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Quality of Information for Quality of Life: Healthcare Big Data Analytics

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Motivation

Big data analysis in healthcare sector is still in its early stages when comparing with that of other business sectors due to numerous reasons.

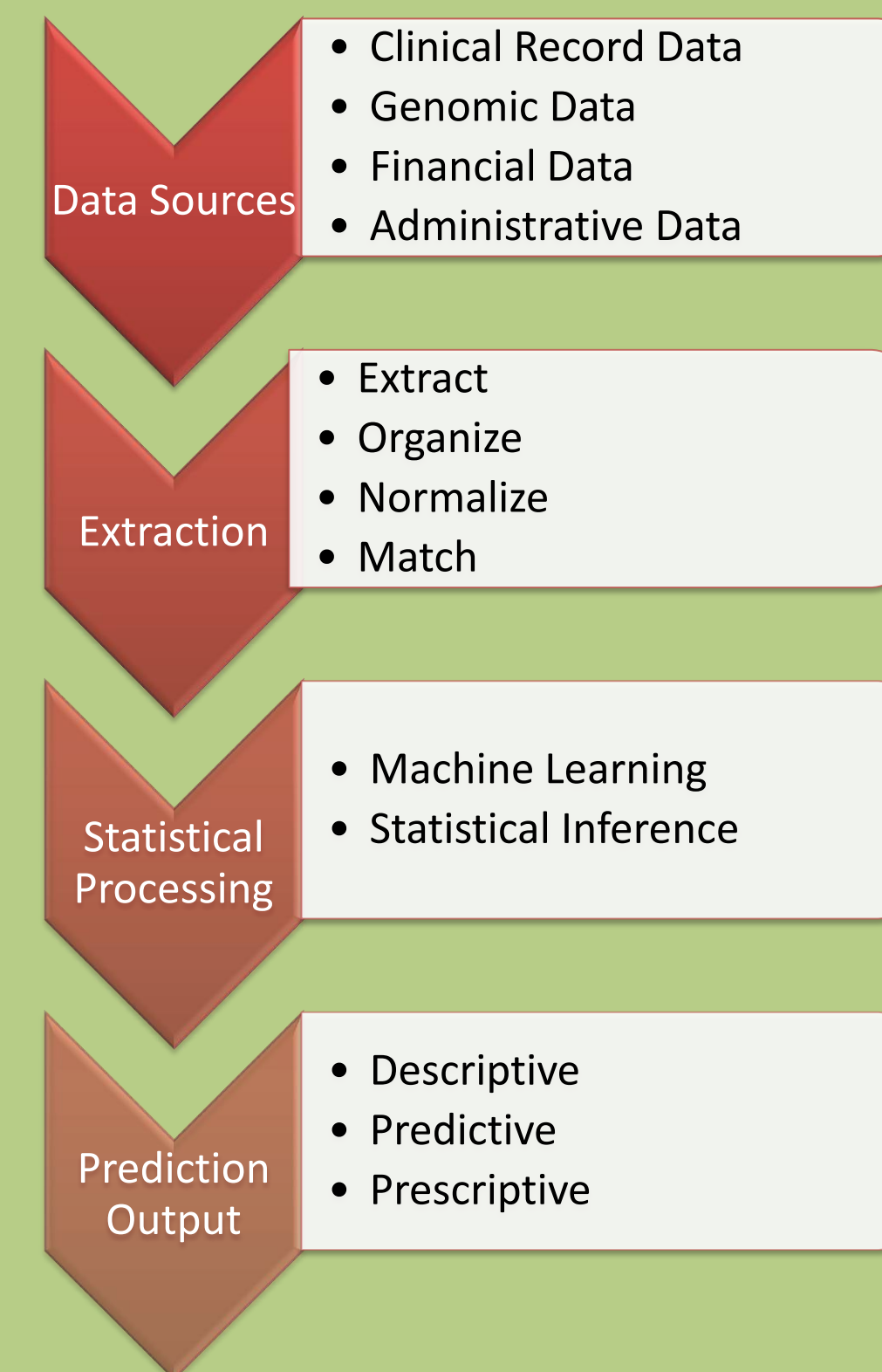
- Accommodating the volume, velocity and variety of healthcare data
- Identifying platforms that examine data from multiple sources, such as clinical records, genomic data, financial systems, and administrative systems

Electronic Health Record (EHR) is a key information resource for big data analysis and is also composed of varied co-created values.

- Successful integration and crossing of different subfields of healthcare data such as biomedical informatics and health informatics could lead to huge improvement for the end users of the health care system, i.e. the patients.

Data Analytic Approach

(Original Source : Hersh, W (2014))



Method

Identification of data sources, point of information extractions for clinical and healthcare decision-making

Analysis of Information Exchange measures

Implement six to eight months' longitudinal studies from selected private hospitals and government hospitals in Sri Lanka

Evaluate big data analysis until the necessary decision making requirements are fulfilled to improve quality of healthcare service delivery

Applications of Big Data

Monitor, Manage By Exception, Real-time Adjustments

Performance Optimization & Improvement

Understanding & Serving the Customer/ Patient

Big Data

Instrumentation Data
(RFID, barcode, video feeds, sensors, monitors)

Unstructured Data
(consultation recordings and notes, patient instructions, social media discussions, diaries)

Diagnostic Data
(images, vital sign monitors, blood test results)

Structured Data
(ERP, Transactional data, Hospital/ Clinical Information Systems, Prescriptions, Payment Records)

Original source: Bill McBeath. (2013)

Arguments and Findings

- The healthcare information sources and their transmission will be examined while quality Healthcare data analytics is implemented.
- This will facilitate the information flow from a public to professional view while the Information exchange measures are implemented.
- The research will specify how EHR could be adopted to meet the requirements of being a key information source for big data analysis.

Objective

Propose a systematic healthcare data analytic approach to investigate potential approaches or analytic tools appropriate for analysing healthcare big data focusing on EHR in order to provide quality information to improve the quality of life for patients.

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