Enabling Advanced Analytics

Alignment of Strategy, Technology & Organizational Structure

eHealth June 8, 2016

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Department of Health & Wellness

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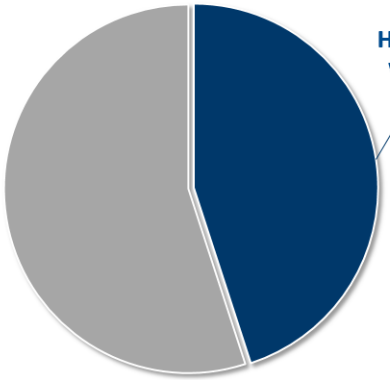
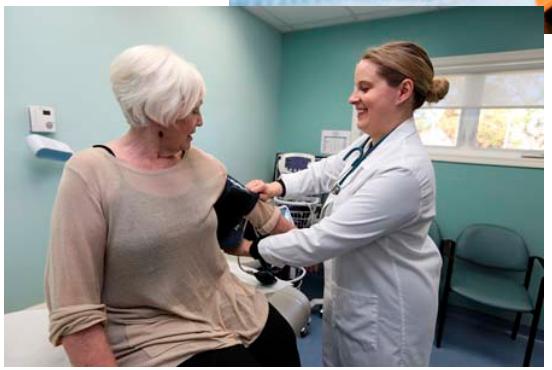
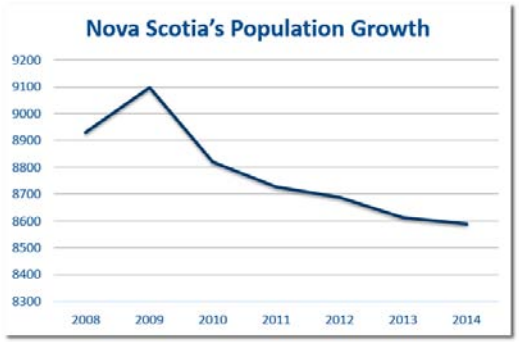
Driving Forces



Provincial Budget (2015)





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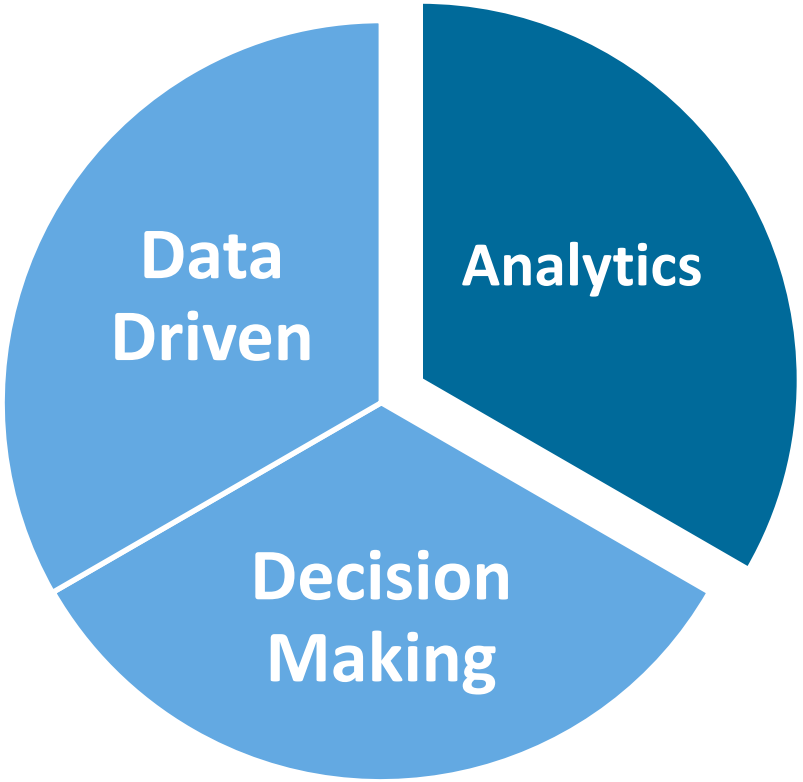
Rational for Change

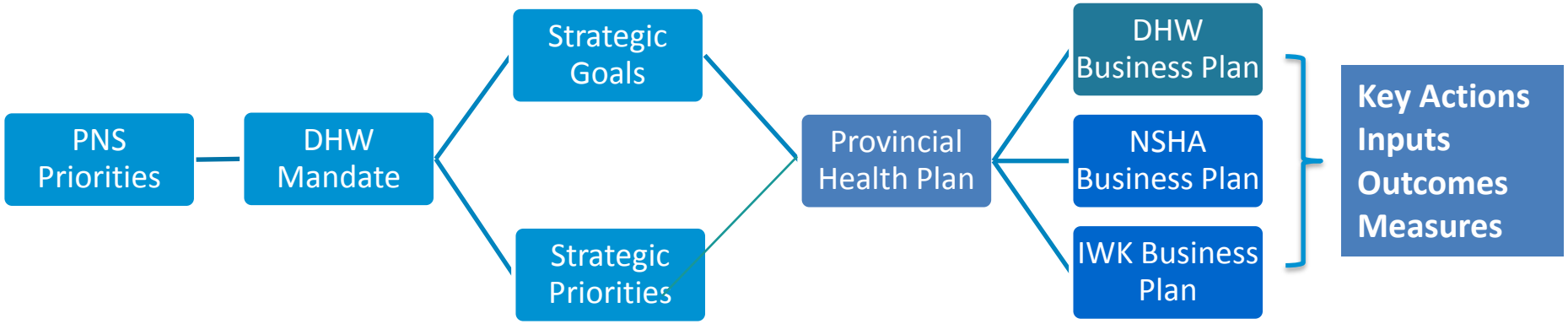
- Nova Scotia health system is data rich due to the increasing adoption of electronic information systems
- The need for timely and reliable information has never been greater
- Government spending on healthcare is not sustainable
- Different data sets could be leveraged to provide additional insights and enable better informed decisions
- Health system is looking for innovative methods to assess and improve efficiency



Role of Government – Accountability

Health System Use of Data

Set Strategic Policy Directions, Priorities, Standards, Funding, Measuring, Monitoring



Govern, Manage, Provide Health Services; Implement Strategic Direction

Primary & Clinical Use of Data

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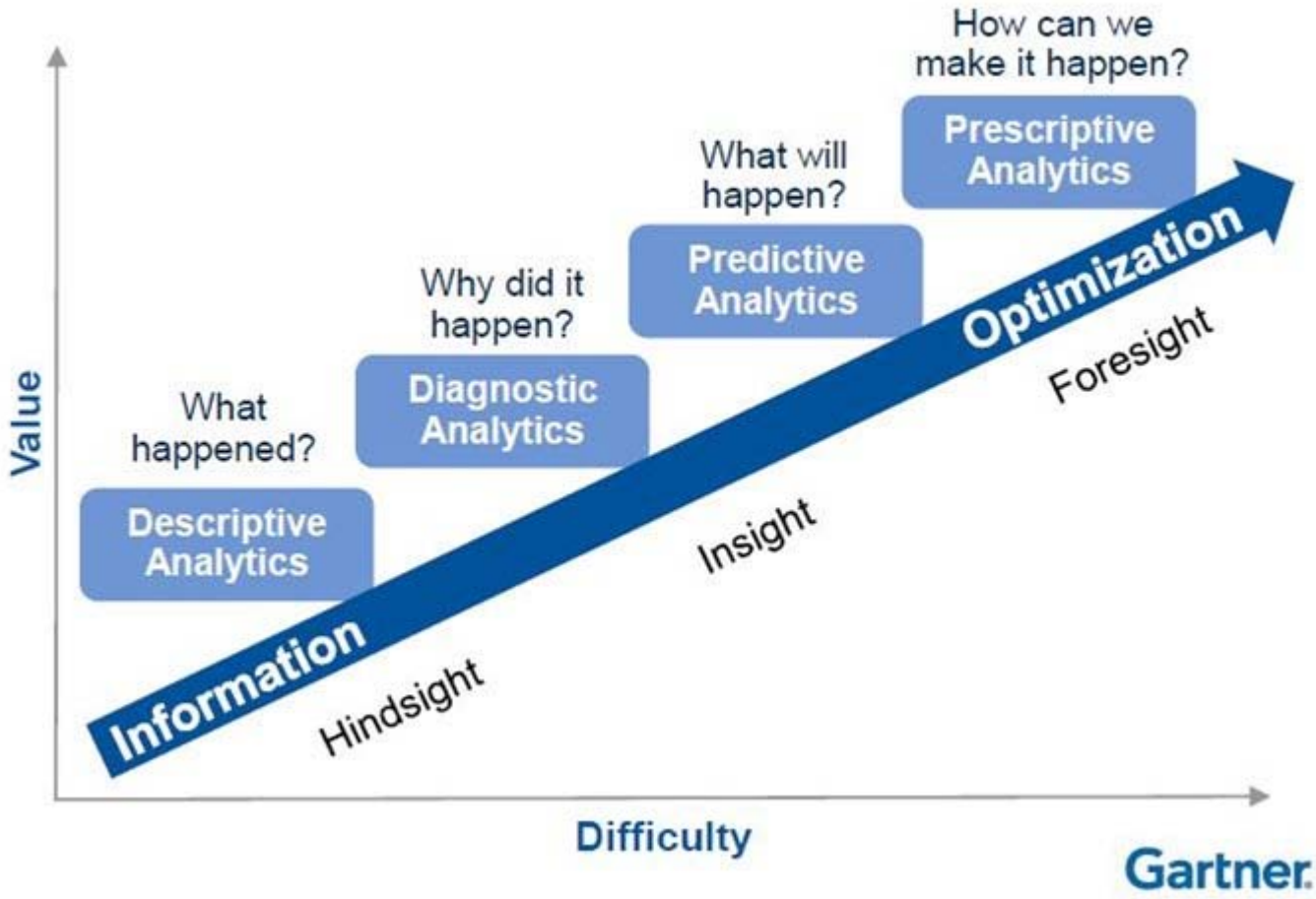
Hindsight – Insight – Foresight Discovery



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Driving Value & Improving Patient Care

Performance Optimization

- Bed numbers / management
- Clinical support (e.g., labs)
- Case costing
- Space utilization/infrastructure
- Procurement/contracts
- Workforce optimization
- Clinical productivity and variation
- Patient flows (simulations)
- Safety and harm
- Wait list management

Health System Design

- Funding mechanism
- Demand management
- Policy priorities
- Integration
- Health System reconfiguration
- Eliminating clinical variation
- Wait time management and reporting
- Outcomes measurements and optimization
- Financial control

Genomics & Personalized Medicine

- Pharmaceutical effectiveness
- Personalized Onco-genomics
- Risk stratification
- Remote health monitoring
- Wearables and devices
- Predictive health for individuals
- Artificial intelligence – robotic clinical interaction

Clinical Decisions & Pop Health

- One person one record
- Disease self-management
- Clinical pathway development and compliance
- Outbreak management
- Disease prevalence
- Social media monitoring and engagement
- Social determinants of health
- Health prevention and promotion

Analytics Value Proposition

Increased Efficiencies

Decreased Costs

Improved Health Outcomes

Enabled by

Organizational Culture

Partnerships
Strategic & Operational

Data Governance

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Nova Scotia's 2014 Project

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2015 Advanced Analytics Project

Purpose

Develop a strategy to enable advanced analytics within DHW and build a case for change

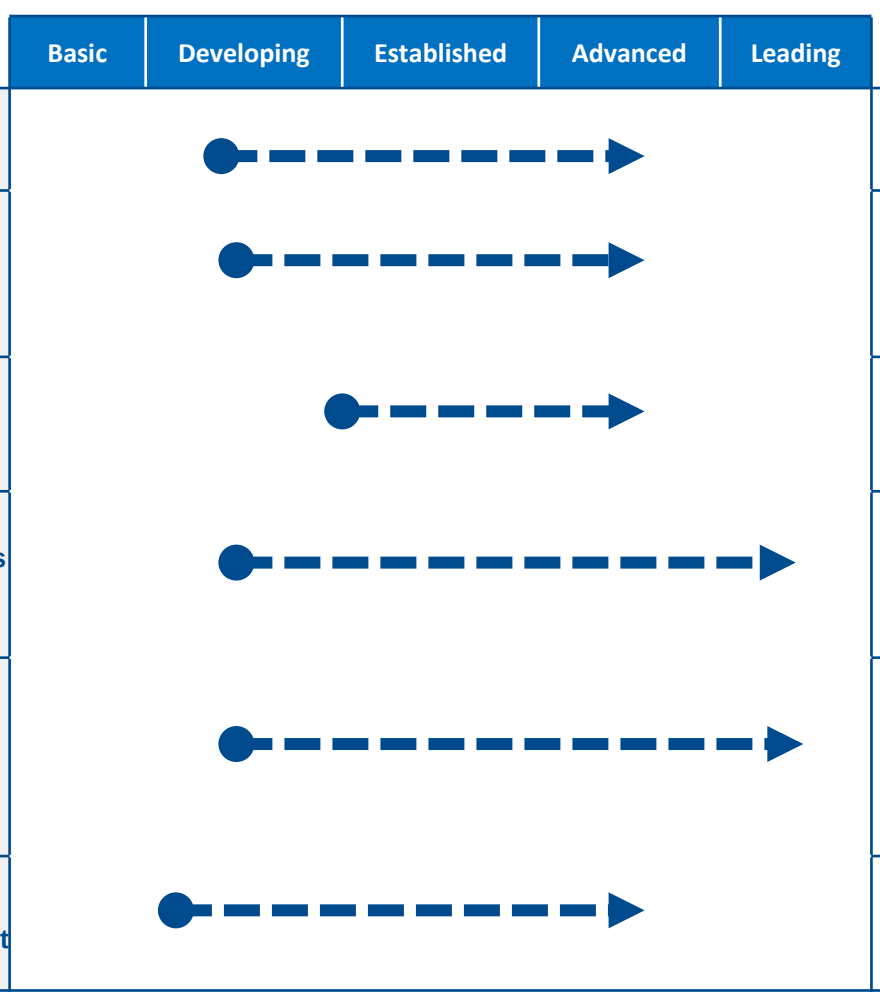
Objectives

- **Identify opportunities** for the use of advanced analytics
- **Engage and collaborate** with existing teams & efforts
- **Showcase the value of analytics**

Outcomes

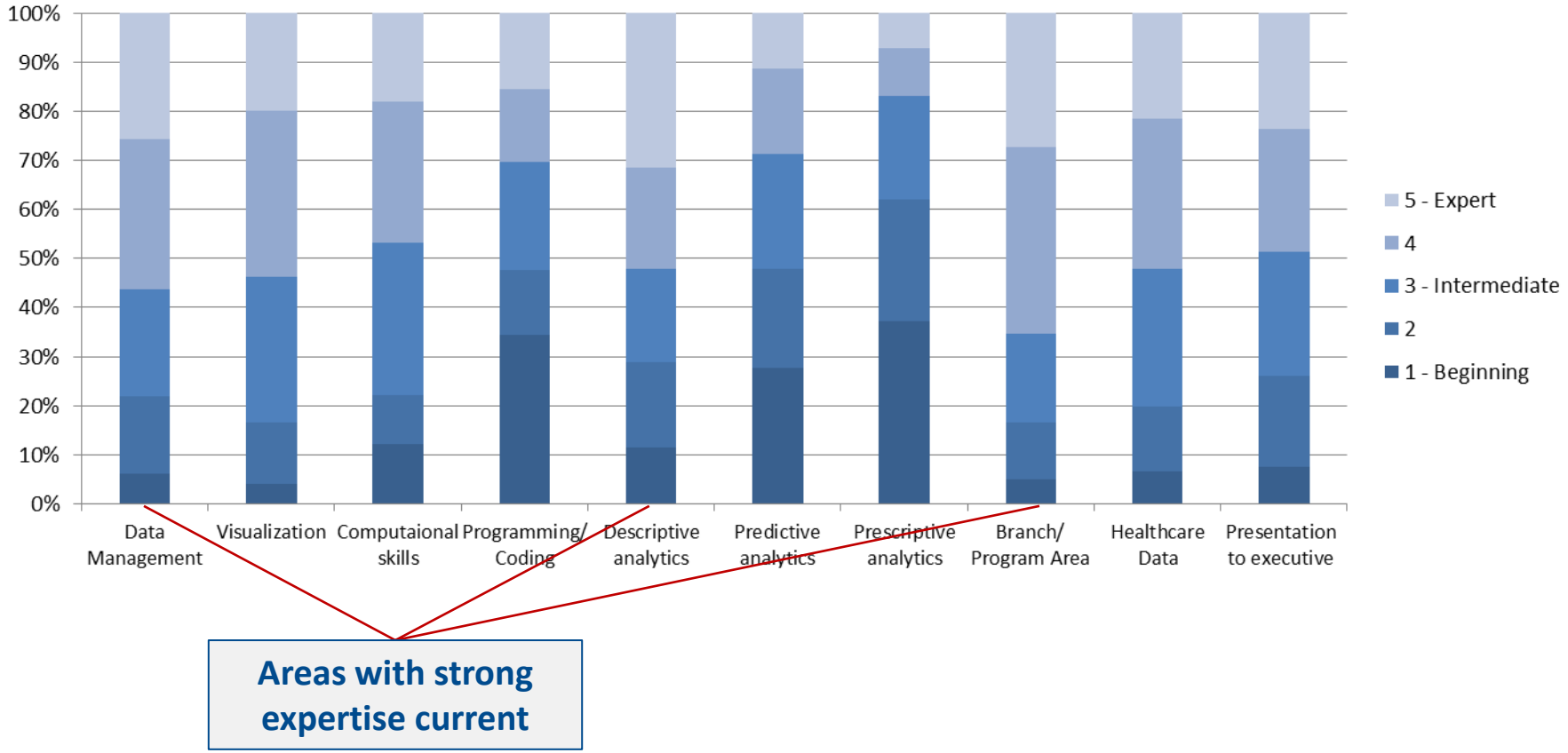
- **Roadmap** to achieve the future state operating model
- **Business case** to support and enable transformation
- **Proof of concept**
- Requirements for achieving a **scalable solution** (health system and government)

Maturity Assessment: Summary



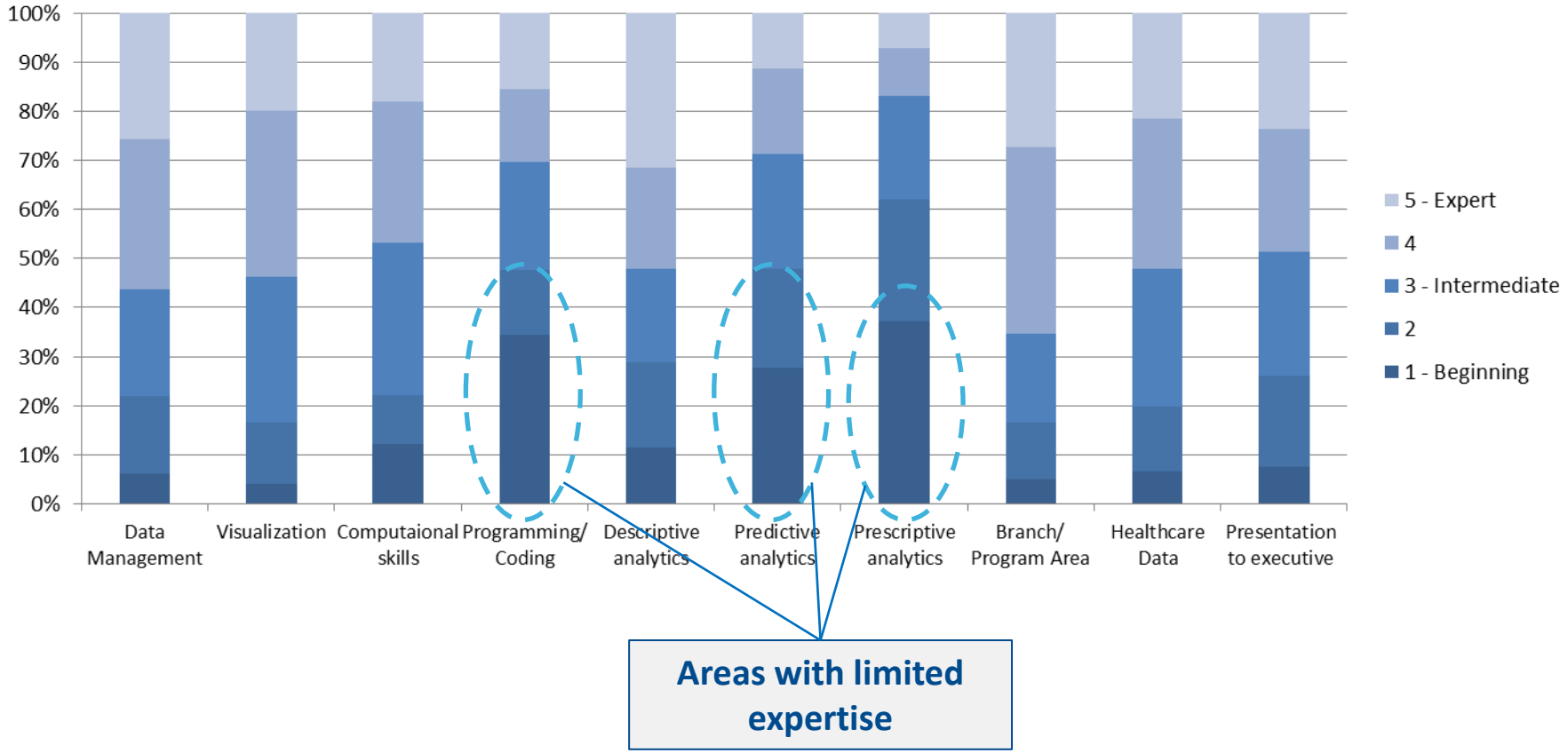
Process and Governance	• **Privacy processes well defined,** opportunity to create an enterprise process and reduce ad-hoc requests
People and Organizational Maturity	• **Advanced analytics competencies exist within DHW**, opportunity exists to integrate cross-functional silos, while hiring, training and development can be a challenge in public sector
Data	• **Multiple data sets accessible however within silos**, opportunity to improve data usage and master data, in parallel and alignment to the implementation of OPOR
Analytics Methods and Techniques	• **Strong educational background and competencies** indicate opportunities to expand further into predictive and prescriptive analytics while increasing agility of the overall advanced analytics function(s)
Tools and Technology	• **Underutilized applications and redundancies** across branches/programs.(e.g. SAS). Opportunity exists to reduce redundancies and define a clear stack of tools and potential relationships with software providers, and increasing automation potential.
Performance and Value Management	• SLAs rarely exist between branches/programs, leading to **minimal performance benchmarks** being measure regularly and/or target setting

Competency analysis: Analytics skills



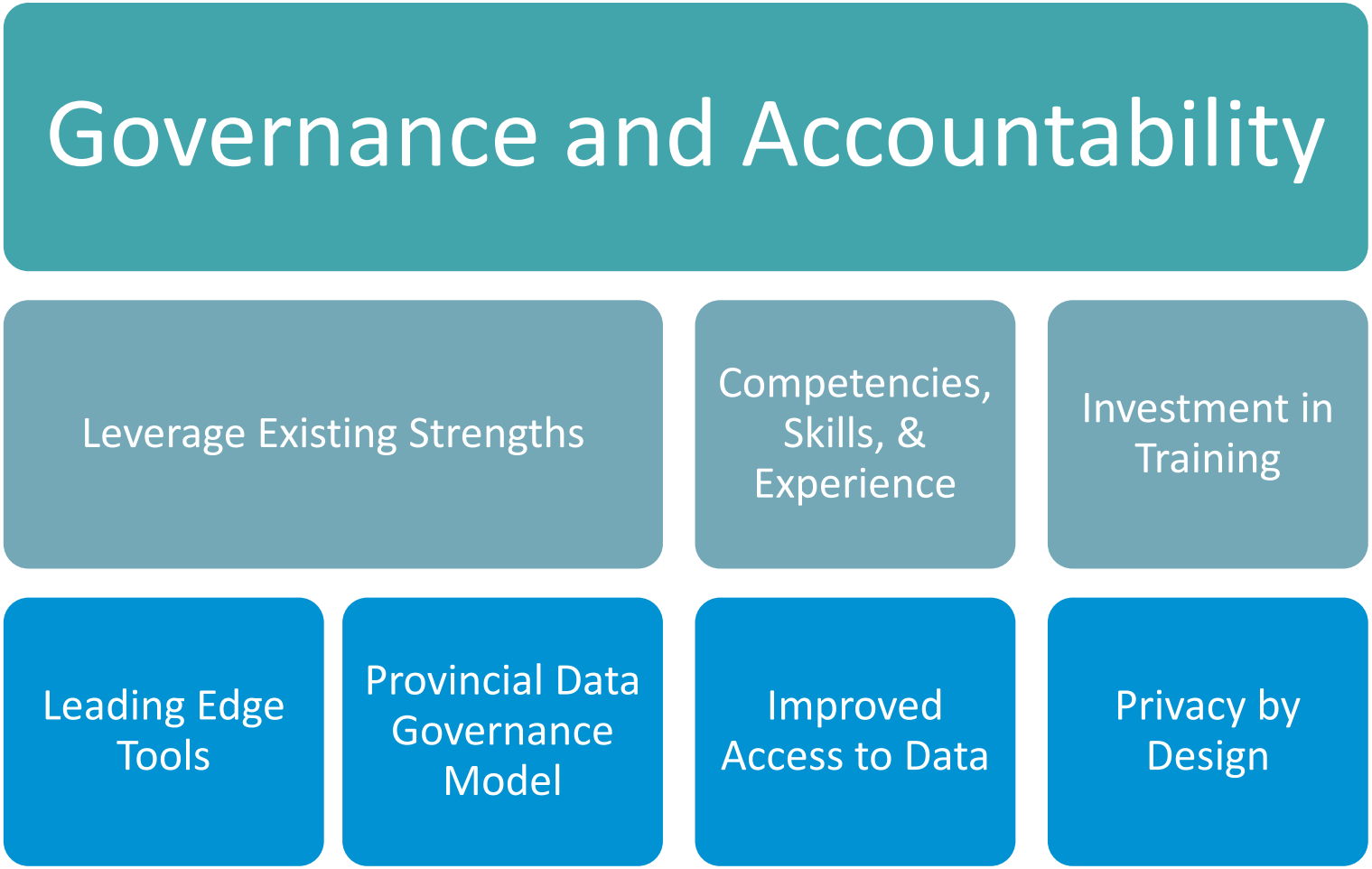
Overall, current teams self assessed as having strong skill-sets across key competencies such as descriptive analytics, data management and general context knowledge. A key area for enhancement is around completing predictive and prescriptive analytics and their enablers (e.g. programming).

Competency analysis: Analytics skills



Overall, current teams self assessed as having strong skill-sets across key competencies such as descriptive analytics, data management and general context knowledge. A key area for enhancement is around completing predictive and prescriptive analytics and their enablers (e.g. programming).

Key Design Considerations



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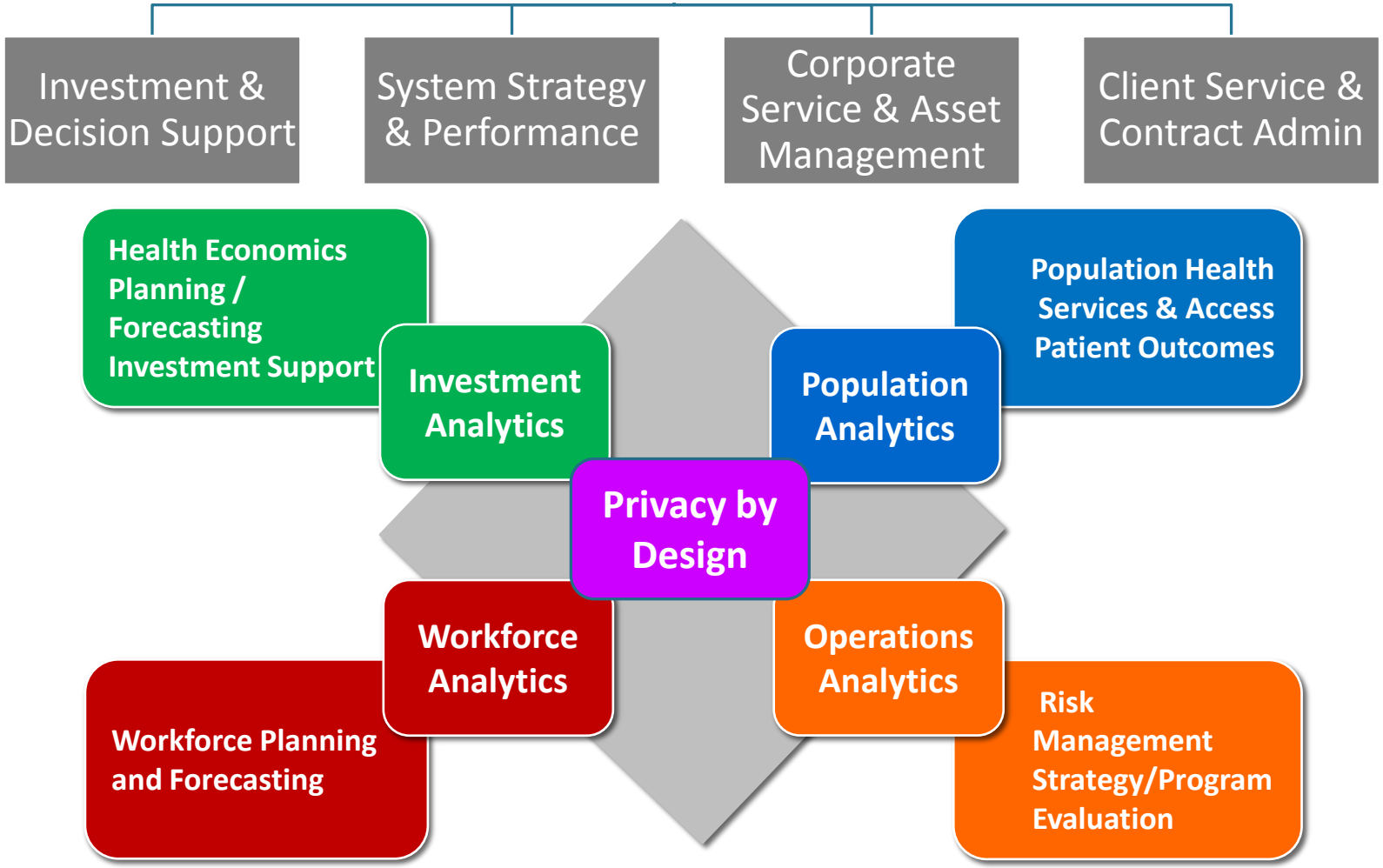
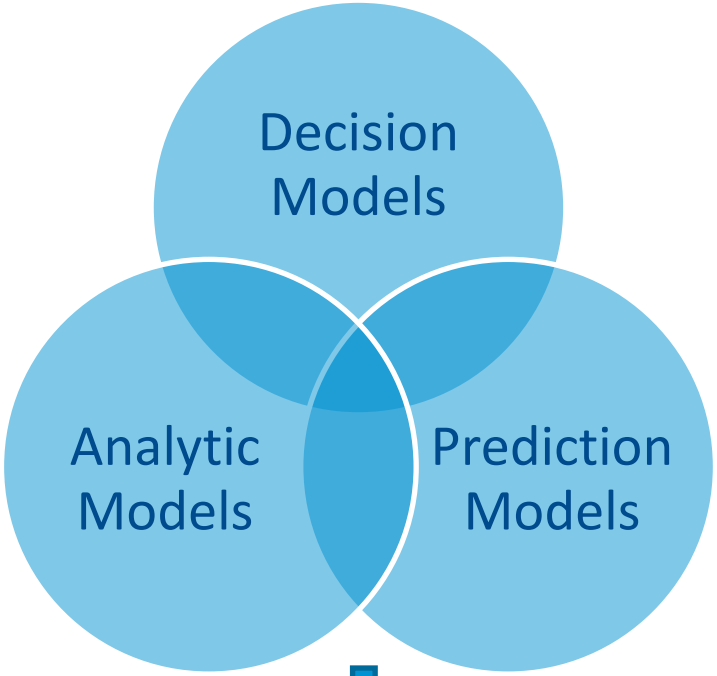
Integrating Analytics into Core Business



Evidence Based Decisions

Planning, Investment, Performance Management, Risk Management, Evaluation, Reporting, Visualization

Working in Tandem



Information Management

Privacy & Access

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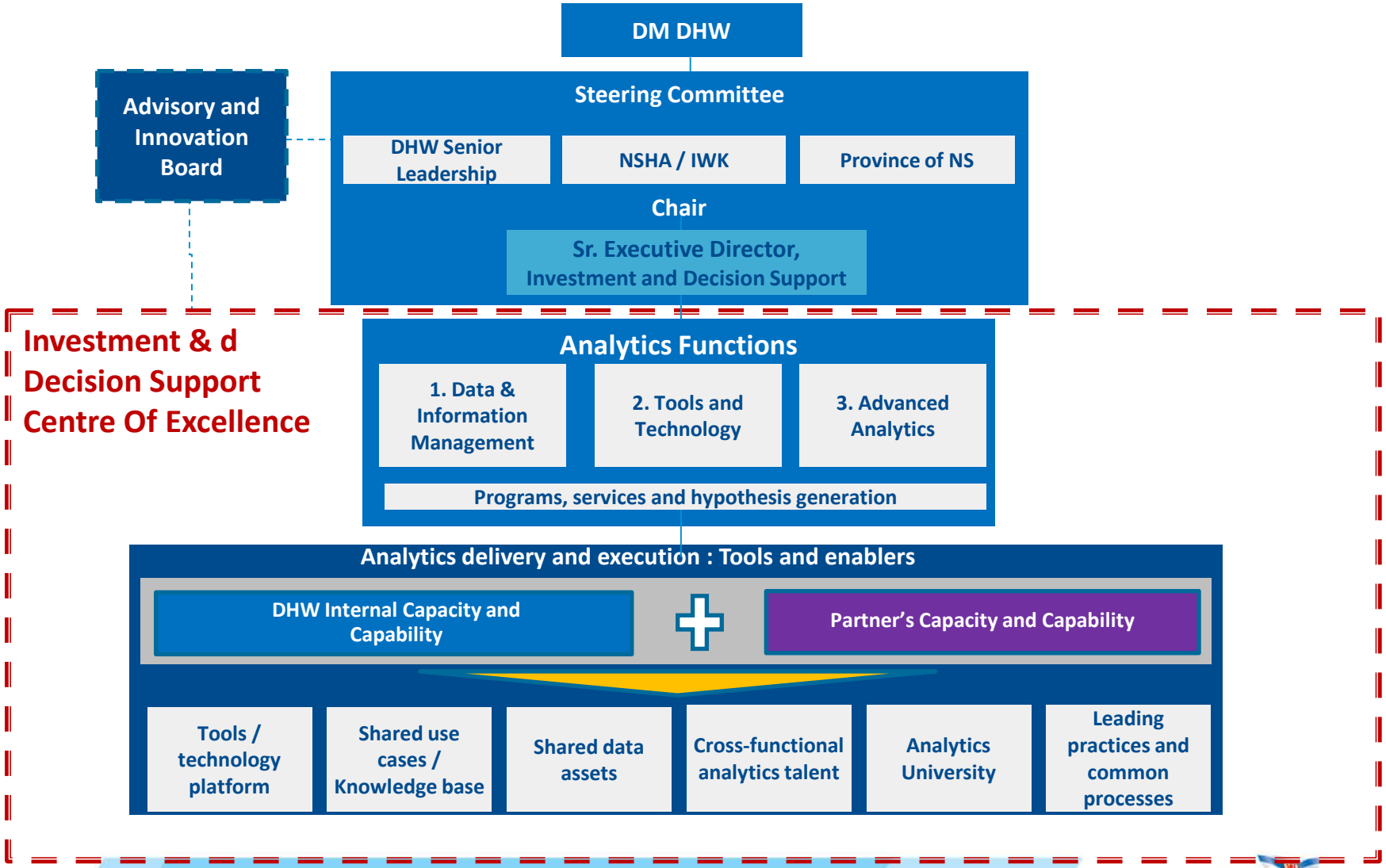
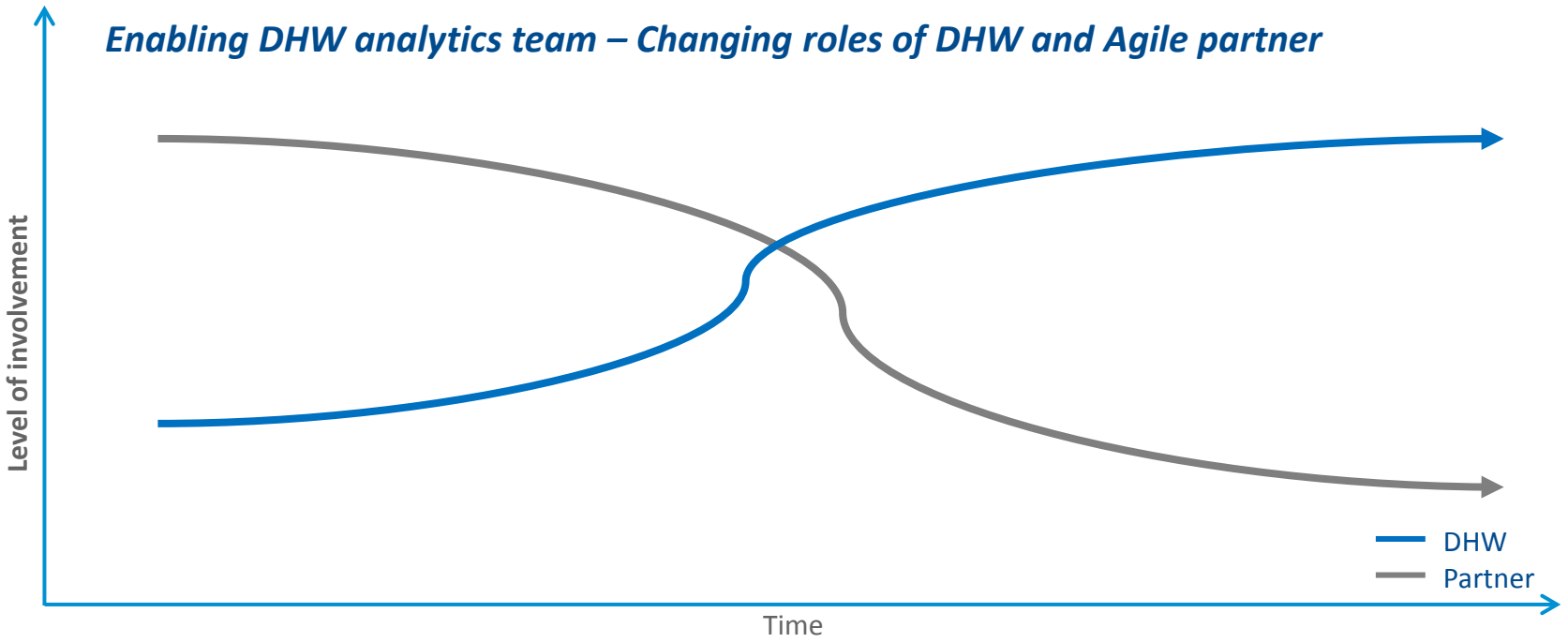
Agile Analytics Model



Building Capacity - Partnerships

CARET Program

Benefits of an Agile Analytics Model



Observations

- The key advantage of agile analytics model is that it enables to embark on rapid value delivery projects immediately leveraging partner capabilities / competencies initially given current state gaps
- Over time the partner role diminishes considerably

An Agile Approach

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Requirements of an Agile Model

Focus on the People and the Culture (Leadership, Change Agents, Build Capacity)

Solid Governance Model (SC & Advisory Board)

Strong Partnership Model (Strategic & Operational)

Commitment to Data Governance (Collaboration with Health Authorities)

Focus on Priority Work

Sound Methodology (Rigor)

Evaluate & Measure Value

Identify Quick Wins

Take Action (Build a culture of Enquiry & Discovery)

Make Data Interesting (Use visualization and Story Telling)

REMAIN AGILE (Innovate, take calculated risks, evolve, be accountable)

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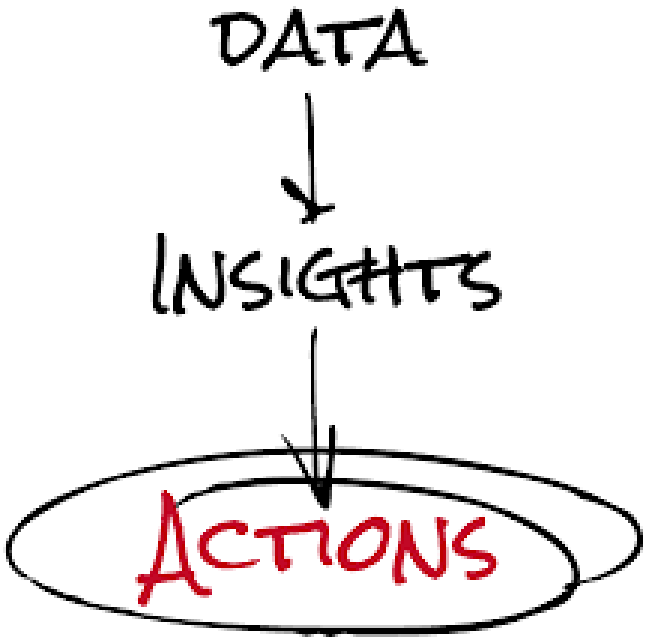

DATA
INSIGHTS
ACTIONS

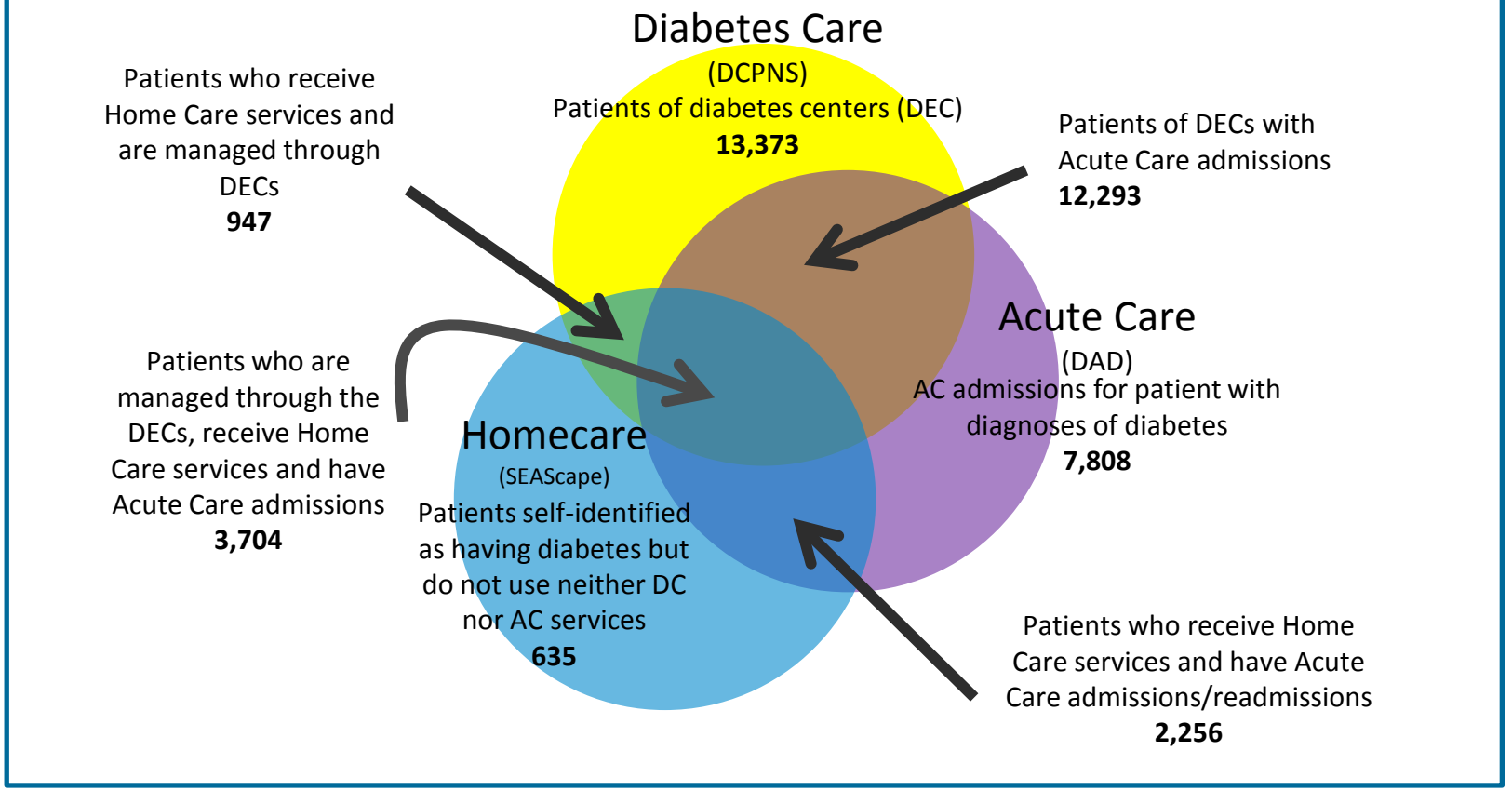
THANK YOU

Identification of patients in scope for homecare and diabetes

The patient cohort selected identified 41,016 patients receiving care relating to diabetes, only 30,317 are patients of diabetes centres

Population of NS: ~ 940K

Population of NS >65 Years: ~173K



Circles represent those HCNs identified as having appeared in the database and are assumed to have diabetes