Canada Health Infoway | Inforoute Santé du Canada

Digital Health

Managing the Opportunity and Complexity

Presented by:

Dennis Giokas

Chief Technology Officer

Head, Emerging Technology Group

©Canada Health Infoway 2014

©Canada Health Infoway 2014

Infoway's Refreshed Blueprint

- Address new priorities for health care IT
- Reflect new digital health functional opportunities
- Align with health system transformation initiatives
- Enable transformation
- Guidelines for new programs
- Now the "**Digital Health Blueprint**"

©Canada Health Infoway 2014

Digital Health is Complex

- Health care is complex
  - Communications
  - Information
  - Coordination
  - Collaboration
  - Knowledge and Evidence
- Automating aspects of health care with ICT adds another dimension of complexity
- Emerging technologies are disruptive and complex
- Requires thoughtful ICT strategic decisions

©Canada Health Infoway 2014

Illustrated by….

- Emerging technology drivers and enablers
- Digital health computing environments
- Tailoring workflow
- Information explosion
- Guidelines for clinical decision deployment
- Guidelines on the use of mobile devices and apps
- Remote patient monitoring use case

©Canada Health Infoway 2014

Five Technology Enablers Impacting Health

Cloud Computing

Mobile Computing

Internet of Things

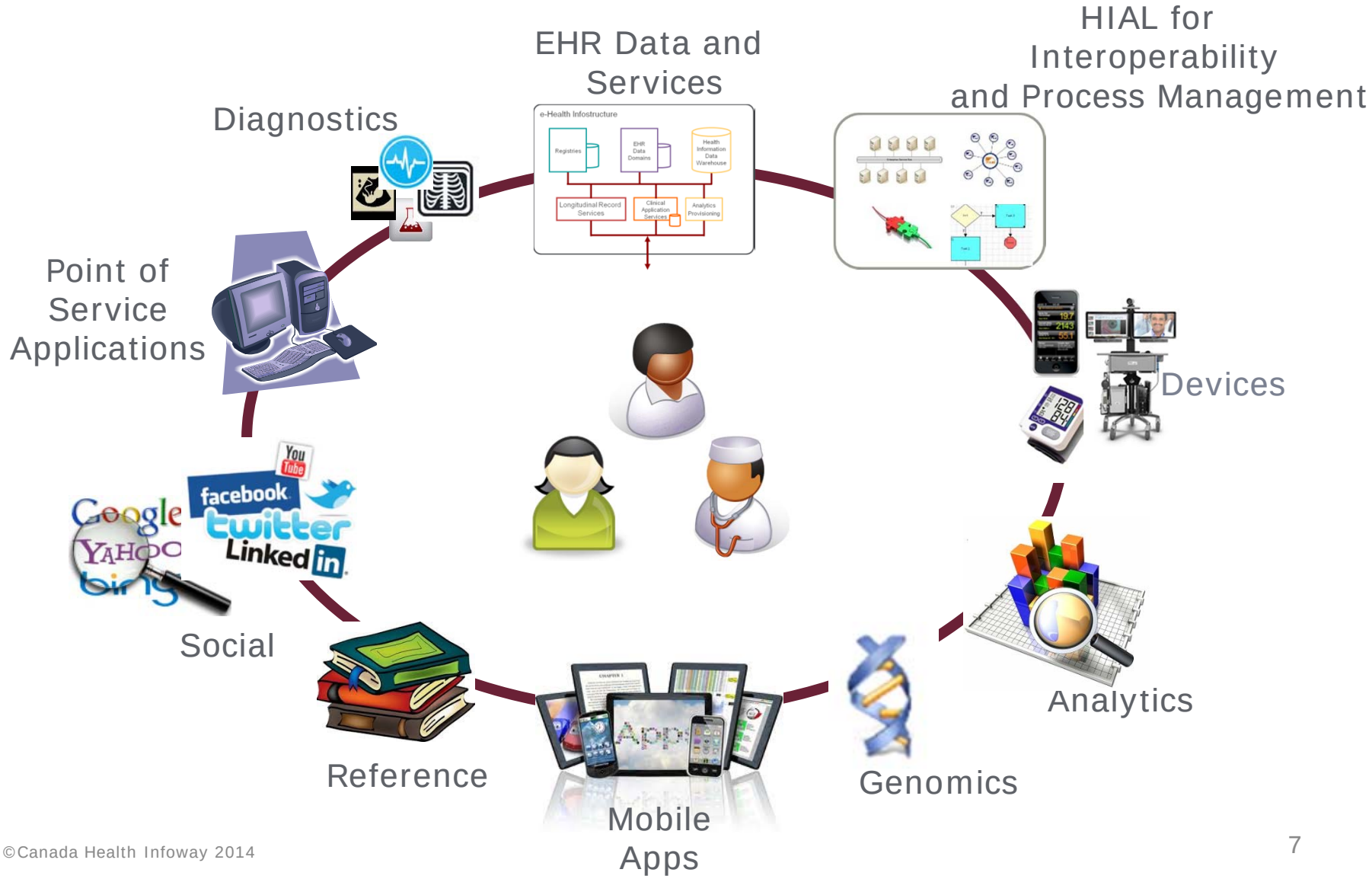
Consumer Enablement

These enablers are intertwined, creating a new computing ecosystem which is user-driven. One that is beginning to accelerate in health. One that will transform health delivery.

Data & Analytics

©Canada Health Infoway 2014

Digital Health Environments



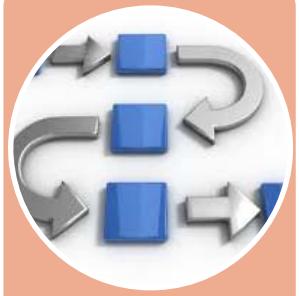
©Canada Health Infoway 2014

Functional Aspects of Digital Health

Health Information

User Interface & Experience

Digital Health Services



Workflow Across the Care Continuum

Communica-tion Across the Care Continuum

Health Analytics

©Canada Health Infoway 2014

Functional Aspects of Digital Health

Health Information

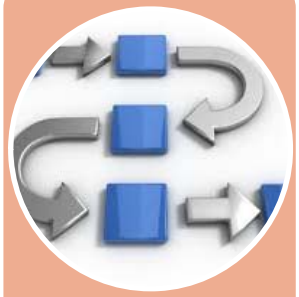
- Nature of information
- Where is it Stored
- Shared
- Exchanged

User Interface & Experience

- Which device
- Centralized
- Local

Digital Health Services

- Common and Reusable
- Cross organizational
- Embedded in devices and applications



Workflow Across the Care Continuum

- Configurable
- Rules-based
- Monitored
- Managed

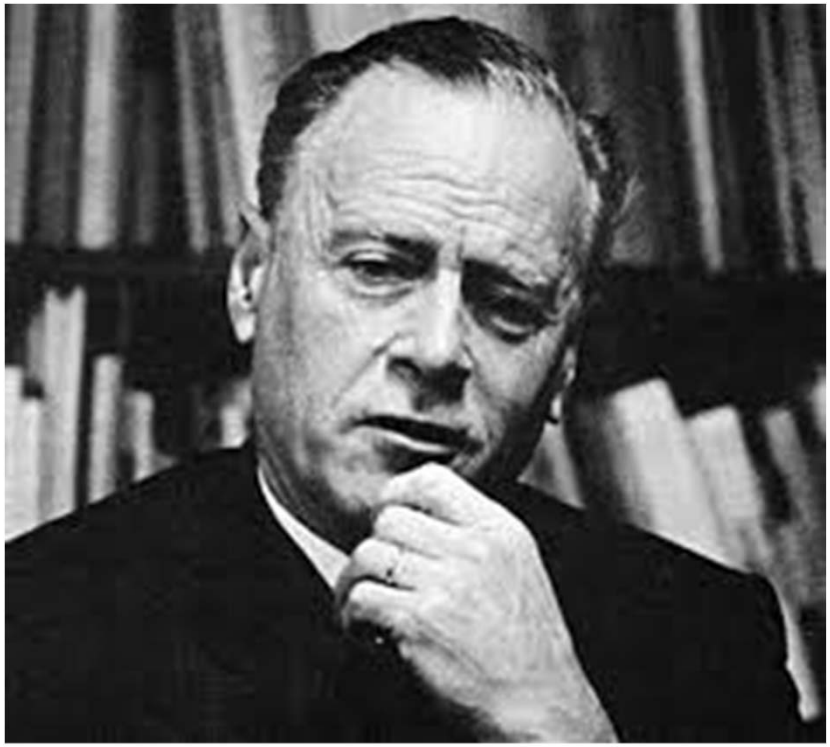
Communica-tion Across the Care Continuum

- Real time
- Store and forward
- Push-pull
- Which device(s)

Health Analytics

- Real time or periodic
- Contextually appropriate
- Across multiple sources

©Canada Health Infoway 2014



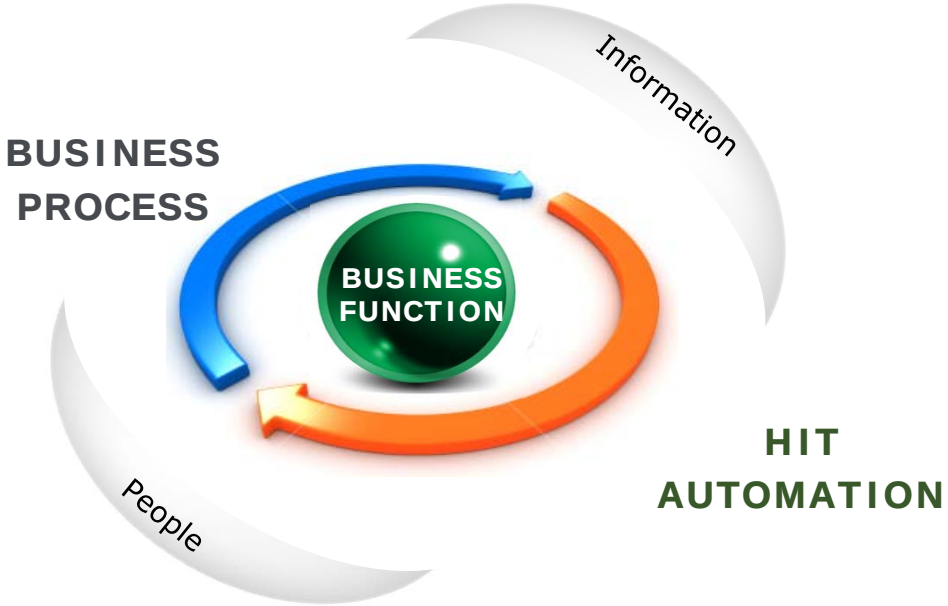
Technologies are not simply inventions which people employ but are the means by which people are reinvented.

Marshall McLuhan

©Canada Health Infoway 2014

How?

"Providers must do their part by reengineering care processes to take full advantage of efficiencies offered by health IT…"



Source: Arthur L. Kellermann and Spencer S. Jones, "What It Will Take To Achieve The As-Yet-Unfulfilled Promises Of Health Information Technology", Health Affairs, 32, no.1 (2013):63-68

©Canada Health Infoway 2014

Did You Know?

- Clinical and administrative workflow and decision support can be tailored based on:
  - Clinical data
  - Context (role and place)
  - Personal preferences
  - Business rules
  - Clinical practice guidelines
- Benefits
  - No need to adhere a single process
  - Manage, monitor and evaluate the process
  - Agile – can easily adjust as process improvements are identified

©Canada Health Infoway 2014

Digital Health is Information Intensive

©Canada Health Infoway 2014

We have become like the most primitive Palaeolithic man, once more global wanderers, but information gatherers rather than food gatherers. From now on the source of food, wealth and life itself will be information.

Marshall McLuhan

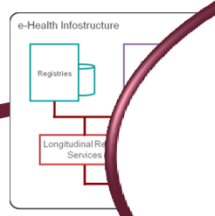
Source: "The Agenbite of Outwit“, McLuhan Studies, Volume 1 Issue 2, January 1998

©Canada Health Infoway 2014

Digital Health Information

By 2015 - 665 TB in the avg hospital

EHR Data and Services



PubMed: 22.6 million records

- 1 million articles indexed annually
- 13% of articles published in NEJM in 2009 were reversals of previous findings
- 50% of clinical guidelines become outdated in < 6 years

Clinical Applications

Clinicians must stay on top of:

- 10,000+ diseases & syndromes
- 2,000+ Rx
- 1,100+ lab tests

Analytics

Reference

Mobile Apps

Genomics

©Canada Health Infoway 2014

Digital Health Information

EHR Data and Services

HIAL for Interoperability and Process

Mobile devices and apps
- 100,000+ mobile health and fitness apps
- Consumers downloaded 24 million health apps in 2012
- CMA survey on professional use:
  - 53% use iPhone
  - 32% use the iPad
  - 32% use BlackBerry or other smartphone or tablet device

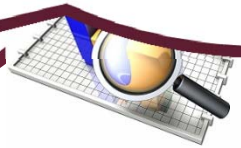
Human Genome for personalized medicine
- 3GB
- Approaching $300
- Millions of variants

Social

Reference

Mobile Apps

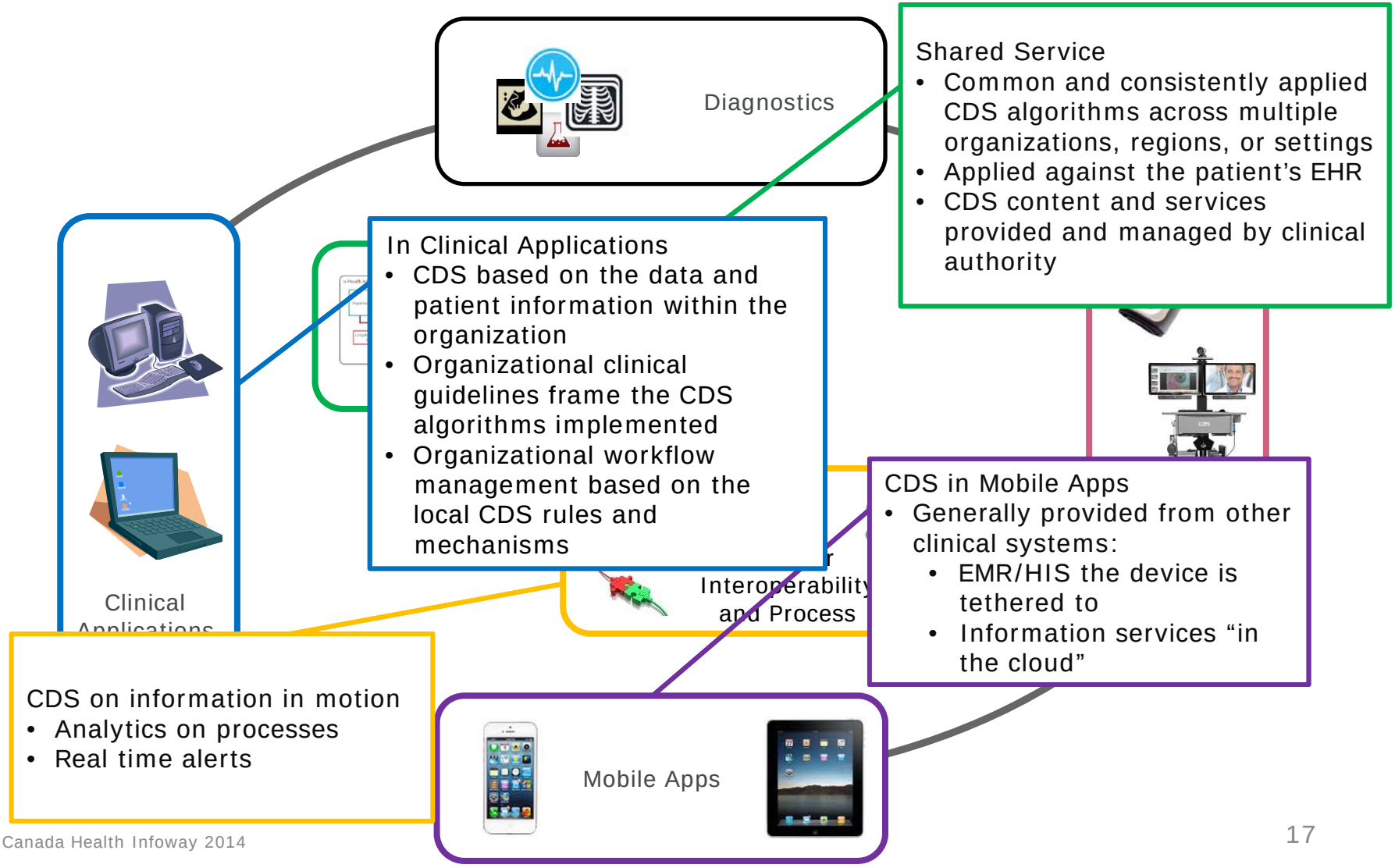
Genomics



Analytics

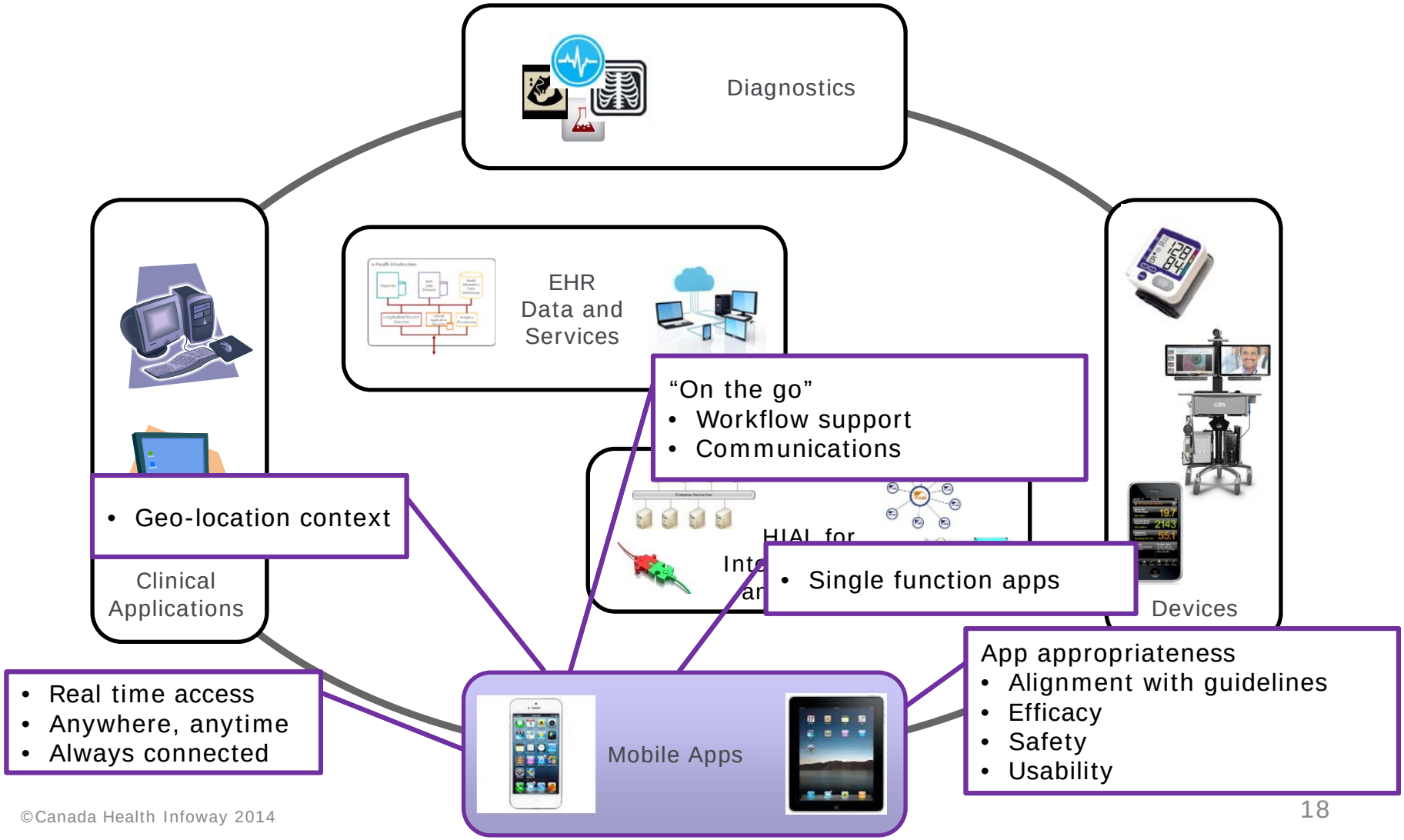
©Canada Health Infoway 2014

Clinical Decision Support Deployment



©Canada Health Infoway 2014

Use of Mobile Devices and Apps



©Canada Health Infoway 2014

Remote Patient Monitoring Use Case

- Remote patient monitoring of blood pressure
  - Utilizing a mobile device and app
  - Biometrics to an electronic monitoring service
  - Alerts to family physician
  - Communication to patient

©Canada Health Infoway 2014

Canada Health Infoway | Inforoute Santé du Canada

Remote Patient Monitoring - Workflow

1. Referral to RPM service: Based on RM service availability the clinician refers the patient into a specific RM program (ex. diabetes management, post surgical discharge, etc.)

2. RPM Service enrollment:
Service determines if the patient qualifies for the RPM program. Patient record and care plan created.

3. Asset Management:
New patient request sent to Asset Management. Equipment, ordered, configured, shipped to patient's home.

4. Setup & Training:
Setup performed by the patient or care provider, then training delivered remotely or via the care provider

5. Health data collected & transfer:
Biometric & health data collected and transferred to a RPM service provider.

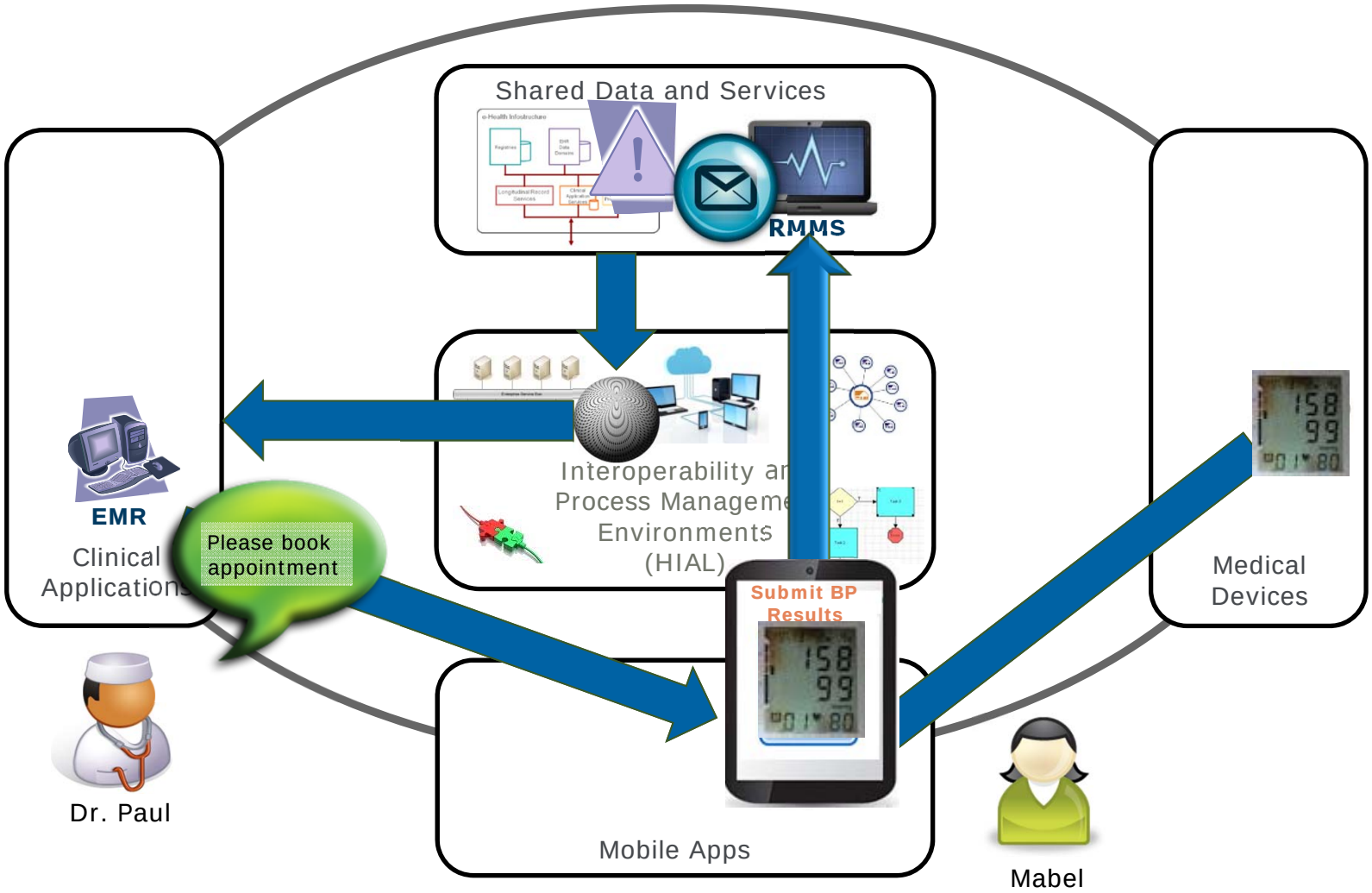
6. Monitoring of health data:
analyse and monitor patient data comparing it against patient's care plan

7. Patient follow up as required: Clinician calls or books an appointment with the patient when results vary from Care Plan.

8. Summary data submitted to EHR:
Relevant clinical summary data submitted to a Digital Health System (e.g., EHR, EMR, PHR, etc.)

©Canada Health Infoway 2014

Remote Patient Monitoring



©Canada Health Infoway 2014

In Summary - Blueprint Illustrates

- Leveraging existing investments in the EHRS
- Guide for the solution architecture
  - Appropriate use of various computing environments for specific functionality
  - How to tailor, configure and manage clinical and administrative processes
  - Effective use of modern and emerging technologies
  - Future *Infoway* investment programs
- Guidance for ICT strategic plans and roadmaps based on priority business functions and implementation choices

©Canada Health Infoway 2014

Thank you

Website: www.infoway-inforoute.ca

ETG Resources: https://www.infoway-inforoute.ca/index.php/resources/technical-documents/emerging-technology

E-mail: dgiokas@infoway-inforoute.ca

Blog: http://infowayconnects.infoway-inforoute.ca/

Twitter: @Infoway

©Canada Health Infoway 2014