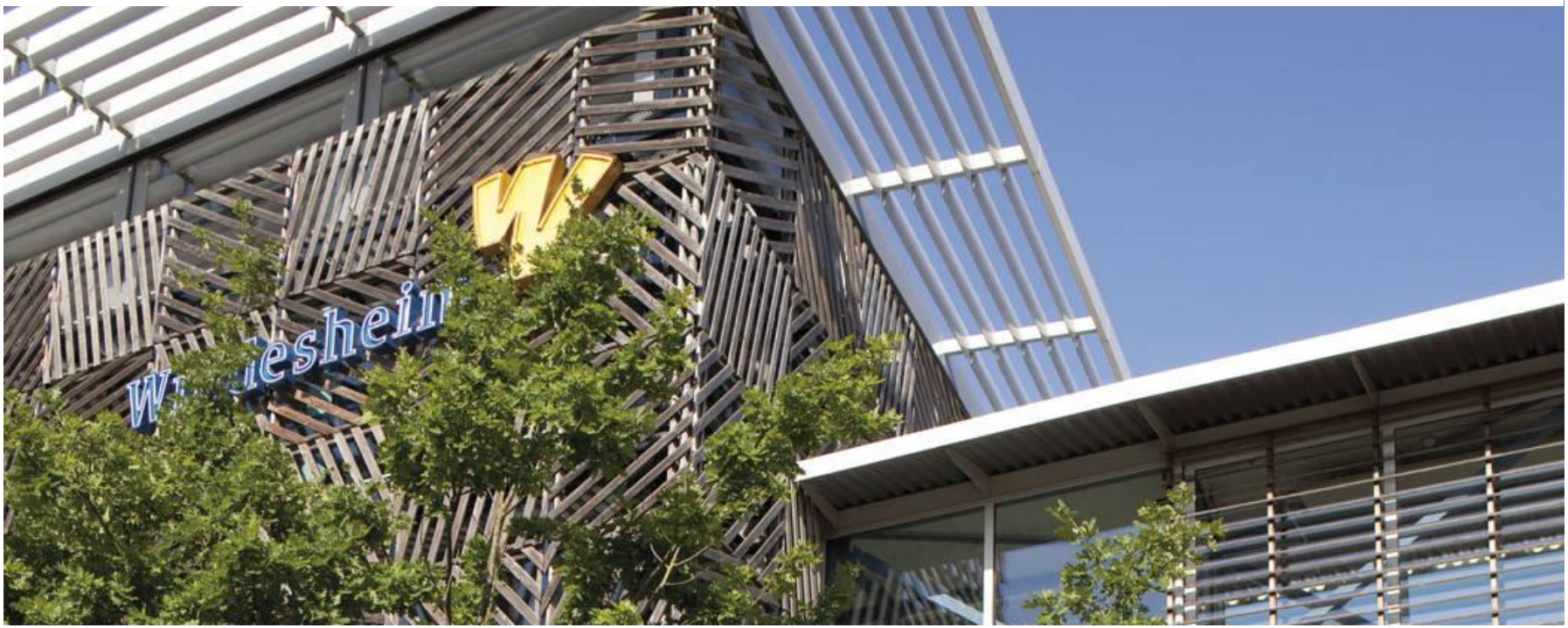
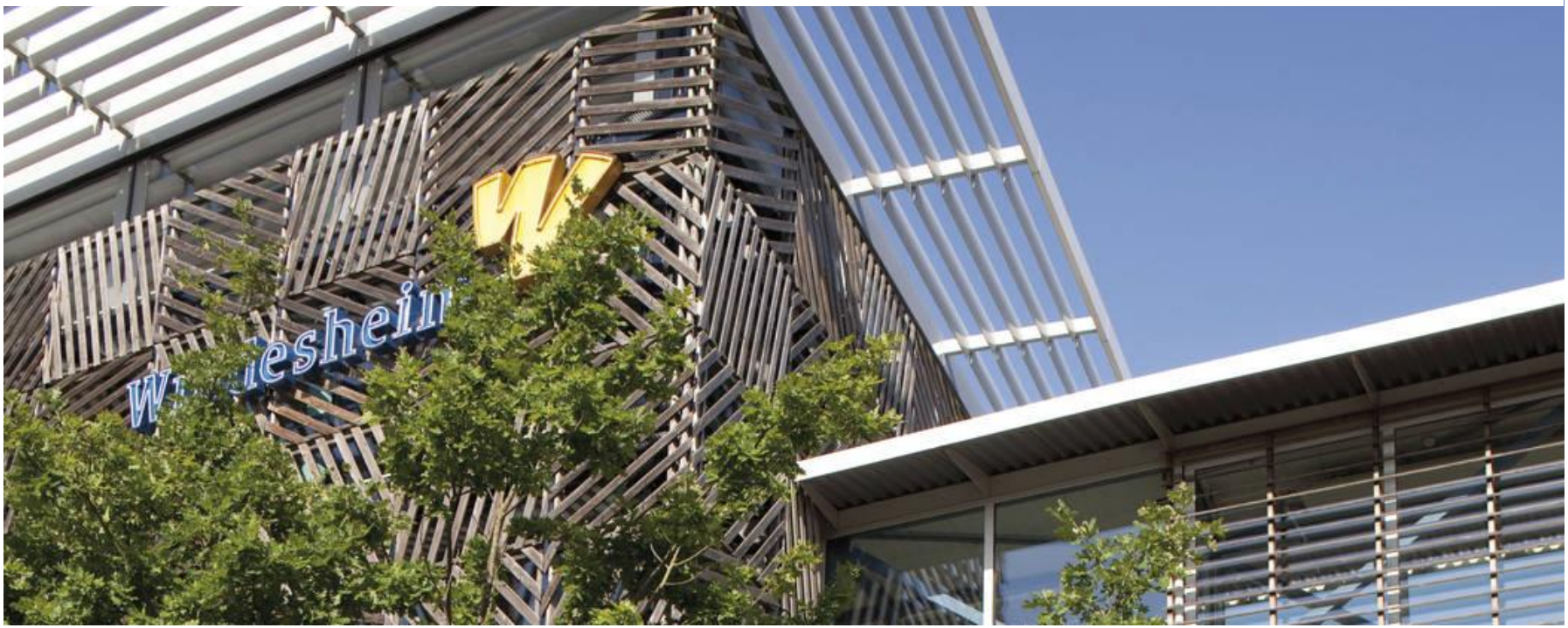
Finding Common Interests in the Co-located Conferences of DigitalWorld2015: Towards a Healthy (Digital) Planet



Marike Hettinga, Windesheim University of Applied Sciences. m.hettinga@windesheim.nl
Keynote on 26th of February 2015 at eTELEMED 2015, Lisbon, Portugal

Answering Petre's question

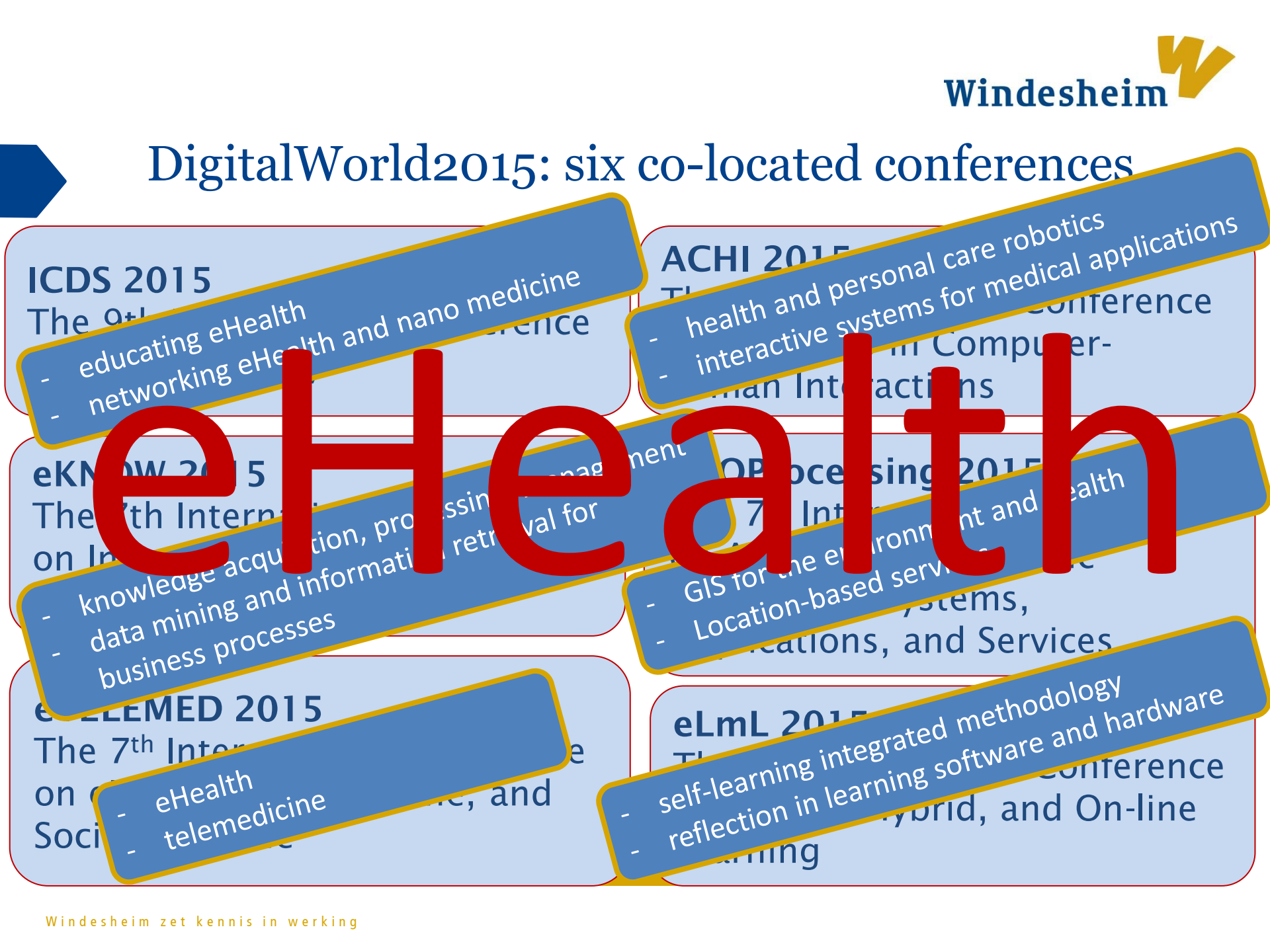
Finding Common Interests in the Co-located Conferences of DigitalWorld2015: Towards a Healthy (Digital) Planet



Marike Hettinga, Windesheim University of Applied Sciences. m.hettinga@windesheim.nl
Keynote on 26th of February 2015 at eTELEMED 2015, Lisbon, Portugal

Windesheim

DigitalWorld2015: six co-located conferences



Why aim at finding common interests?

- cooperation, connection, creativity are crucial in solving todays health care problems
- eventual goal: a Healthy (digital) Planet
- first goal: joined workshop/session at DigitalWorld2016

Please:
feel free to please speak up if you see common interests or future shared program items!

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Research Group IT Innovations in Health Care

The near future?

From: *De Toekomst, de wereld over 50 jaar: Het Lichaam*, DocuLine, Strengholt MultiMedia (2007)

Research themes

Windesheim

Research line 1:
Sensortechnology

Research line 2:
Data Management

Main theme:
Towards sustainable
IT innovations in health care

Research line 3:
Evidence based eHealth

Research line 4:
Content of care at a distance

Research themes

Windesheim

Main theme:
Towards sustainable
IT innovations in health care

Windesheim

Many entrepeneurs come to us saying:

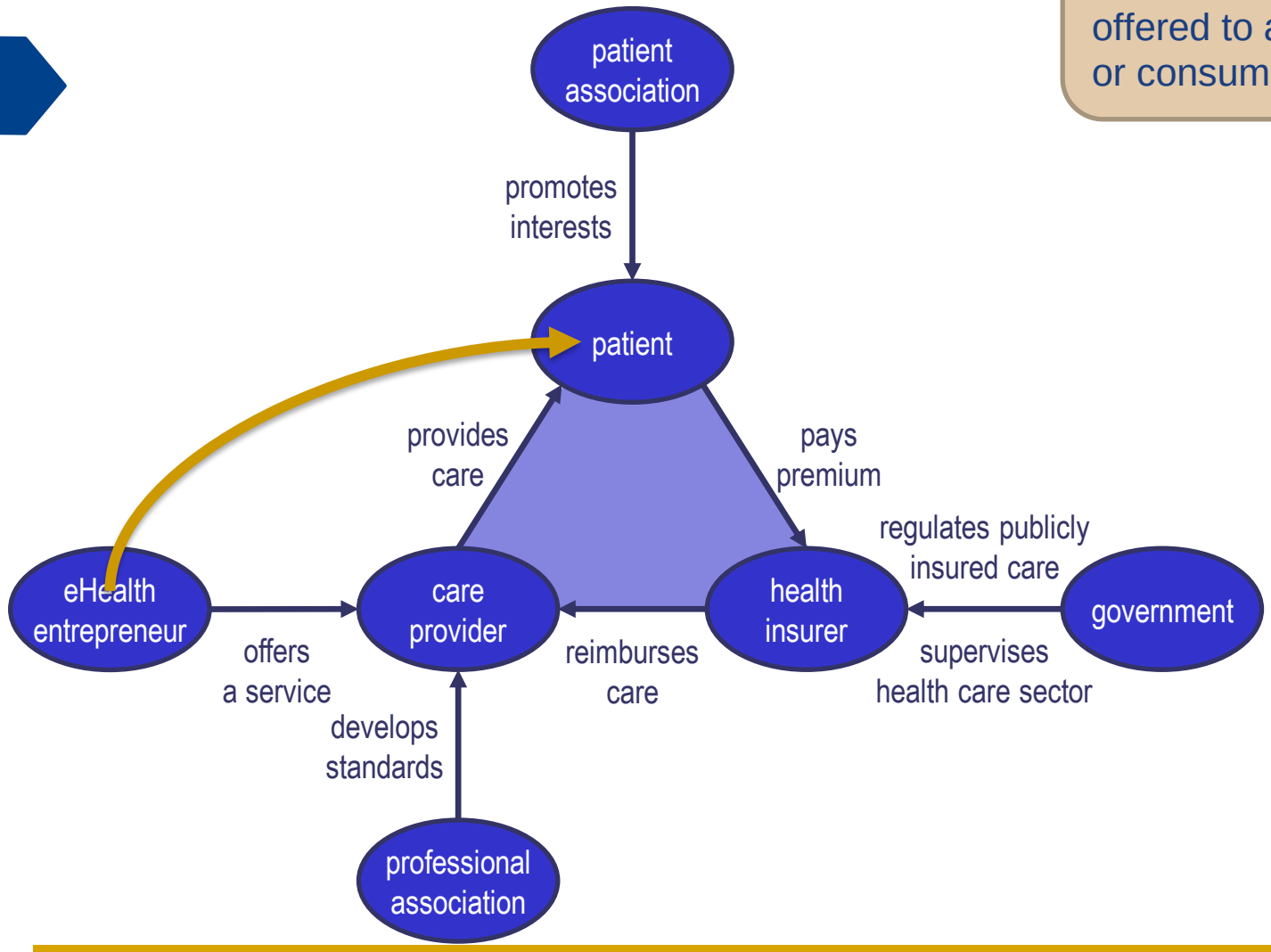
"I have a brilliant idea"

"It is going to save millions in health care and it is going to save lives"

"All I need to do is convince the health insurer"

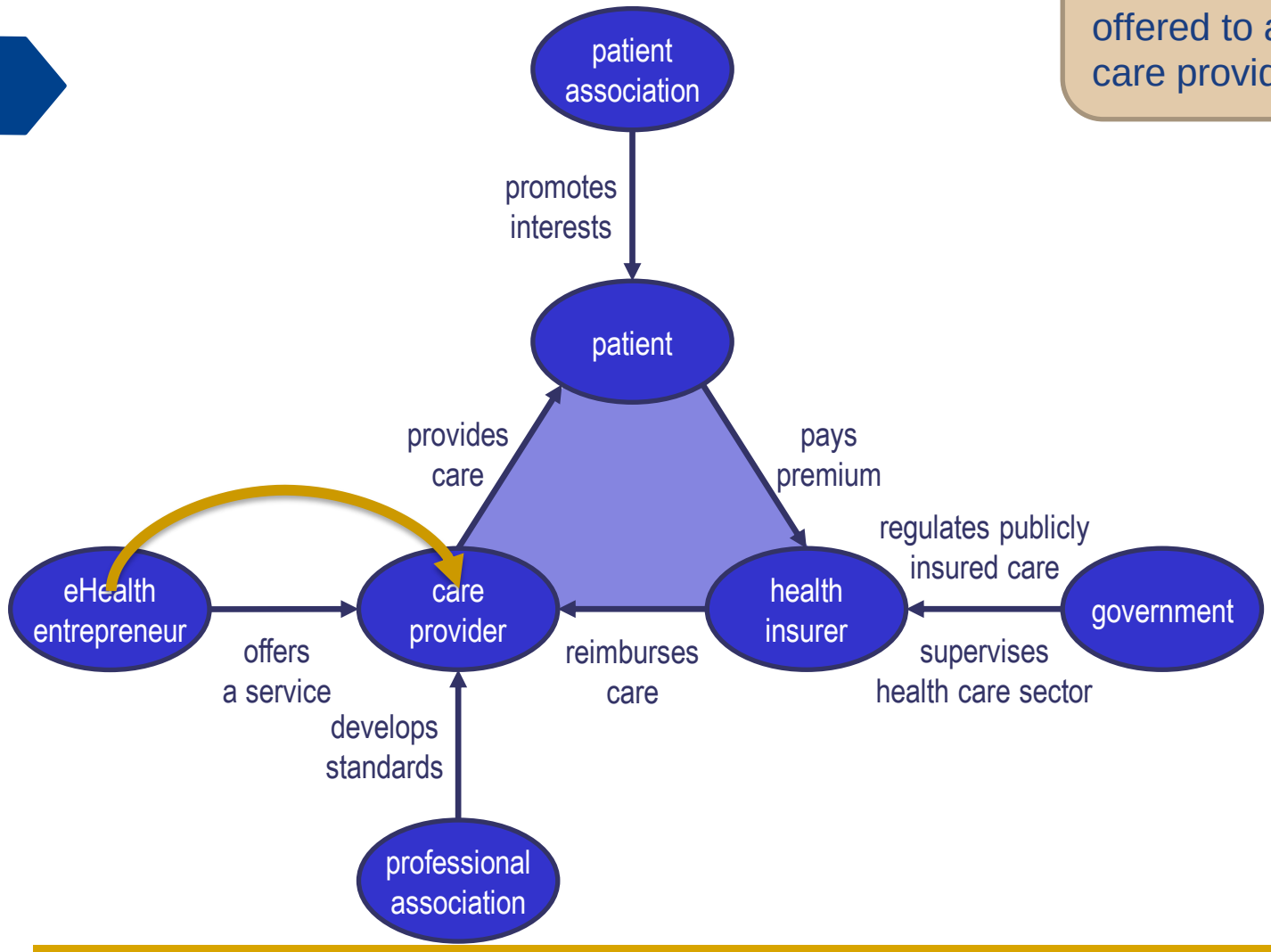
The consumer route

A service or application is offered to and paid by patients or consumers



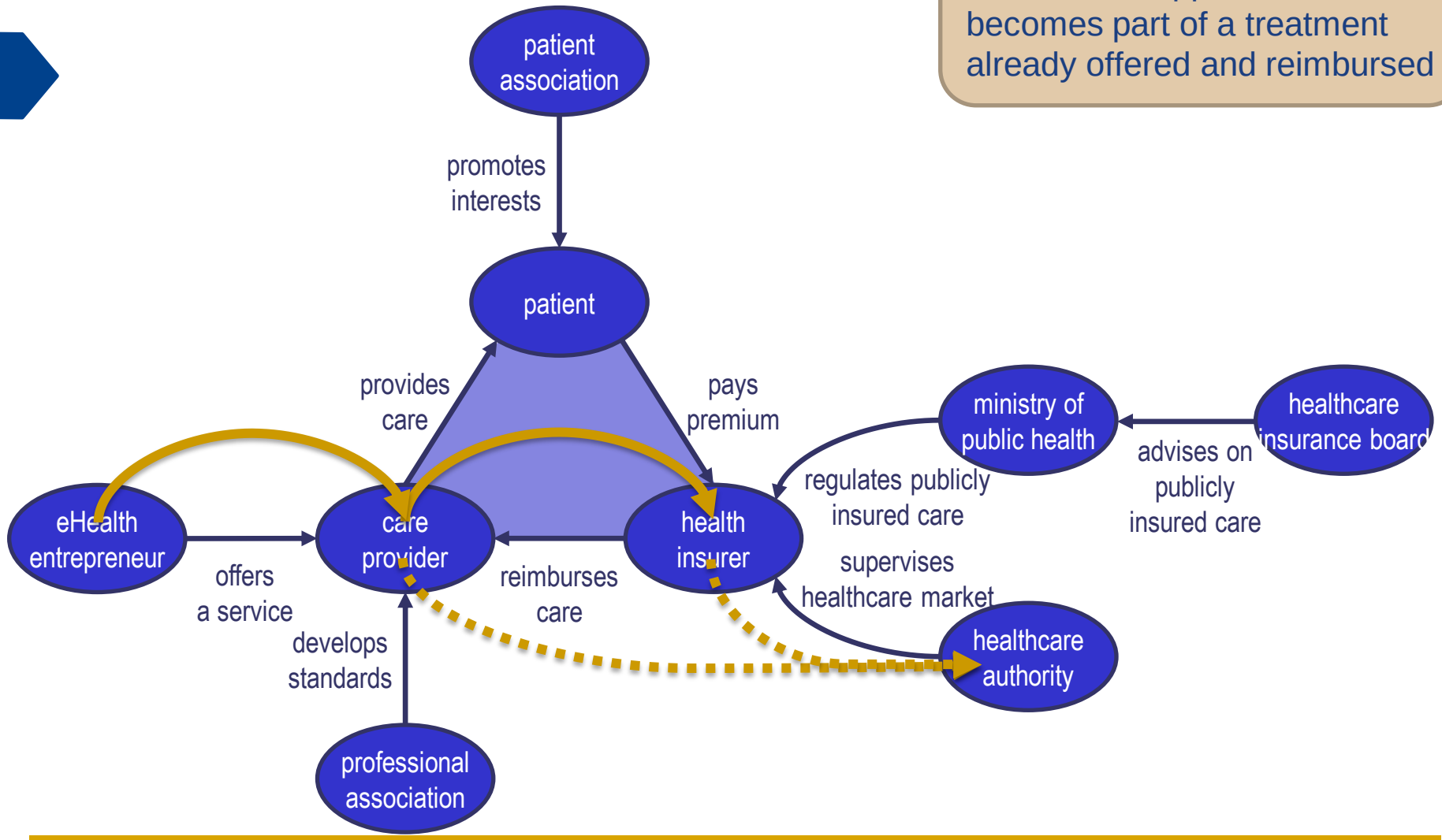
The provider route

A service or application is offered to and paid by health care providers



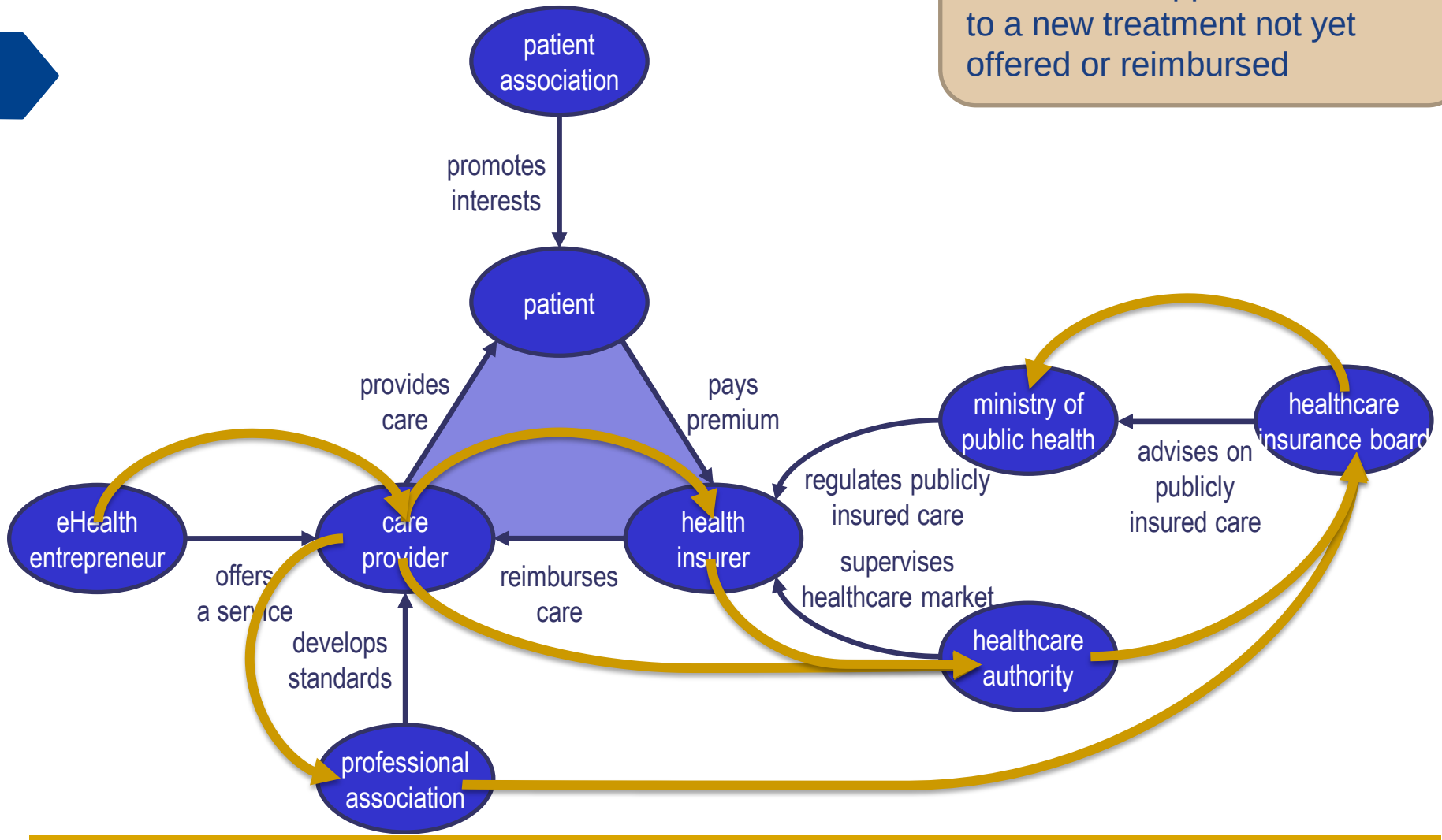
The insurer route

A service or application becomes part of a treatment already offered and reimbursed



The government route

A service or application leads to a new treatment not yet offered or reimbursed



Interactive webtool

Learn about innovation routes, and determine the best fitting route for your innovation

www.innovatieroutesindezorg.nl

Handy booklet

All the information at hand, concise and accessible, with references for further reading

ISBN/EAN: 978-90-77901-52-6

Research themes

Windesheim

Main theme:
Towards sustainable
IT innovations in health care

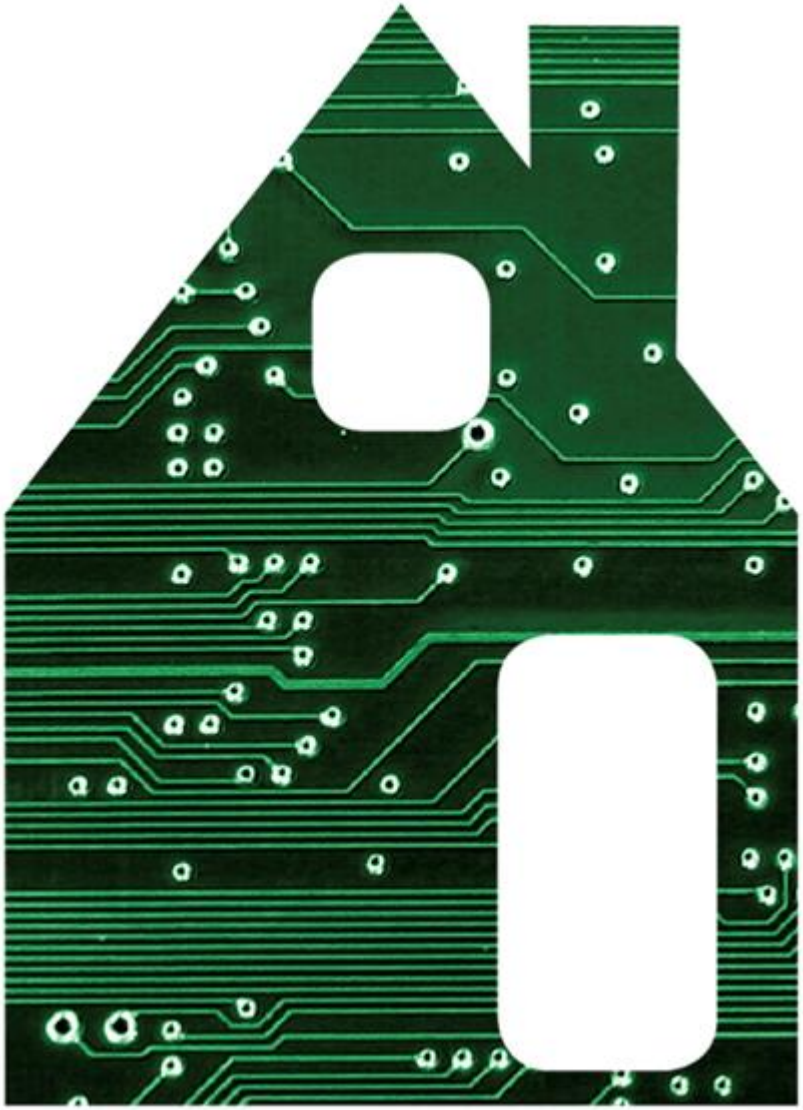
Research themes

Windesheim

Research line 1:
Sensortechnology

Project: Hightech@home

Windesheim



Design, development, and user research for Hightech that is:

@home:
to facilitate all potential users in living independently at home

4all:
by using open source technology costs for end users remain low

plug&play:
a co-creation process including care consumers and care givers ensures easy installation and use

sustainable:
integrated in daily care and sustainably financed

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MoSeS: Mobile Sensing & Security

Goal of our part of the project: make a shirt with sensors that helps avoiding health related hazardous situations for firemen in mission

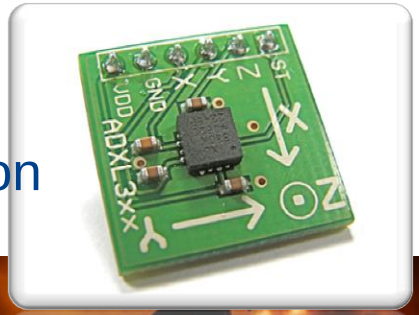
Heart rate
(Optical, ECG)

Wireless
communications

Temperature

Respiration

Acceleration



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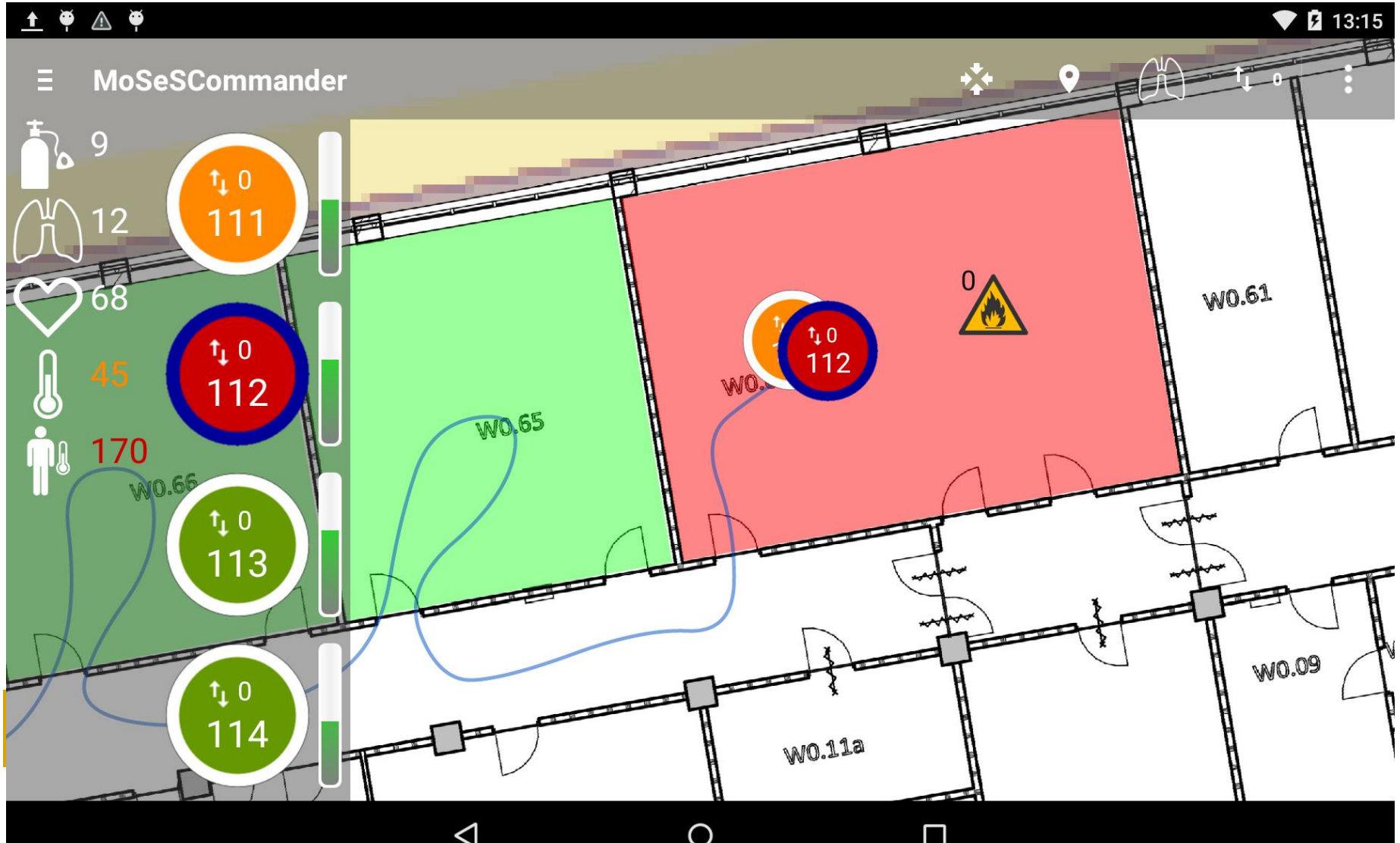
GUI: Health status, location, amount of air



Research themes

Windesheim

Research line 1:
Sensortechnology

ICDS
Digital Society

GEOProcessing
Geographic Information Systems, Applications, and Services

eTELEMED
eHealth, Telemedicine, and Social Medicine

ACHI
Computer-Human Interactions

Research themes

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Research line 2:
Data Management

“Hospital is still messing around with exchange of patient data”

Windesheim

Geplaatst op 20 februari 2015 door: Skipr Redactie

Ziekenhuis rommelt nog altijd met overdracht

De overdracht van patiëntgegevens tussen zorgaanbieders is nog vaak incompleet, incorrect, niet tijdig of soms zelfs volledig afwezig. Met name kwetsbare ouderen lopen hierdoor “structurele risico’s”. Dat constateert de Inspectie voor de Gezondheidszorg (IGZ) op basis van onderzoek bij vier ziekenhuizen.

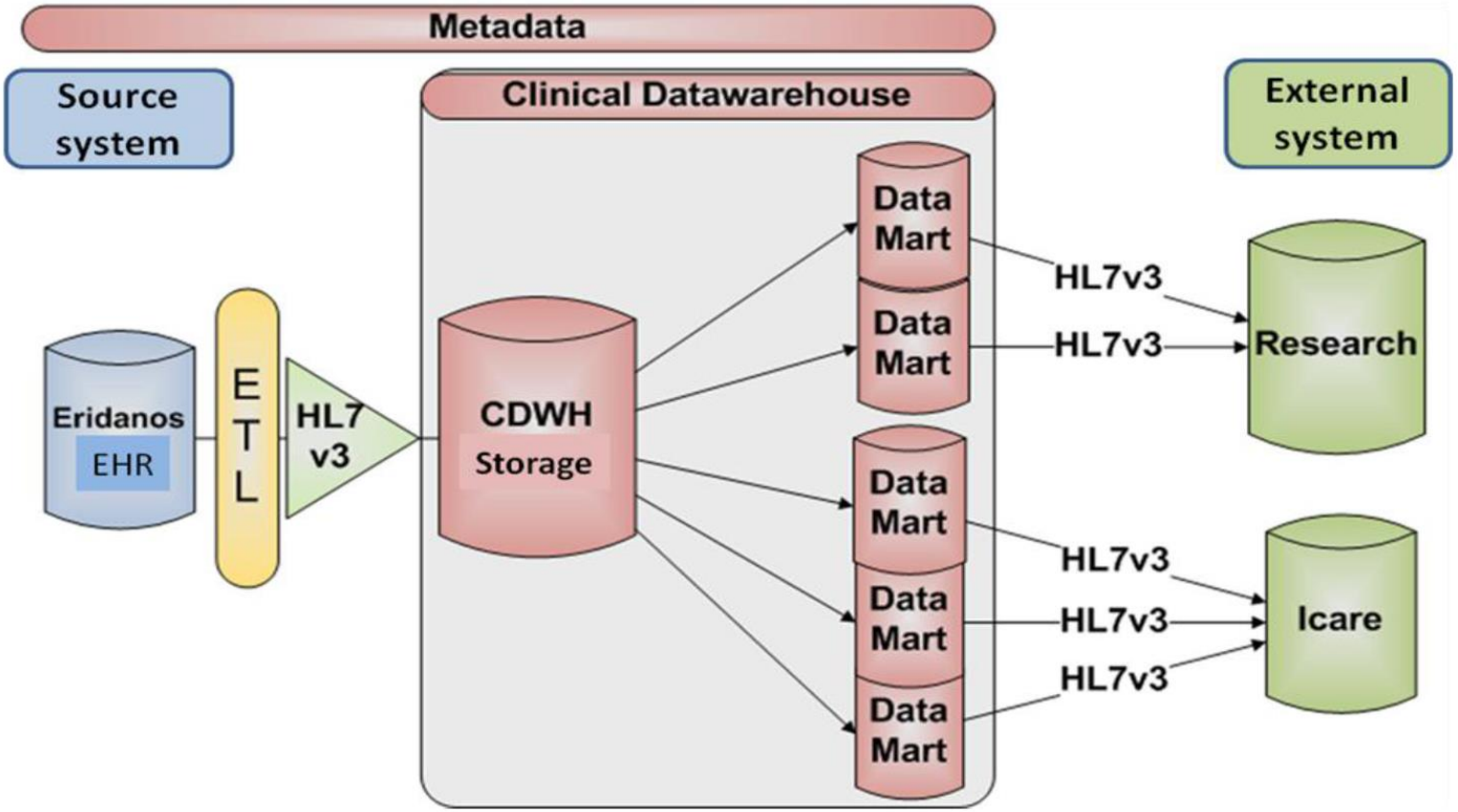
Veelzeggend in dit verband is het feit dat geen van de onderzochte ziekenhuizen, te weten het Catharina Ziekenhuis, MC Haaglanden, Tergooi en het IJsselland, een duidelijk omschreven ontslagprocedure heeft voor kwetsbare ouderen. Door deze procedurele omissie kunnen makkelijk lacunes in de overdracht ontstaan, zo stelt de inspectie vast.

Zo moet het ziekenhuis volgens de norm op de

Windesheim

Exchanging Nursing Oncology Care Data With use of a Clinical Data Ware House

A multi-method approach to standardize nursing data for oncology care based on Detailed Clinical Models (DCM), and use these DCM as requirements for the Electronic Health Record system



Research themes

Windesheim

Research line 2:
Data Management

eKNOW
Information, Process, and Knowledge Management

ACHI
Computer-Human Interactions

eTELEMED
eHealth, Telemedicine, and Social Medicine

Research themes

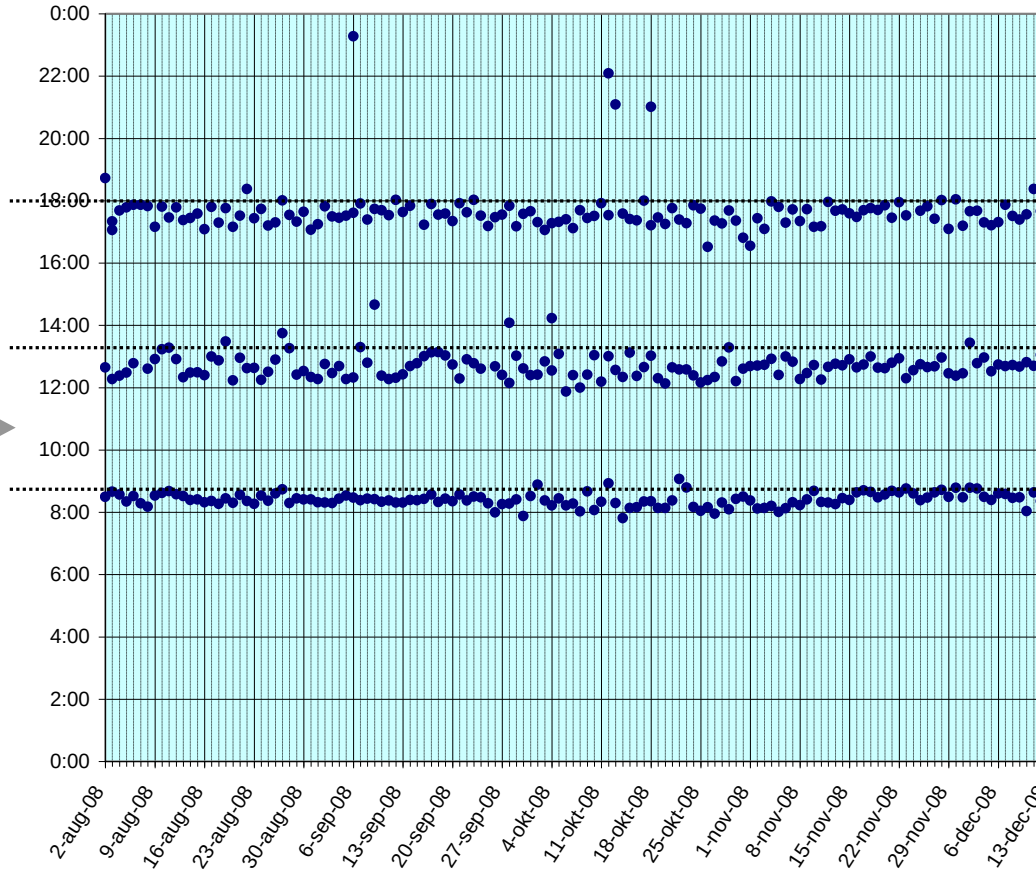
Windesheim

Research line 3:
Evidence based eHealth

Real Time Medication Monitoring with customized SMS reminders

Medication dispenser sends message to central server when opened

If medication dispenser is not opened within agreed time interval an SMS reminder is sent



SEIN
Stichting Epilepsie Instellingen Nederland

Evalan
Real Time Care

DUTCH BUTTON WORKS

Windesheim

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Adherence Level

Differences in adherence during the use of RTMM with and without SMS reminder service			
n=18	Without SMS (t_0-t_1)	With SMS (t_1-t_2)	Related-Samples Wilcoxon Signed Rank Test
% Correct intake median (min-max)	68.47 (31.11-102.50)	82.85 (30.83-98.89)	p=0.003
% Missed doses median (min-max)	17.92 (1.67-44.44)	7.11 (1.11-49.21)	p=0.058

Research themes

Windesheim

Research line 3:
Evidence based eHealth

eTELEMED
eHealth,
Telemedicine,
and Social
Medicine

Research themes

Windesheim

Research line 4:
Content of care at a distance

Windesheim

Professional Dilemmas in a Changing Health Care Practice

Studying the use of videoconferencing in mental health care and developing instruments for professionals to make them more aware of benefits and pitfalls

1. How to integrate VC into treatment programs and individual treatment plans while maintaining good quality of care?
2. What to take into acount when applying VC in specific situations, or with specific clients, such that it is safe and responsible?
3. How to make colleagues inexperienced with VC more aware of the potential benefits of using videoconferencing?

Windesheim umcg amc ggz Drenthe geestelijke gezondheidszorg Lentis

Hanzehogeschool Groningen ZORG INNOVATIE FORUM Noord-Holland-Noord GGZ Dimence SIA Stichting Innovatie Alliantie

Research themes

Windesheim

eLmL
Mobile, Hybrid, and On-line Learning

eKNOW
Information, Process, and Knowledge Management

eTELEMED
eHealth, Telemedicine, and Social Medicine

Research line 4:
Content of care at a distance

Research themes

Windesheim

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Windesheim

DigitalWorld2015: six co-located conferences

ICDS 2015
The 9th International Conference on Digital Society

ACHI 2015
The 8th International Conference on Advances in Computer-Human Interactions

eKNOW 2015
The 7th International Conference on Information, Process, and Knowledge Management

GEOProcessing 2015
The 7th International Conference on Advanced Geographic Information Systems, Applications, and Services

eTELEMED 2015
The 7th International Conference on eHealth, Telemedicine, and Social Medicine

eLmL 2015
The 7th International Conference on Mobile, Hybrid, and On-line Learning

Three suggestions for future joined sessions

The Internet of Things and Healthy Living

Continuous Learning and Adjusting in Changing Health Care

Fighting Epidemics Digitally

Suggestion 1

The Internet of Things and Healthy Living

Windesheim

What is the Internet of Things?

https://www.youtube.com/watch?v=LVlT4sX6uVs

Google Fit

An open platform that lets users control their fitness data. Google Fit lets developers build smarter apps and manufacturers focus on creating amazing devices.

Withings
Activité
0
100
50
SWISS MADE

fitbit
119
BPM
CHARGE HR™
HEART RATE + ACTIVITY WRISTBAND
SURGE™
FITNESS SUPER W

12
9
3
6

Why measure your heart rate 24*7?

According to many cardiologists:

- The relationship between heart rate and health condition is complicated
- A lower heart rate is not always better
- The maximum heart rate differs strongly for individuals

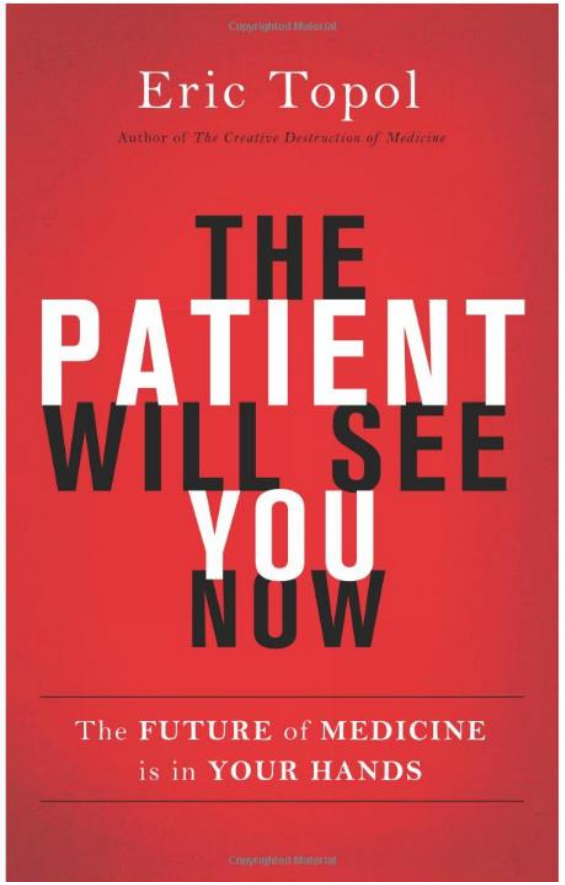
But: if you build it, they will come…

Dr. Kelder (Dutch Cardiologist):

"Having 24*7 heart rate data does not fit in our classic clinical research tradition. We have never had so much data. But a next generation will stand up and use this data to its benefit."

Eric Topol (US Cardiologist):

"We're all essentially surgically connected to our smartphones, and we're still in the early stages of realizing their medical potential. But they should be a real threat to the medical profession."



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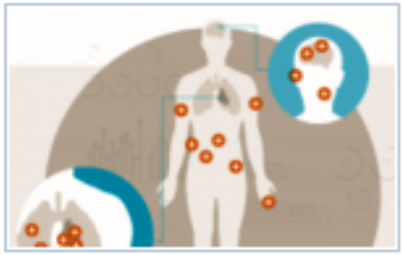
Another question:

Does the trend of DIY-patients lead to less patients at the doctor's consultation hour?

Geplaatst op 8 oktober 2014 door: Skipr Redactie

Zelf metende patiënt bezorgt arts extra werk



Het groeiende gebruik van zelfmeetapparatuur in de zorg levert artsen veel extra werk op. Niet alleen groeit het aantal consulten door ongeruste patiënten, ook zijn artsen door het gebrek aan standaarden en richtlijnen veel tijd kwijt aan het valideren van de informatie uit zelftests.

VINTURA
ERVAREN ADVISEURS MET DAADKRACHT IN DE ZORG
KLIK HIER
Vintura <>

Dit blijkt uit het Trenditionrapport dat woensdag is verschenen. Er komen steeds meer apparaten op de markt waarmee patiënten zelf hun gezondheid kunnen meten, zo blijkt uit het rapport. Er zijn nu ongeveer zevenhonderd zelfmeetapparaten bekend en het aantal apps loopt tegen de honderdduizend. Standaardisatie in gegevensverwerking en een keurmerk voor zelfmeetapparatuur kunnen een oplossing bieden.

Apps en apparaten

Vroeger waren medische meetinstrumenten alleen beschikbaar voor zorgprofessionals. Voor thuis waren er de weegschaal en thermometer. Tegenwoordig zijn apparaten om bijvoorbeeld bloedglucosespiegel, hartslag, en zuurstofsaturatie te bepalen meer en meer bij consumenten thuis te vinden. En er zijn talloze mobiele apps om de stemming, het voedingspatroon, de plas, bewegingen of het slaapgedrag bij te houden.

Zelfregie

Windesheim

Blog by Tom Greene, healthcare consultant about the Apple HealthKit

My health data is killing me

Image Credit: PathDoc/Shutterstock

January 12, 2015 6:00 PM
Tom Greene

405 141 8 222

We are still in the dark ages when it comes to health and fitness data. It reminds me of the early 1990s when I had a paper day planner for a calendar, a business card holder for contacts, and a map.

http://venturebeat.com/2015/01/12/my-health-data-is-killing-me/

"I need one site where my fitness and my medical data can coexist happily. A place where I don't have to scroll past my Molybdenum levels to see results from yesterday's spin class. Where data analytics can begin to predictively model my health risks and let me know when something is wrong. A place where I can begin to control my own data and take proactive steps towards better health. It needs to be user friendly and have a killer GUI. After all, what good is all this data if I cannot use it?"

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Suggestion 1

The Internet of Things and Healthy Living

ICDS
Digital Society

eKNOW
Information, Process, and Knowledge Management

ACHI
Computer-Human Interactions

eTELEMED
eHealth, Telemedicine, and Social Medicine

Suggestion 2

Continuous Learning and Adjusting in Changing Health Care

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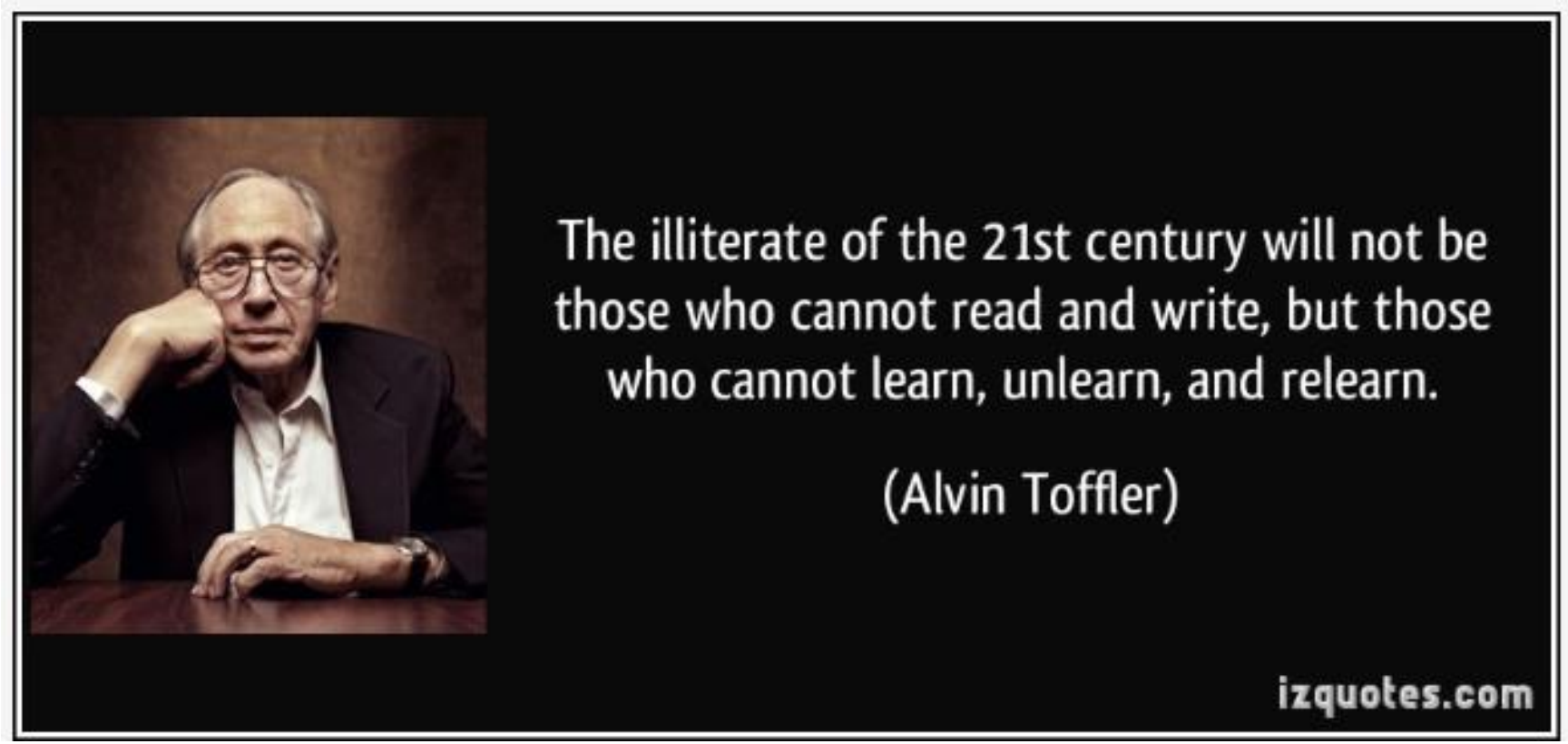
The ideal health care system: patient centered

It will take much effort to adapt to this ideal!


The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.
(Alvin Toffler)
izquotes.com

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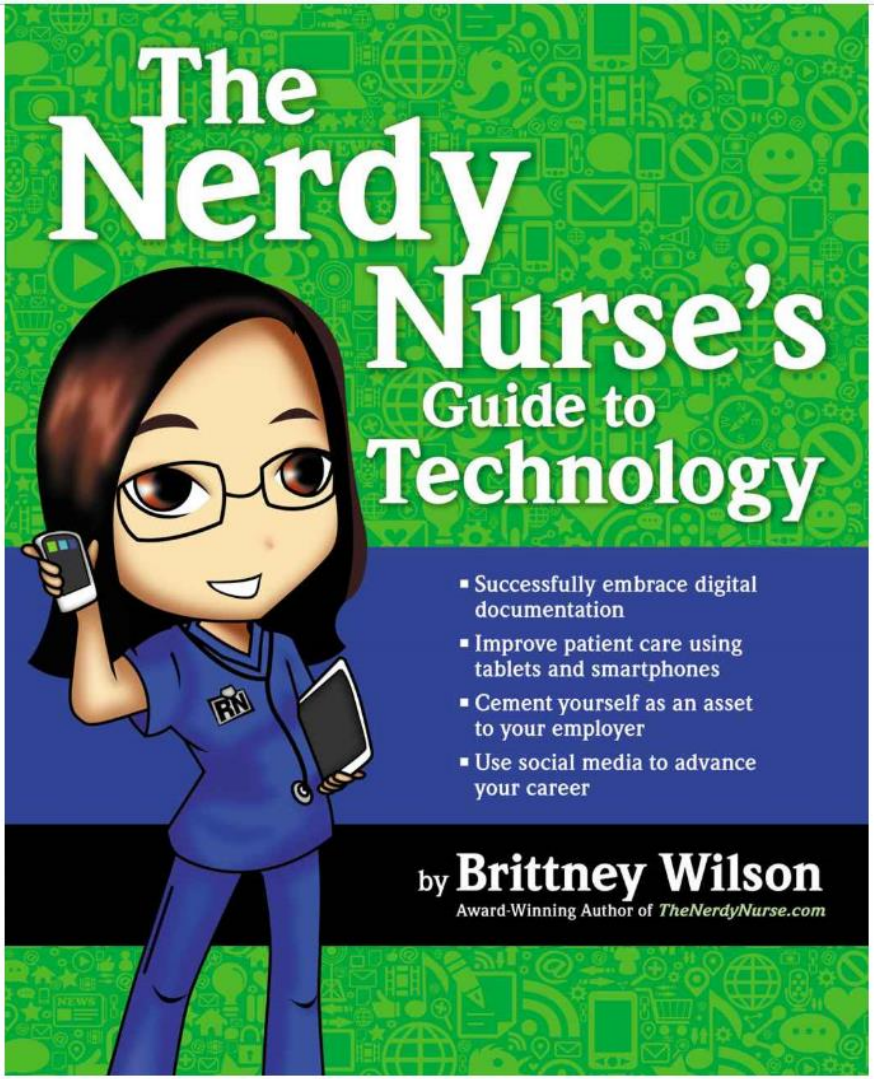
How do caregivers adjust and learn?



Brittney Wilson, also known as The Nerdy Nurse, is a highly influential social media personality.

She can best be described as a patient, nurse and technology advocate, and has a passion for using technology to innovate, improve and simplify lives, especially in the healthcare arena.

http://thenerdynurse.com

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Patients need to adjust and learn too.
Even when technology is intuitive we need to be taught!

Suggestion 2

ICDS
Digital Society

eLmL
Mobile, Hybrid, and On-line Learning

Continuous Learning and Adjusting in Changing Health Care

ACHI
Computer-Human Interactions

eKNOW
Information, Process, and Knowledge Management

eTELEMED
eHealth, Telemedicine, and Social Medicine

Suggestion 3

Fighting Epidemics Digitally

Windesheim

"A worldwide outbreak of influenza, a pandemic, is the most feared potential public health emergency of international concern."

http://www.greenfacts.org/nl/bedreigingen-wereldvolksgezondheid/l-2/5-influenza-pandemic.htm#0
http://www.who.int/topics/influenza/en/

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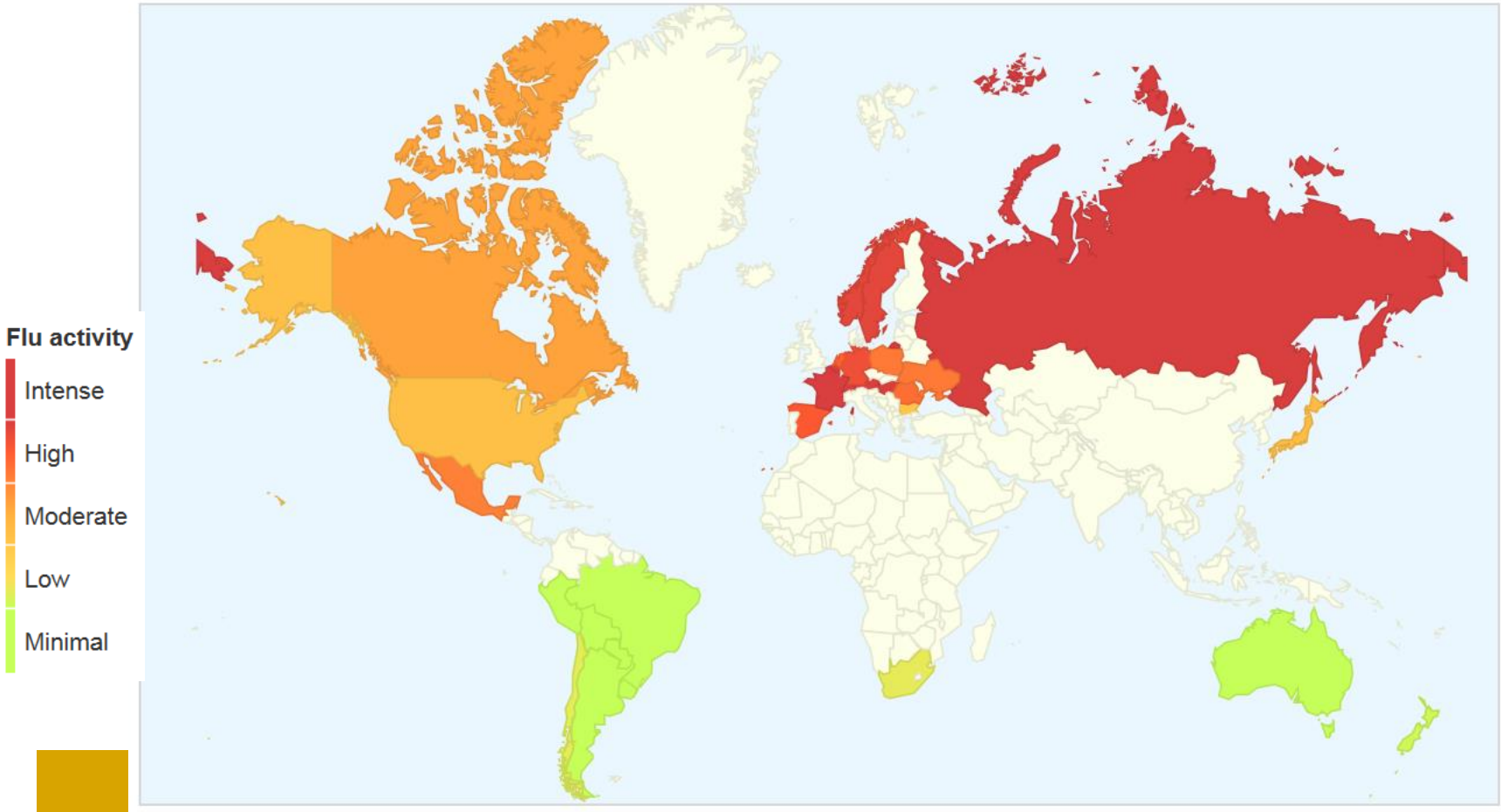
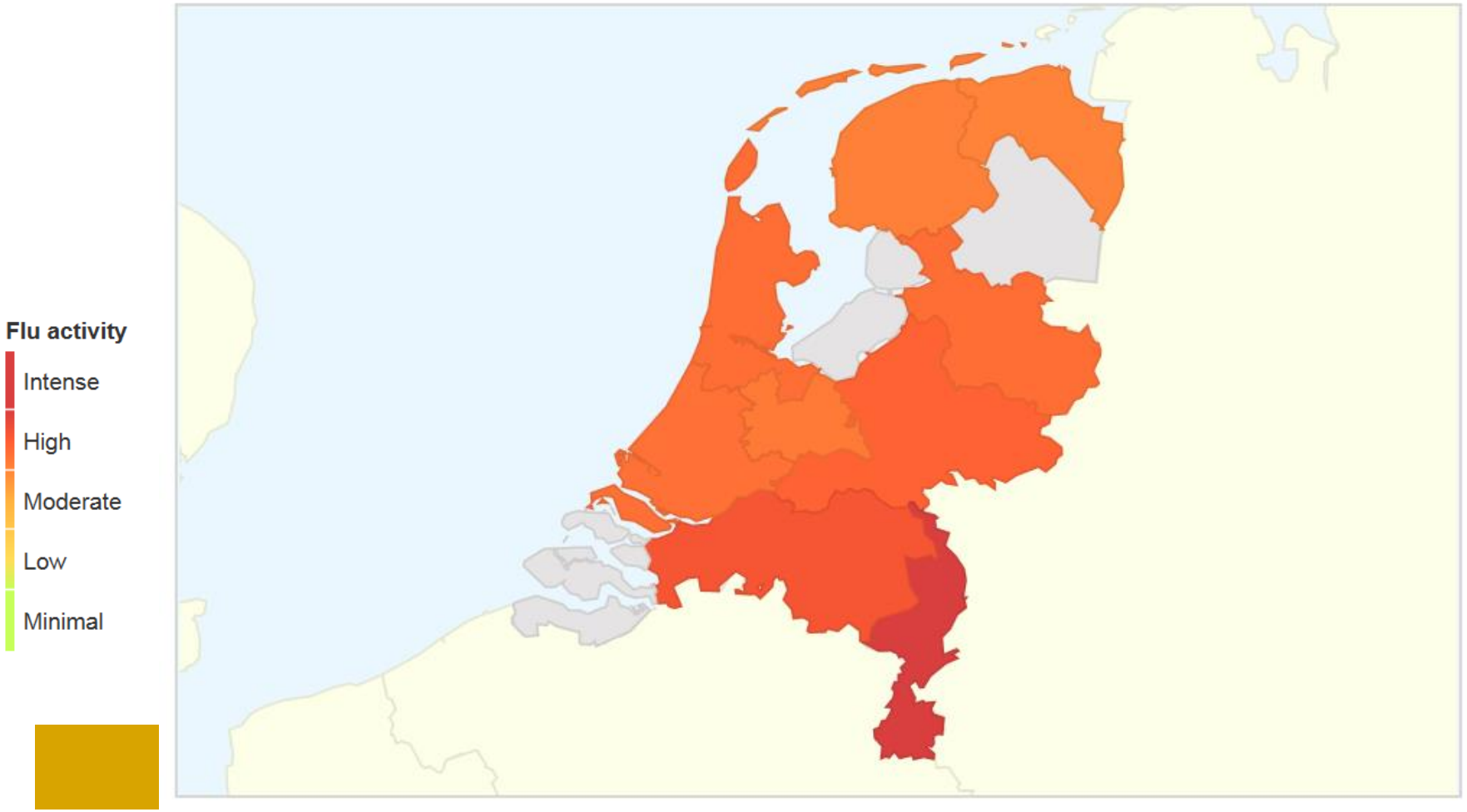
Google Flu Trend (24th of February 2015)



Windesheim

Google Flu Trend (24th of February 2015)



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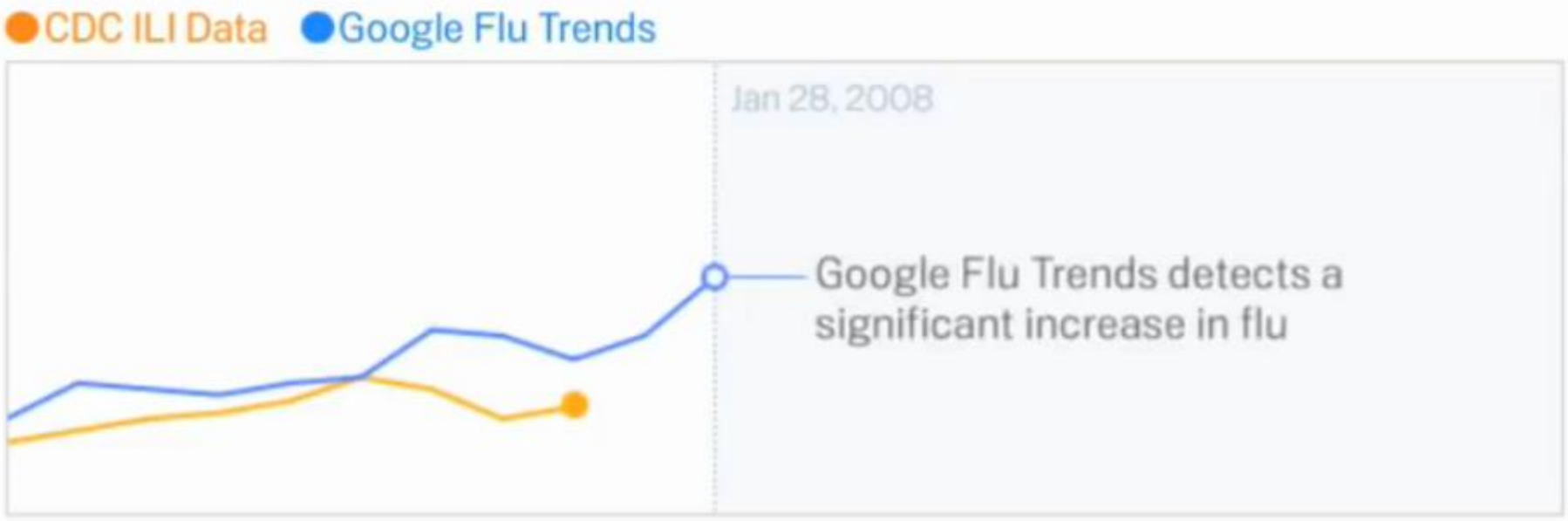
How Google Flu Trends Works

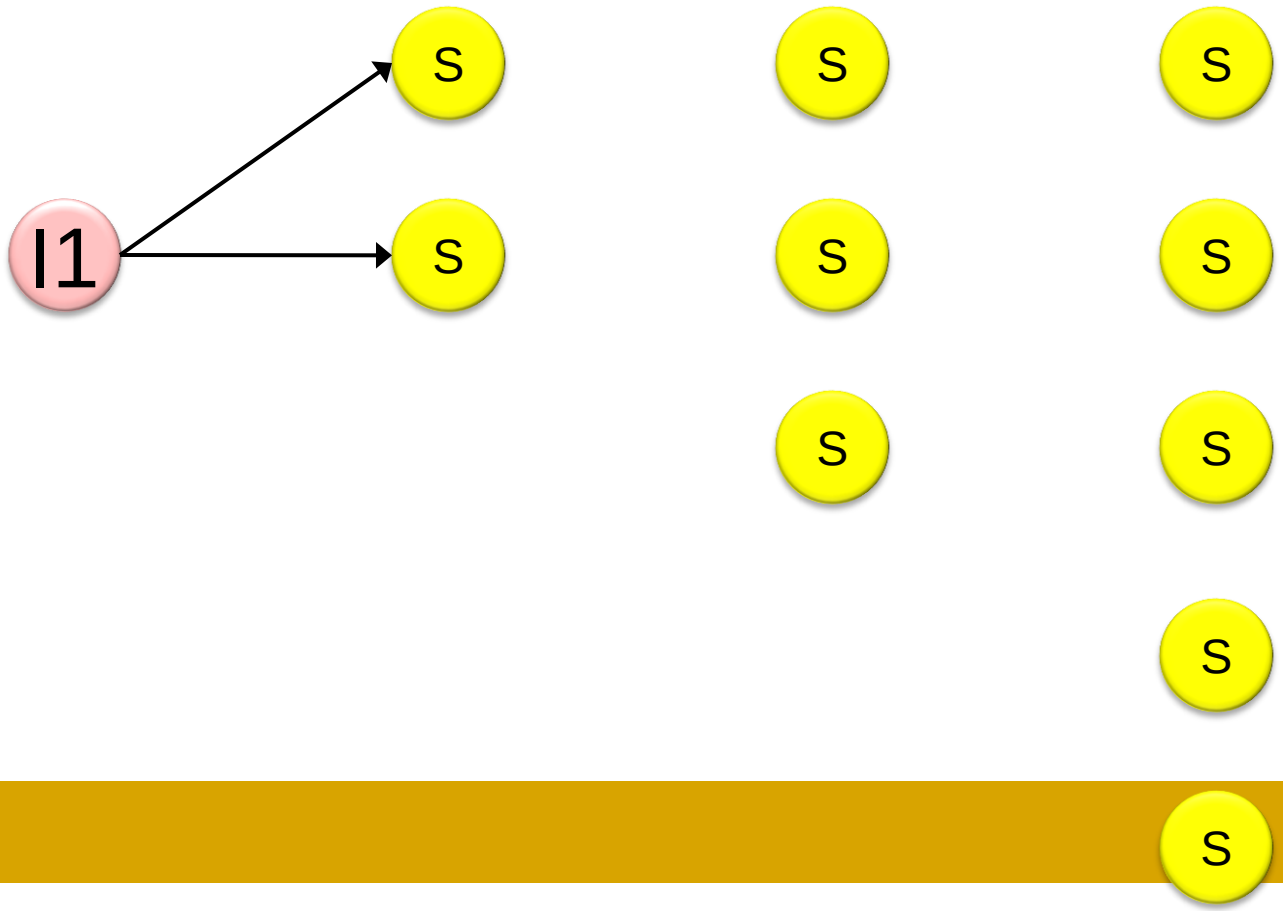


How infectious diseases beat us*

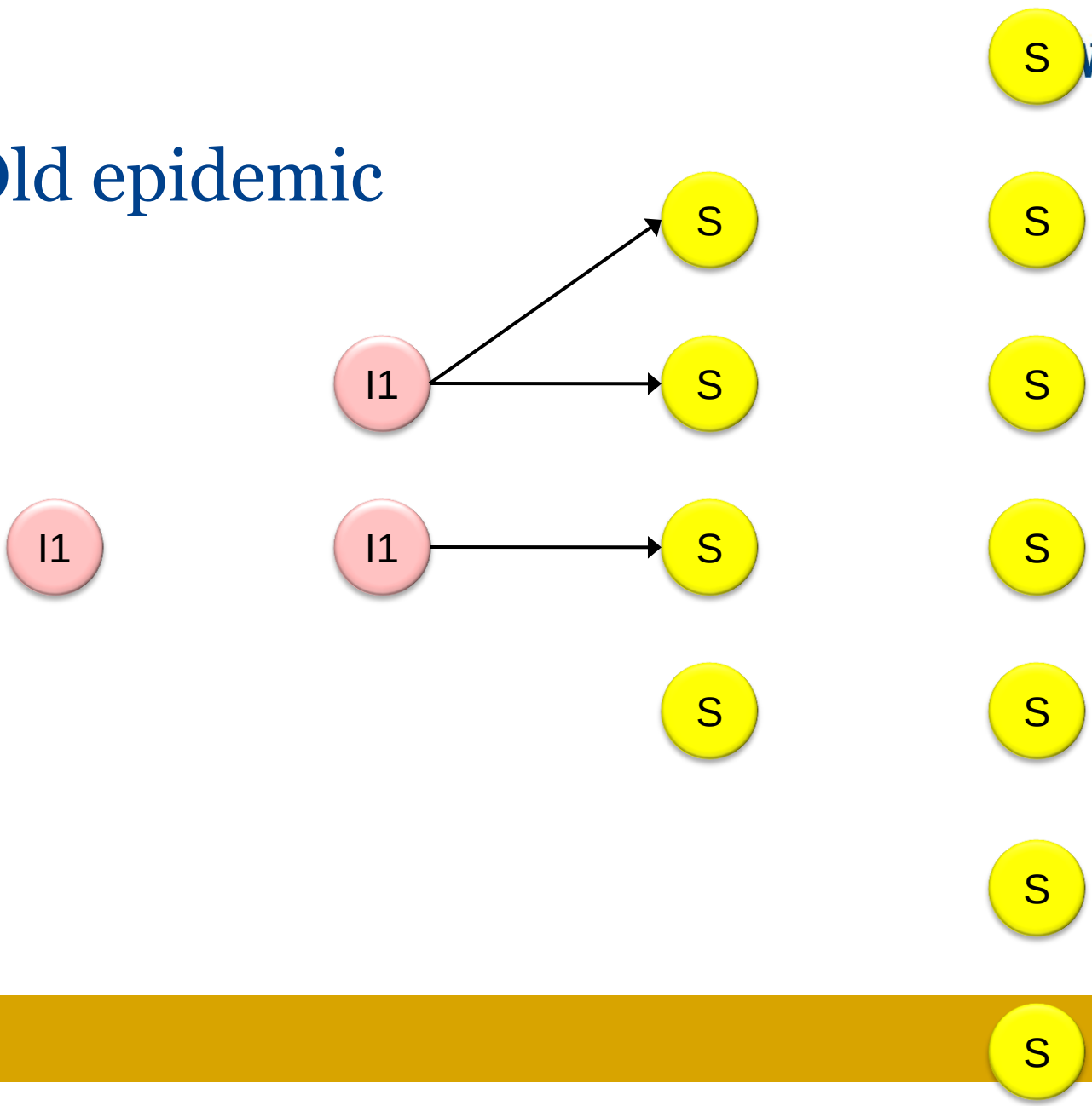
1. Person is susceptible (S)
2. Pathogen infects a person (I1)
   - For some time, person develops no symptoms: **incubation time**
   - Person may infect other susceptible persons: **through some form of contact**
3. Person develops symptoms (I2)
   - may take actions to reduce infecting others
4. Person Recovers (R) or dies
   - Can no longer infect others

*Based on an idea of Henri ter Hofte (https://www.linkedin.com/in/henriterhofte)

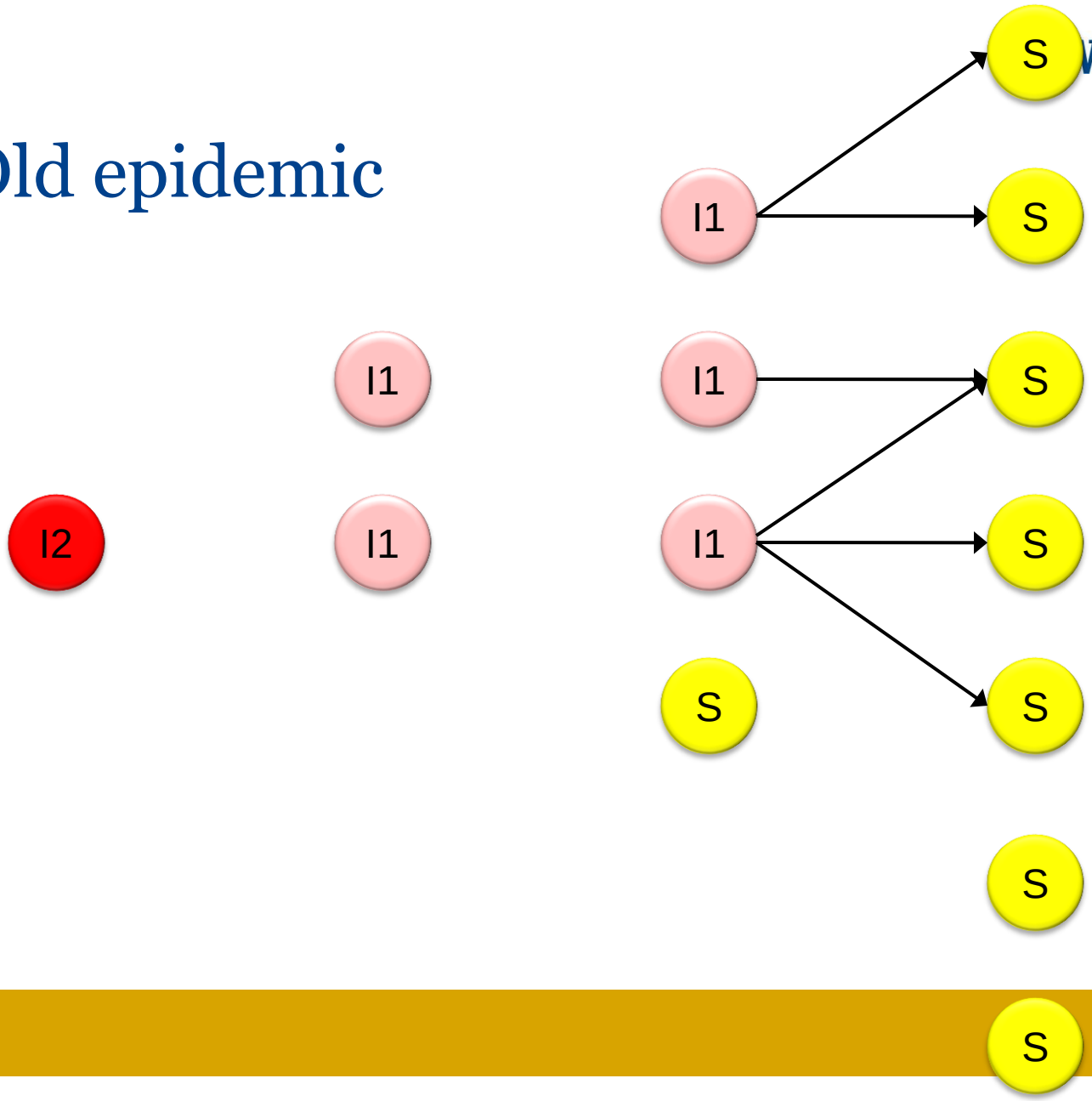
Old epidemic



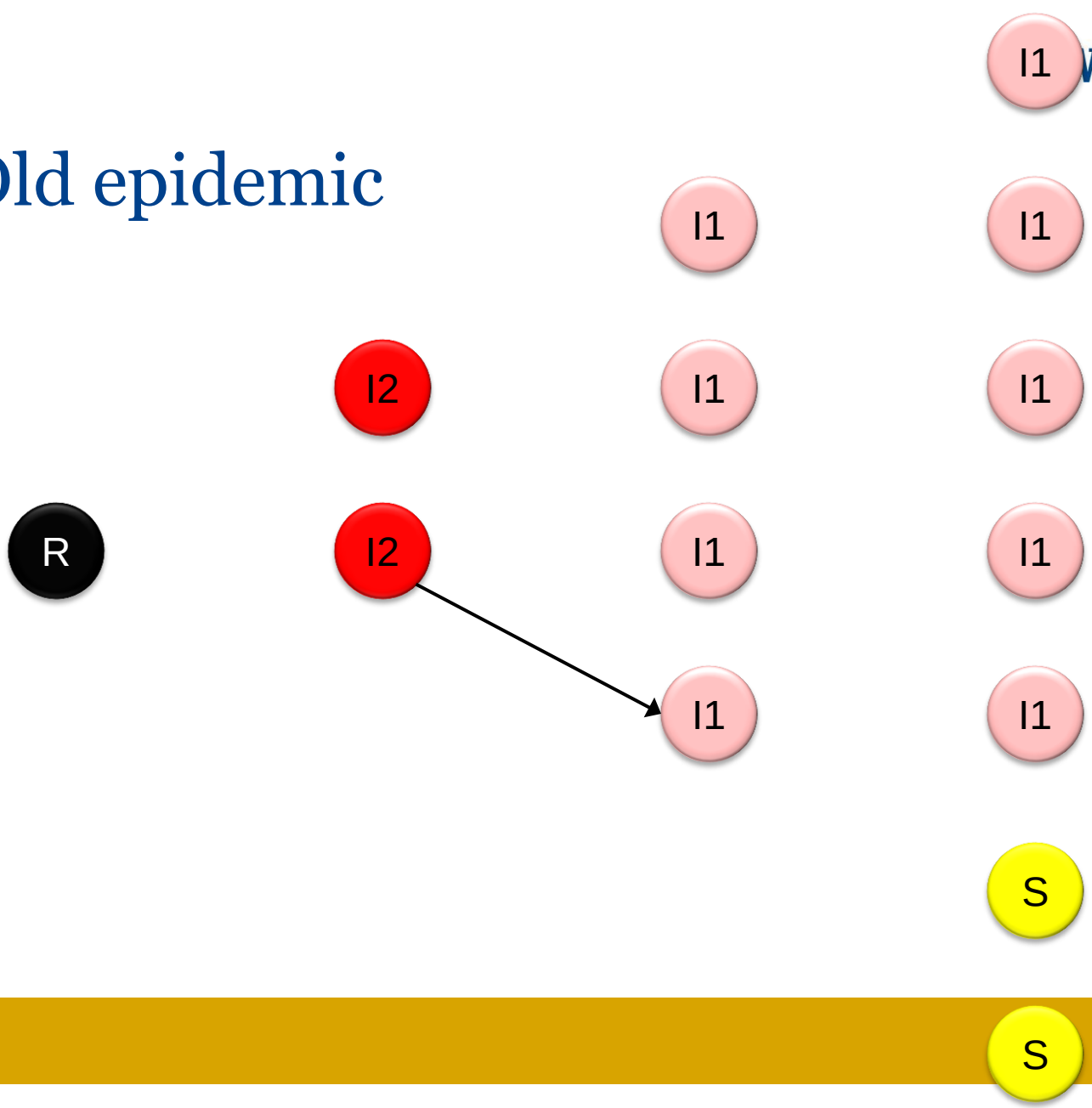
Old epidemic



Old epidemic



Old epidemic



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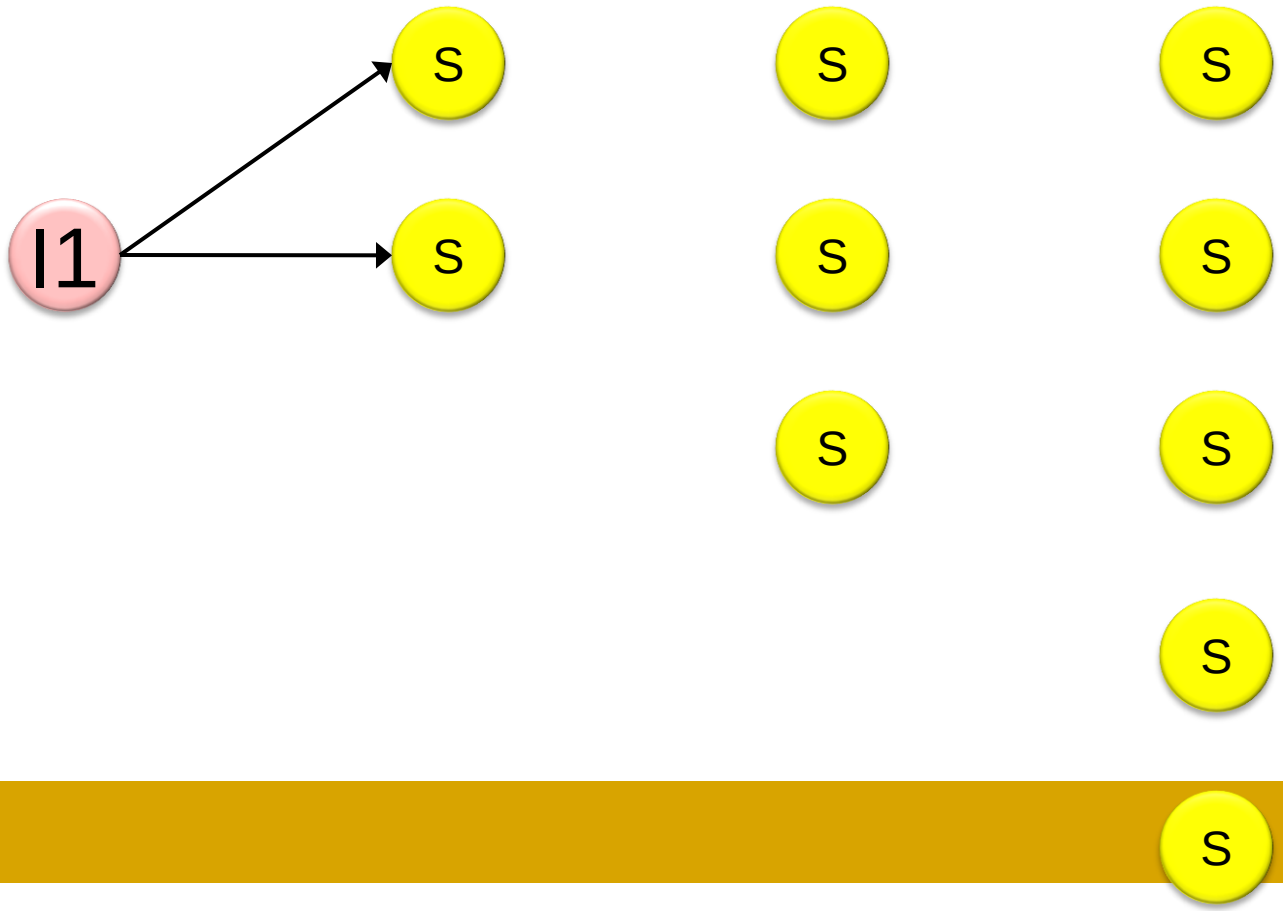
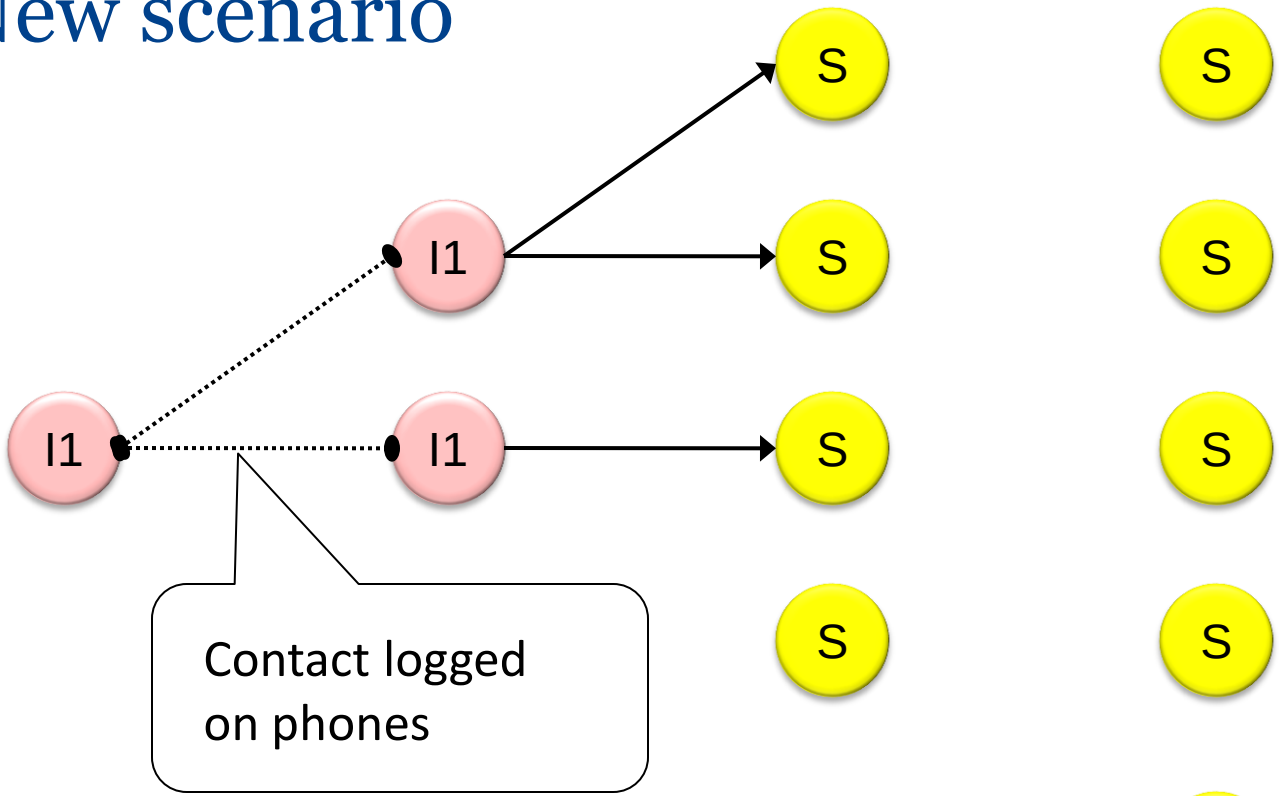
How mobile phones can beat an epidemic

- Mobile phones log IDs of persons nearby (Bluetooth)
- Person that develops symptoms is diagnosed (I2)
- Contact network is reconstructed based on logs
- **(Possibly) infected persons are identified earlier!** (I1)
  - They can be diagnosed earlier, and/or
  - They can be vaccinated earlier / more efficient, and/or
  - They can avoid contact with others earlier, and/or
  - Others can avoid contact with them earlier
- Thus the infection rate can be reduced…?

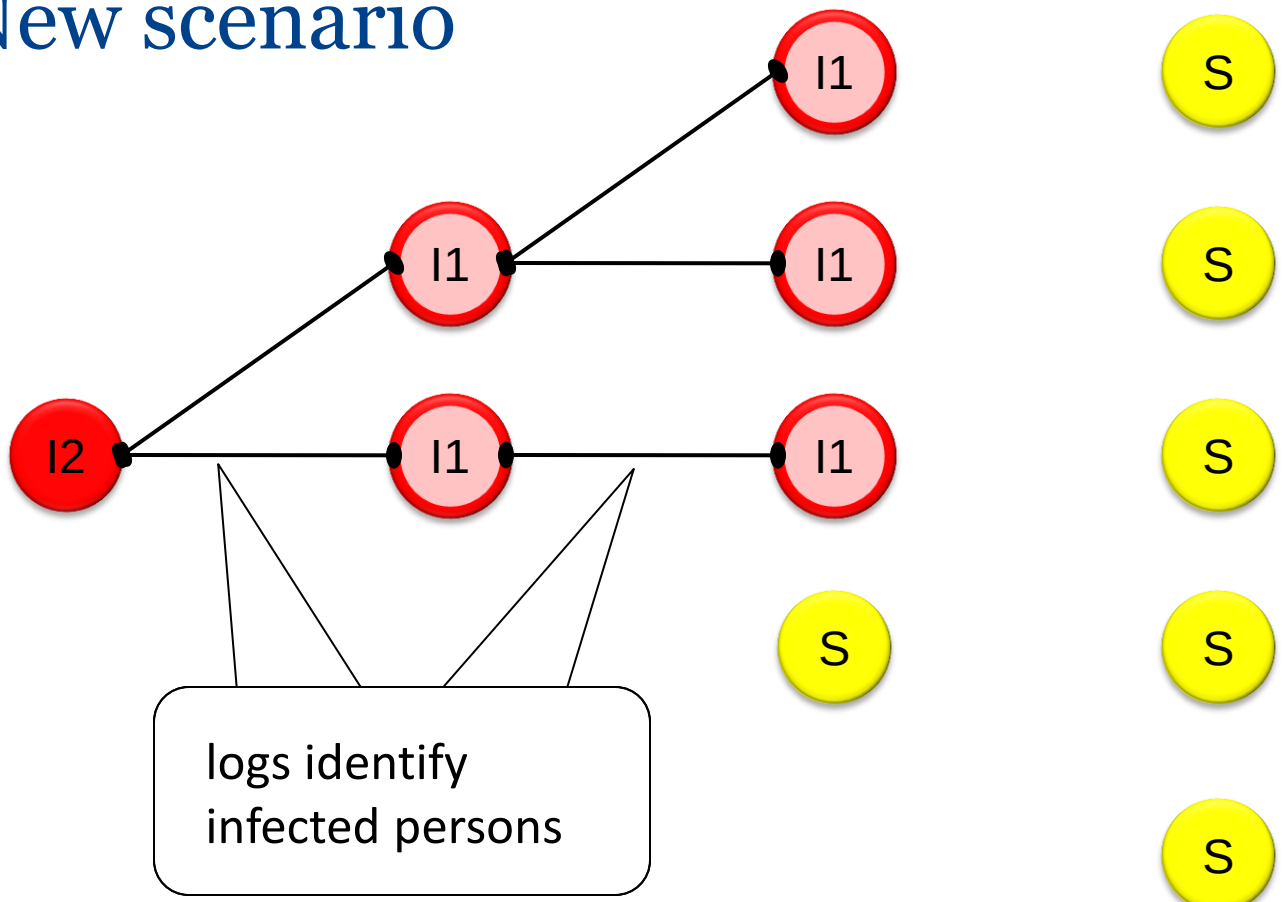
New scenario



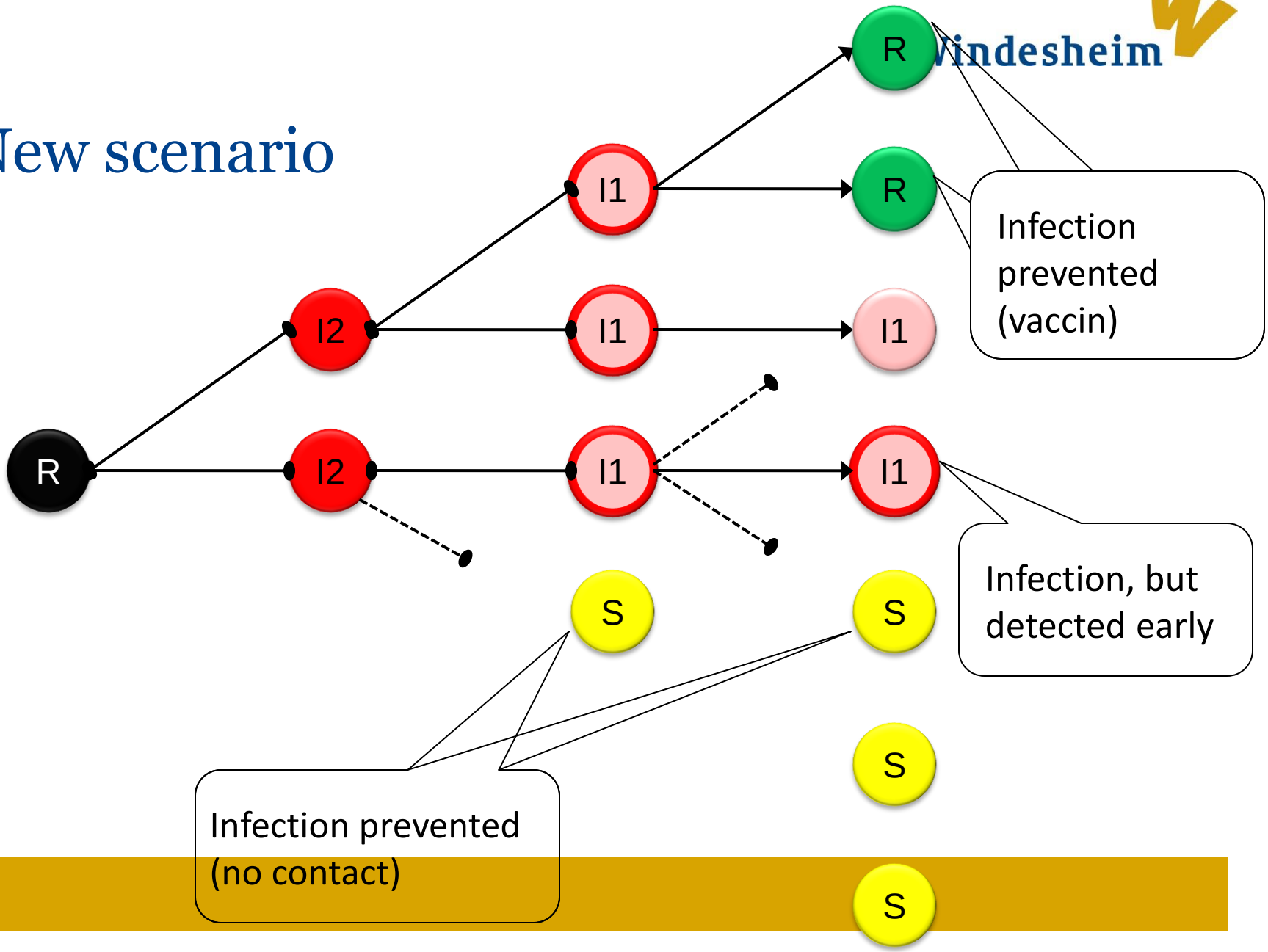
New scenario



New scenario



New scenario



Research questions

- How can we track contacts good enough to:
  - understand epidemics better
  - fight the epidemic
- How can the data be visualised?
- How motivated are people to use such an app?
- How are privacy issues and other ethical issues encountered? Big Brother!
- Which legal aspects need to be taken into account?

Windesheim

Suggestion 3

GEOProcessing
Geographic Information Systems, Applications, and Services

ACHI
Computer-Human Interactions

ICDS
Digital Society

eTELEMED
eHealth, Telemedicine, and Social Medicine

eKNOW
Information, Process, and Knowledge Management

Fighting Epidemics Digitally

DigitalWorld2016 in Venice:
Which joined session are we going to have?

The Internet of Things and Healthy Living

Continuous Learning and Adjusting in Changing Health Care

Fighting Epidemics Digitally