

DAaaS for Healthcare

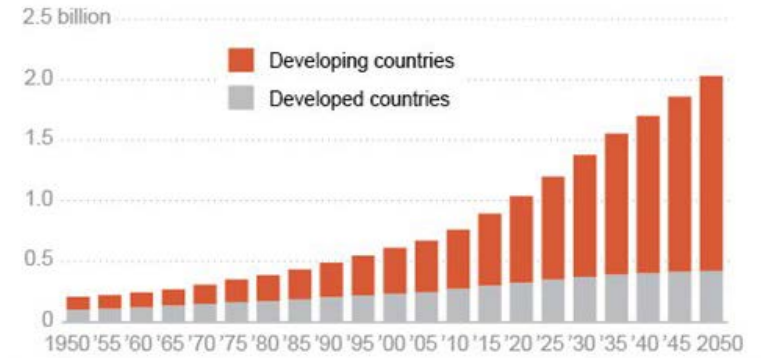
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1

Introduction

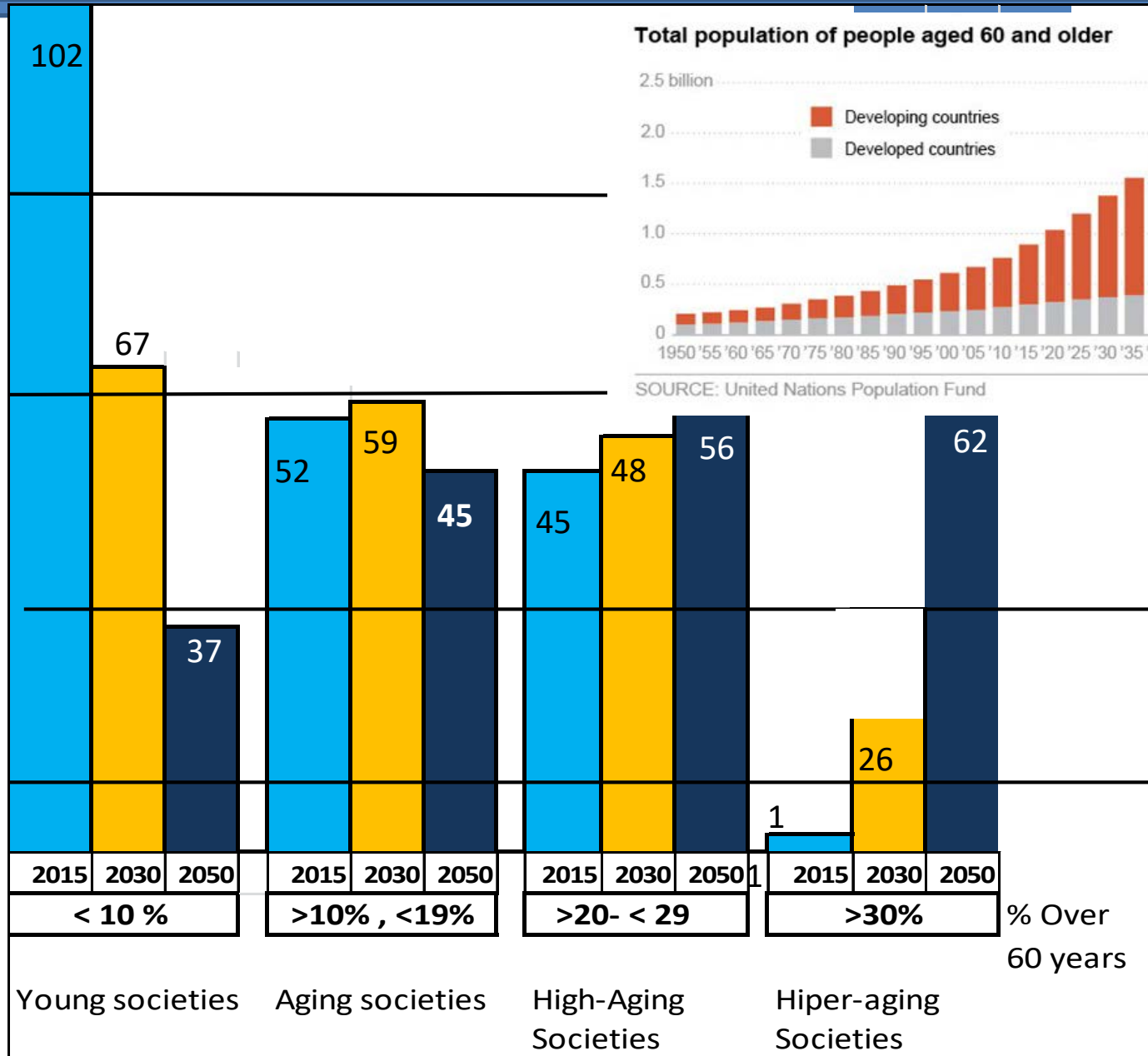
Total population of people aged 60 and older



SOURCE: United Nations Population Fund

AP

Source:
www.helpage
.org



Prevention

- Aging population
- Increase of chronic conditions

Efficiency

- Shortage of human resources
- Increment of treatment duration

Economy

- Less taxes revenue
- Less funds for supporting healthcare

Patient centered

- Ever demand for better healthcare
- More ICT skilled elderly

Healthcare Digital Transformation

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Healthcare (Digital) Transformation

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High-
throughput

- Biomedicine

IoT

- Home monitoring

Better
diagnosis tools

- MERs, HERs
- Hospital Technology

DATA

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Evidence
cost/outcome

- Outcome patient based model

ICT

- Data Driven Healthcare

Long
life journey

- Focus on prevention

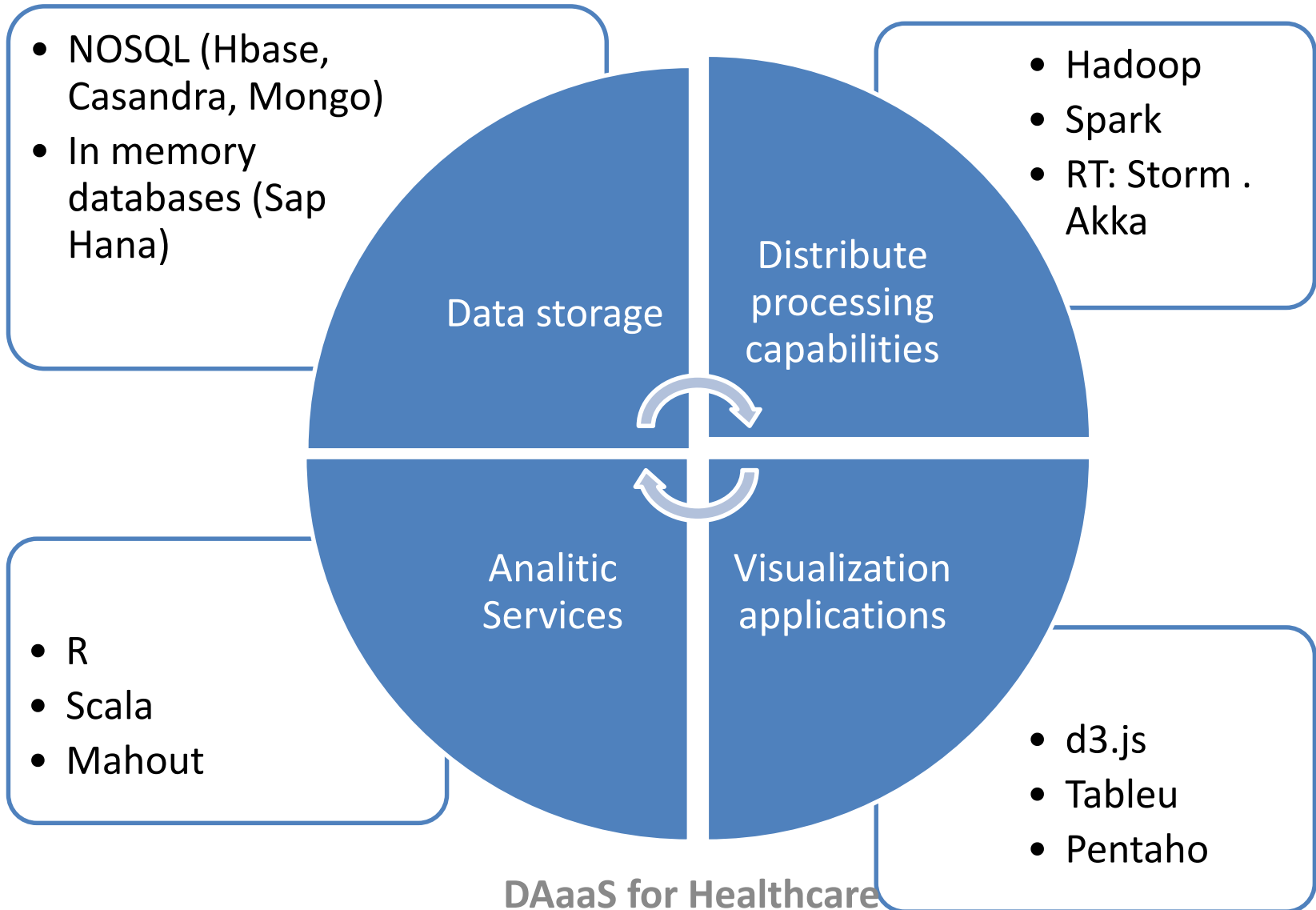
Digital Transformation

3

Big Data and Cloud Infrastructure

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Performance can suffer degradation in a virtualized environment

Adaptation to of Hadoop platforms to run properly in a virtualized environment.

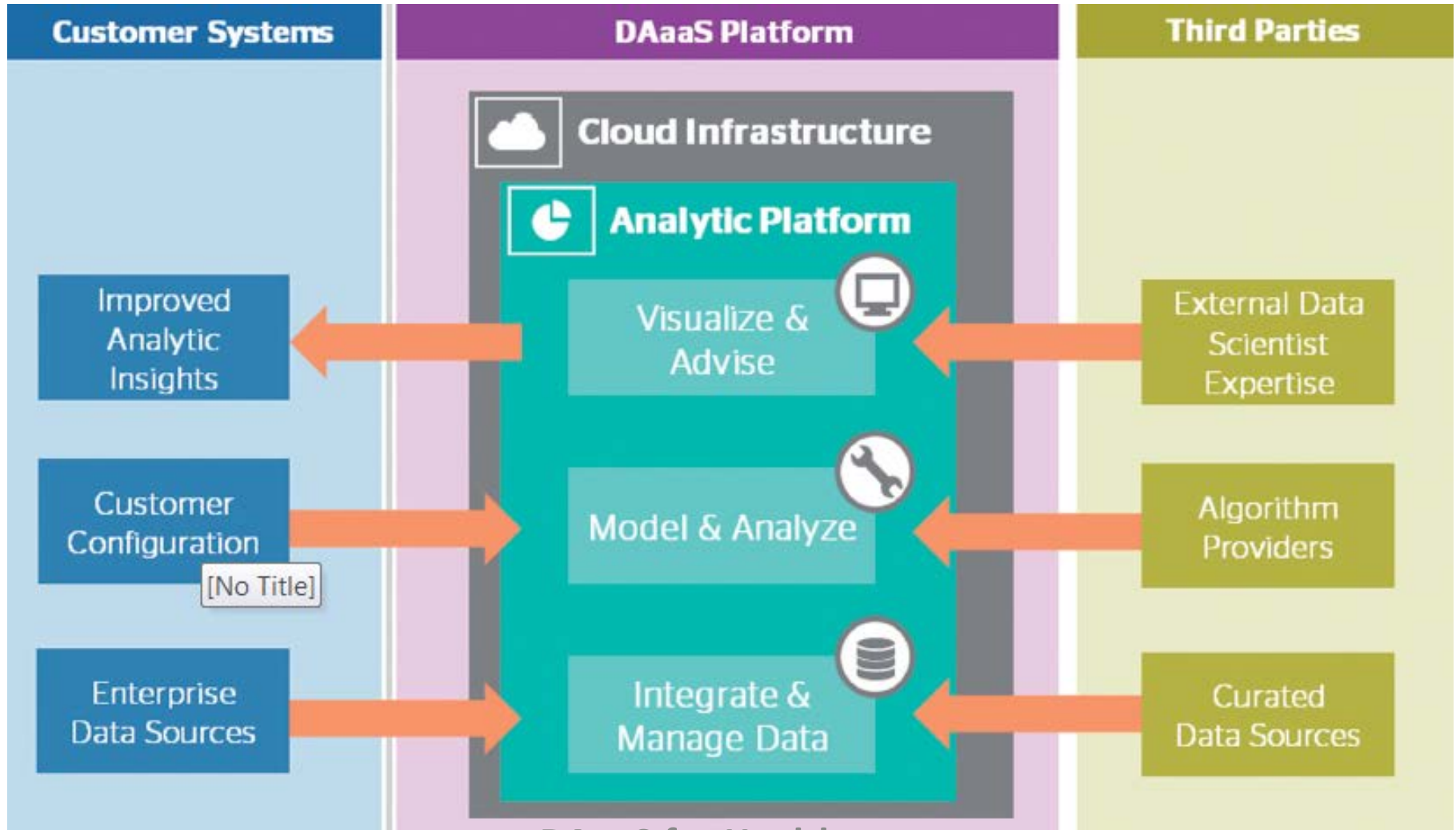
- VMware's Project Serengeti
- Amazon Elastic Map Reduce
- MS optimized version of Hadoop for Azure

The cloud offer flexibility, scalability, multi-tenancy and economy.

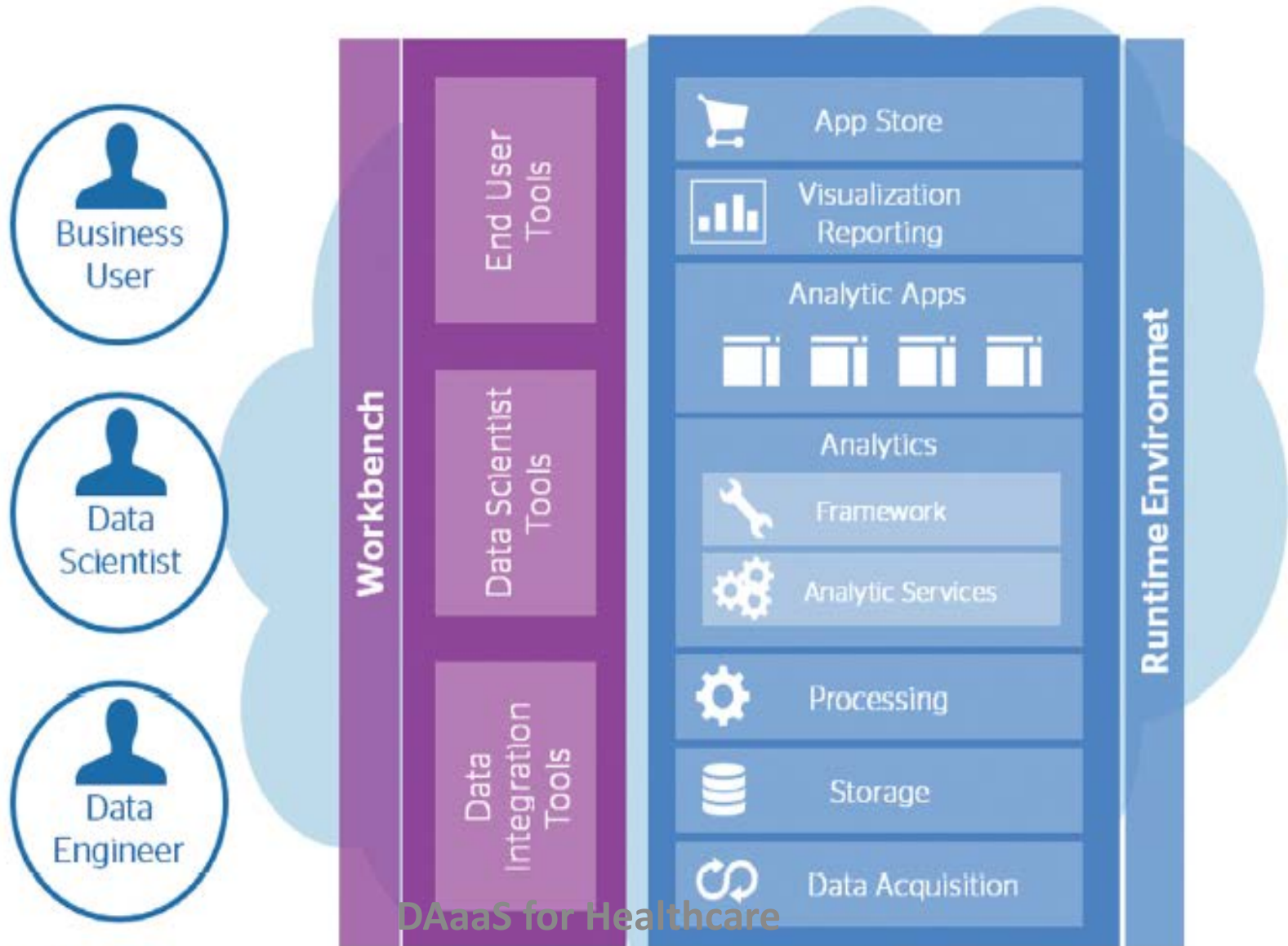
4

Data Analytics as a Service a PaaS evolution

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Figure 2: DAaaS functional elements

Information Lifecycle Management

- Complex Analytical workflows.
- Many steps: data acquisition, modeling, mining, visualization.
- A flexible approach is needed

Data volume and data model diversity

- Analytics are tightly coupled with data models. Time series vs omic data
- Moving big volumes of data is not easy

Analytic knowledge

- Advance analytics are quite complex

Real-time Analytics

- Even soft real-time analytics have a major impact on cloud design.

Security and Privacy

- Maleable signatures
- Homomorphic encryption
- Verifiable computing

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Customization of a basic analytic workflow

Adaptation of the ETL processes from hospital /research center data sources

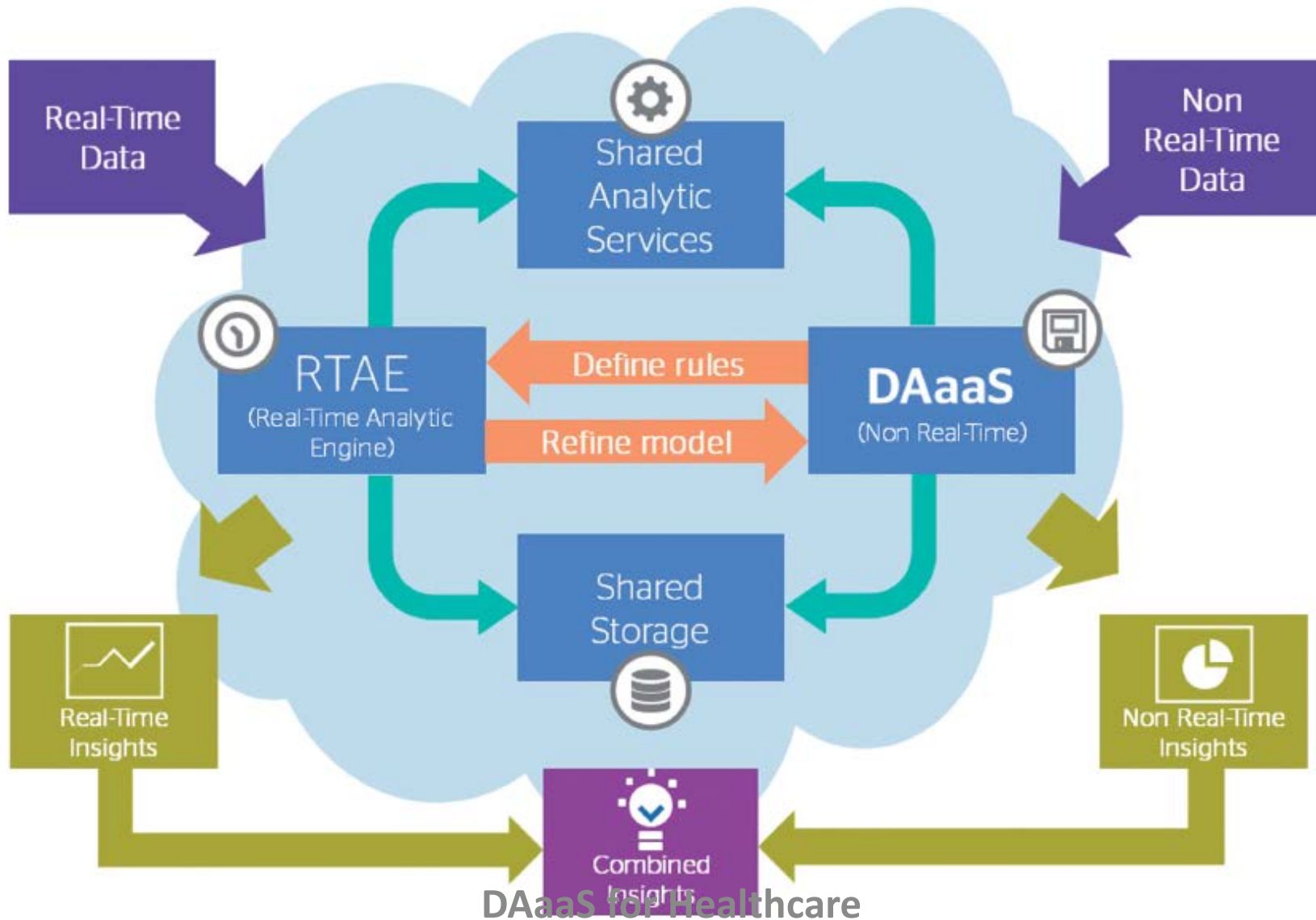
Adaptation to the DAaaS Data Models and Metadata Standards

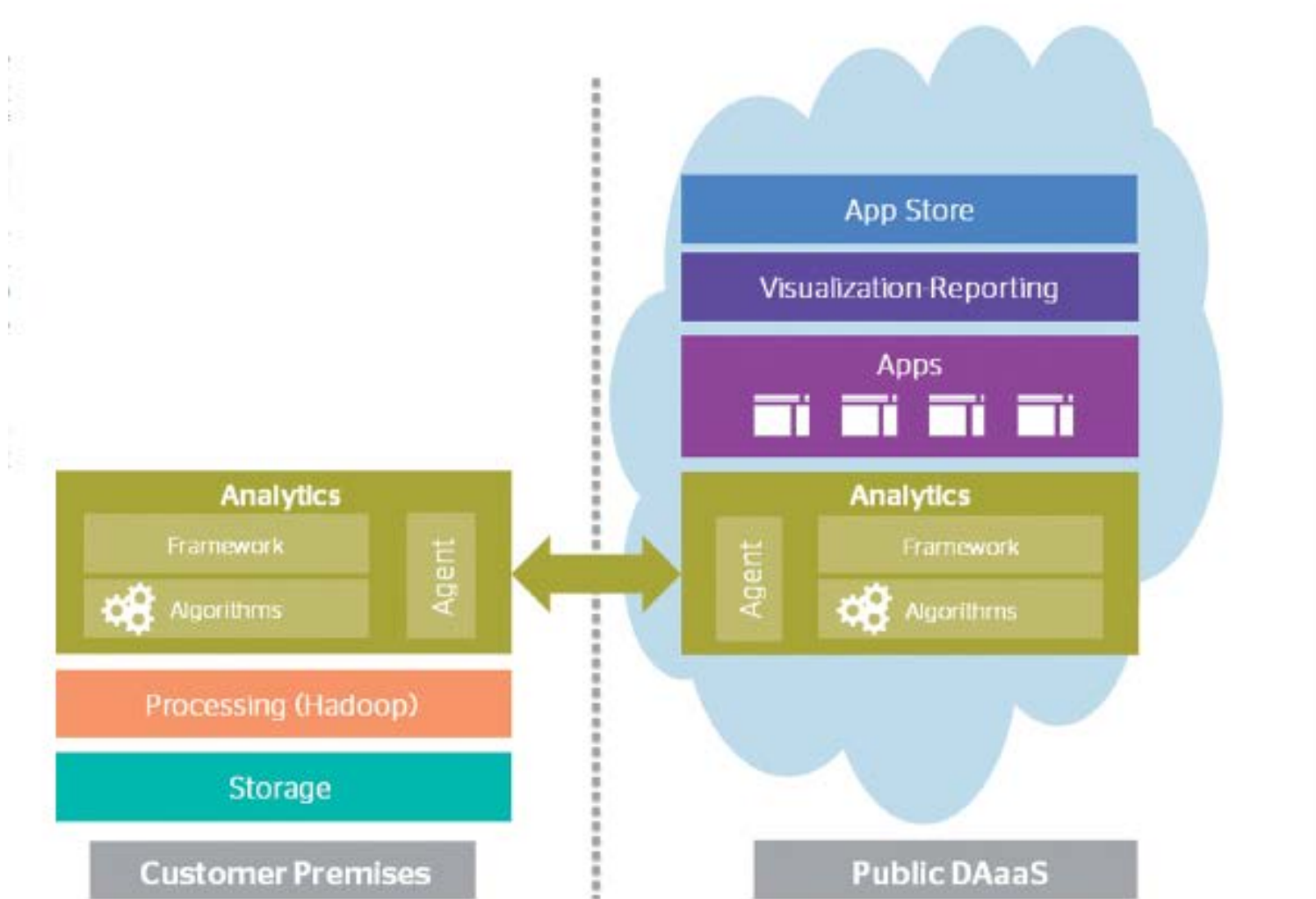
Modeling and configuration parameters of Analytical Apps by defining workflows using Analytical Services

Validation of results from end-users (researches, data scientifics, doctors)

Integration of the results back into hospital/research centrer systems

Configuration and customization of GUI for accesing, reporting and visualization

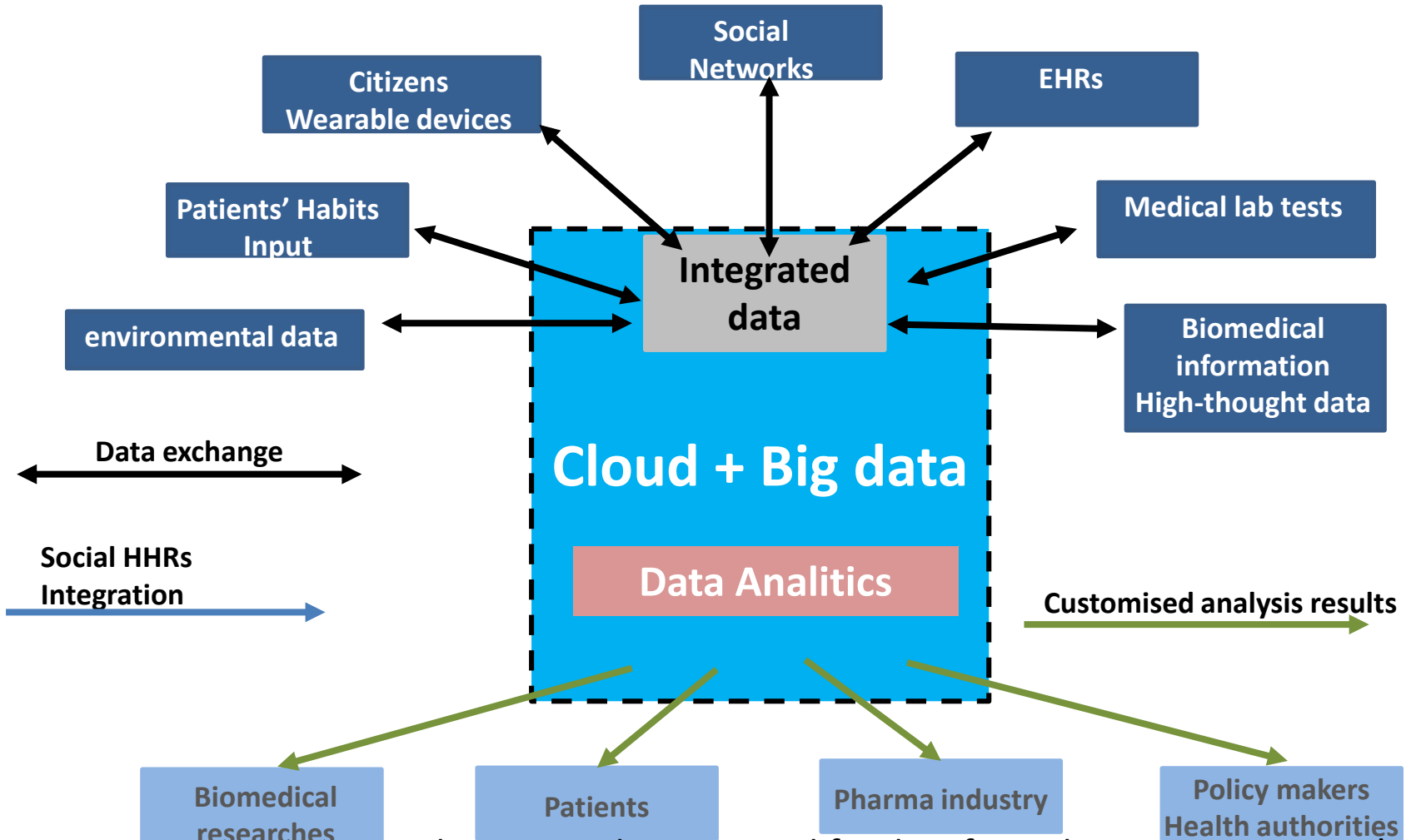




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Data Analytics as a Service. CrowdHealth Project.



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5

Market perspective and conclusions



- **Aging population. Increment of chronic diseases and years of treatment.**
- **Shortage of human and economic resources.**
- **Pressure for changing the healthcare model. Payment based on outcomes. Efficiency and economy.**
- **Need for continuous and ever improved care.**
- **Closing the biomedicine-clinical daily gap.**
- **Governments policies for digital transformation.**
- **Increment of the investments for digital transformation.**
- **Explosion of data. Biomedicine, wearables, hospitals.**



- **Geographical disparities.**
- **Lack of common European Standards making the regulatory environment unfavorable for growth**
- **Interoperability issues. Too many standards. Too many terminology. Too many constraints.**
- **Lack of evidence and legal support – Doctors liability. Privacy and security.**
- **Lack of regulation and policies on reimbursement practices.**
- **High cost involved in the development and deployment of healthcare digital transformation.**
- **Unclear perception about the value of cHealth .**
- **Reluctance to data openness.**
- **Lack of data scientifics**

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Data Scientifics explores AppStore and Analytical App

On- demand renting for an specific time. Analytical and memory, processing capabilities, even data sources.

No necessity of expenditure in infrastructure

No necessity of maintenance teams

Scalable, flexible to custom necessities.

Thanks

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THANK YOU

Q/A?

6

Conclusion