Tamkang University 淡江大學

商業智慧實務
Practices of Business Intelligence

Course Orientation for Practices of Business Intelligence (商業智慧實務課程介紹)

1071BI01
MI4 (M2084) (2888)
Wed, 7, 8 (14:10-16:00) (B217)

Min-Yuh Day
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Assistant Professor
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淡江大學 資訊管理學系
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2018-09-12

Tamkang University

淡江大學107學年度第1學期
課程教學計畫表
Fall 2018 (2018.09 - 2019.01)

- 課程名稱：商業智慧實務
  (Practices of Business Intelligence)
- 授課教師：戴敏育 (Min-Yuh Day)
- 開課系級：資管四P (TLMXB4P) (M2244) (2995)
- 開課資料：選修 單學期 2 學分 (2 Credits, Elective)
- 上課時間：週三 7, 8 (Wed 12:10-16:00)
- 上課教室： B217

Business Intelligence (BI)

① Introduction to BI and Data Science

2 Descriptive Analytics

3 Predictive Analytics

4 Prescriptive Analytics

5 Big Data Analytics

6 Future Trends

淡江資管系(所)教育目標

一、精進資訊管理知能。

二、提升資訊科技專業。

三、獨立思考邏輯分析。

四、強化團隊合作能力。

五、重視企業資訊倫理。

六、培育全球化世界觀。

淡江資管系(所)核心能力

- A. 問題分析與關鍵思考。
- B. 企業基礎與實務知識。
- C. 資訊系統運用。
- D. 程式設計。
- E. 網路系統規劃。
- F. 資料庫設計與管理。
- G. 資訊系統分析、設計與整合。
- H. 專案管理。

課程簡介

- 本課程介紹商業智慧 (BI) 的基礎概念及技術實務
- 課程內容
  - 商業智慧、分析與資料科學、人工智慧、大數據與雲端運算
  - 描述性分析：數據的性質、統計模型與可視化、商業智慧與資料倉儲、
  - 預測性分析：資料探勘流程、方法與演算法、文本、網路與社群媒體分析
  - 處方性分析：最佳化與模擬
  - 社會網絡分析
  - 機器學習與深度學習
  - 自然語言處理
  - AI交談機器人與對話式商務
  - 商業分析的未來趨勢、隱私與管理考量

Course Introduction

- This course introduces the fundamental concepts and technology practices of business intelligence.
- Topics include
  - Business Intelligence, Analytics, and Data Science,
  - AI, Big Data, and Cloud Computing,
  - Descriptive Analytics: Nature of Data, Statistical Modeling, and Visualization, Business Intelligence and Data Warehousing,
  - Predictive Analytics: Data Mining Process, Methods, and Algorithms, Text, Web, and Social Media Analytics,
  - Prescriptive Analytics: Optimization and Simulation,
  - SNA, Machine and Deep Learning, NLP,
  - AI Chatbots and Conversational Commerce,
  - Future Trends in Analytics.

課程目標
(Objective)

- 瞭解及應用商業智慧基本概念與技術實務。
- Understand and apply the fundamental concepts and technology practice of business intelligence.

Business Intelligence (BI)

1. Introduction to BI and Data Science
2. Descriptive Analytics
3. Predictive Analytics
4. Prescriptive Analytics
5. Big Data Analytics
6. Future Trends

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容(Subject/Topics)

1 2018/09/12 商業智慧實務課程介紹
(Course Orientation for Practices of Business Intelligence)

2 2018/09/19 商業智慧、分析與資料科學
(Business Intelligence, Analytics, and Data Science)

3 2018/09/26 人工智慧、大數據與雲端運算
(ABC: AI, Big Data, and Cloud Computing)

4 2018/10/03 描述性分析I：數據的性質、統計模型與可視化
(Descriptive Analytics I: Nature of Data, Statistical Modeling, and Visualization)

5 2018/10/10 國慶紀念日 (放假一天) (National Day) (Day off)

6 2018/10/17 描述性分析II：商業智慧與資料倉儲
(Descriptive Analytics II: Business Intelligence and Data Warehousing)

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容(Subject/Topics)

7　2018/10/24　預測性分析I：資料探勘流程、方法與演算法
(Predictive Analytics I: Data Mining Process, Methods, and Algorithms)

8　2018/10/31　預測性分析II：文本、網路與社群媒體分析
(Predictive Analytics II: Text, Web, and Social Media Analytics)

9　2018/11/07　期中報告 (Midterm Project Report)

10　2018/11/14　期中考試 (Midterm Exam)

11　2018/11/21　處方性分析：最佳化與模擬
(Prescriptive Analytics: Optimization and Simulation)

12　2018/11/28　社會網絡分析
(Social Network Analysis)

課程大綱 (Syllabus)

週次 (Week)　日期 (Date)　內容(Subject/Topics)

13　2018/12/05　機器學習與深度學習
(Machine Learning and Deep Learning)

14　2018/12/12　自然語言處理
(Natural Language Processing)

15　2018/12/19　AI交談機器人與對話式商務
(AI Chatbots and Conversational Commerce)

16　2018/12/26　商業分析的未來趨勢、隱私與管理考量
(Future Trends, Privacy and
Managerial Considerations in Analytics)

17　2019/01/02　期末報告 (Final Project Presentation)

18　2019/01/09　期末考試 (Final Exam)

教學方法與評量方法

- 教學方法
  - 講述、討論、賞析、模擬、實作、問題解決
- 評量方法
  - 紙筆測驗、實作、報告、上課表現

教材課本

- 教材課本
  - 講義 (Slides)
  - iClass
  - http://mail.tku.edu.tw/myday/teaching.htm#1071BI
- 參考書籍
  - Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Ramesh Sharda, Dursun Delen, and Efraim Turban, Pearson, 2017.
  - Decision Support and Business Intelligence Systems, Ninth Edition, Efraim Turban, Ramesh Sharda, Dursun Delen, Pearson, 2011.
  - 決策支援與企業智慧系統，九版，Efraim Turban 等著，李昇暾審定，2011，華泰

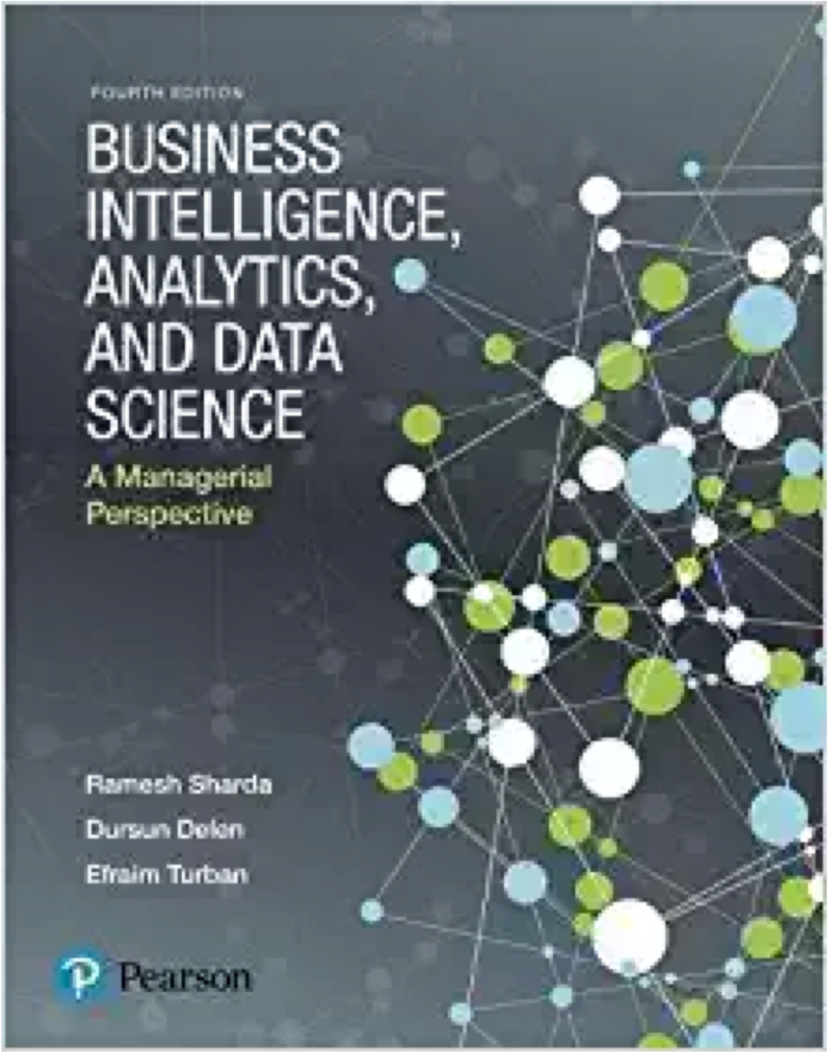
作業與學期成績計算方式

- 作業篇數
  - 3篇
- 學期成績計算方式
  - ☑期中評量：30 %
  - ☑期末評量：30 %
  - ☑其他（課堂參與及報告討論表現）：40 %

Team Term Project

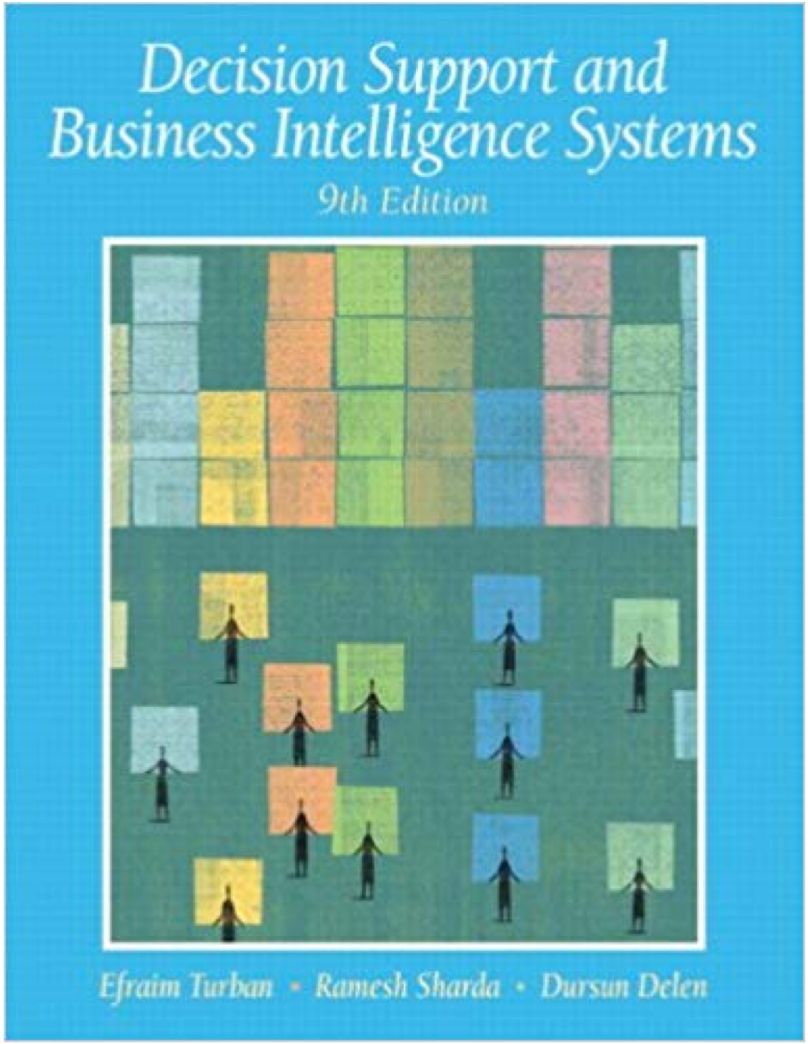
- Term Project Topics
  - Business Intelligence
  - AI Challenge Champion
  - Social Network Analysis (SNA)
  - FinTech
  - Short Text Conversation (STC)
- 3-4 人為一組
  - 分組名單於 2018/09/19 (三) 課程下課時繳交
  - 由班代統一收集協調分組名單

Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Ramesh Sharda, Dursun Delen, and Efraim Turban, Pearson, 2017.



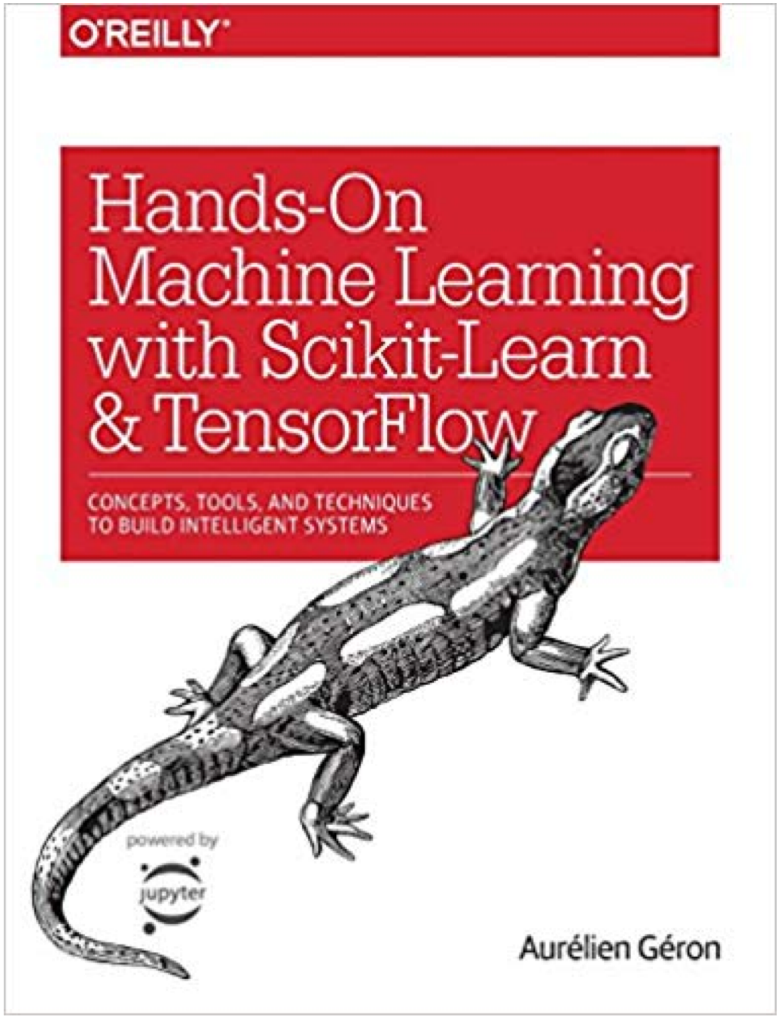
Source: https://www.amazon.com/Business-Intelligence-Analytics-Data-Science/dp/0134633288

Decision Support and Business Intelligence Systems, Ninth Edition, Efraim Turban, Ramesh Sharda, Dursun Delen, Pearson, 2011.



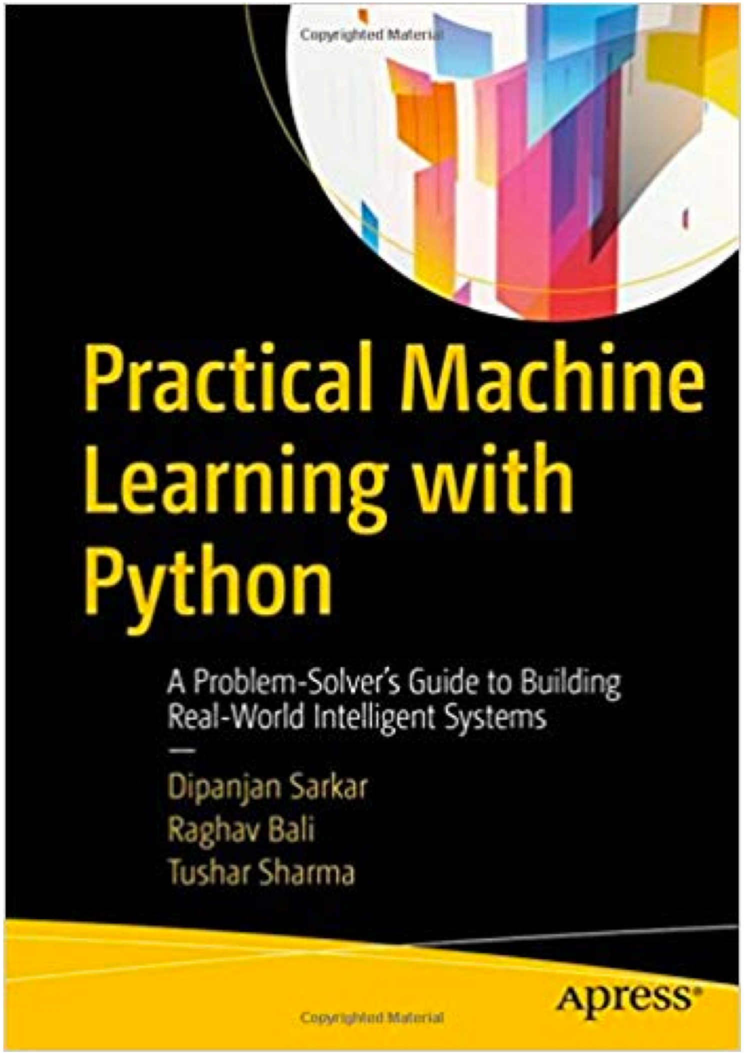
Source: https://www.amazon.com/Decision-Support-Business-Intelligence-Systems/dp/013610729X

Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems, Aurélien Géron, O'Reilly Media, 2017



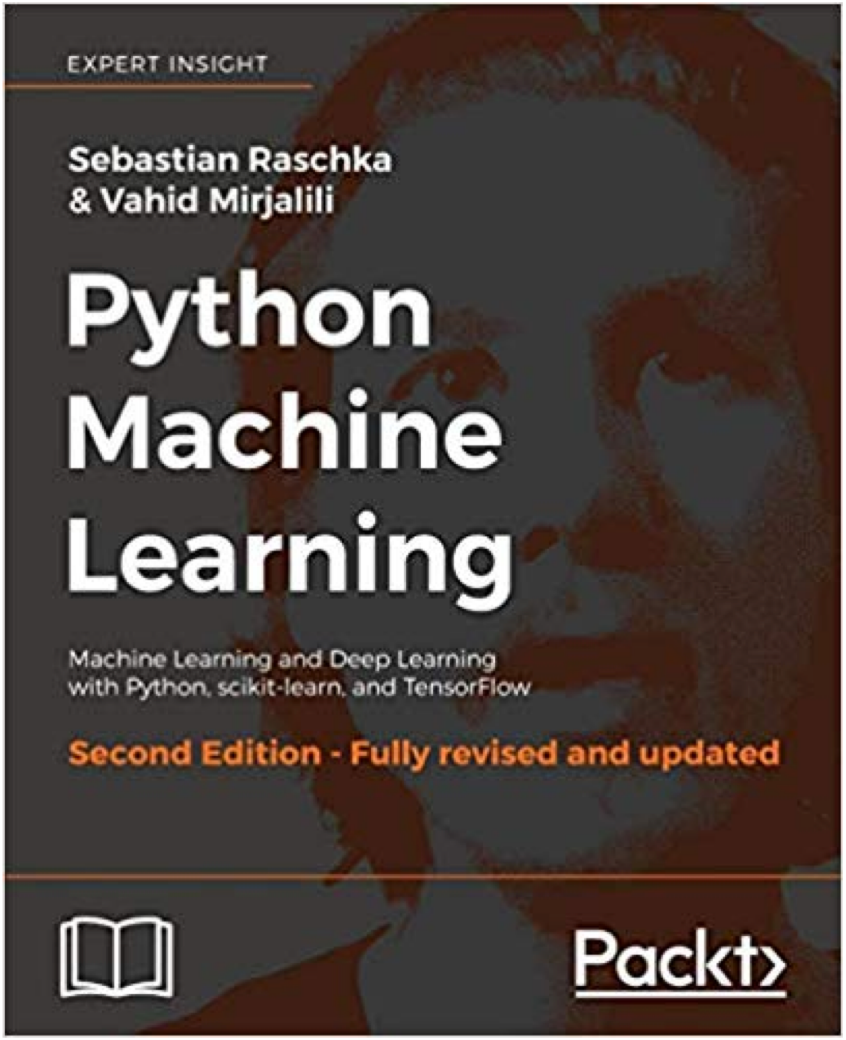
Source: https://www.amazon.com/Hands-Machine-Learning-Scikit-Learn-TensorFlow/dp/1491962291

Practical Machine Learning with Python: A Problem-Solver's Guide to Building Real-World Intelligent Systems, Dipanjan Sarkar, Raghav Bali, Tushar Sharma, Apress, 2017.



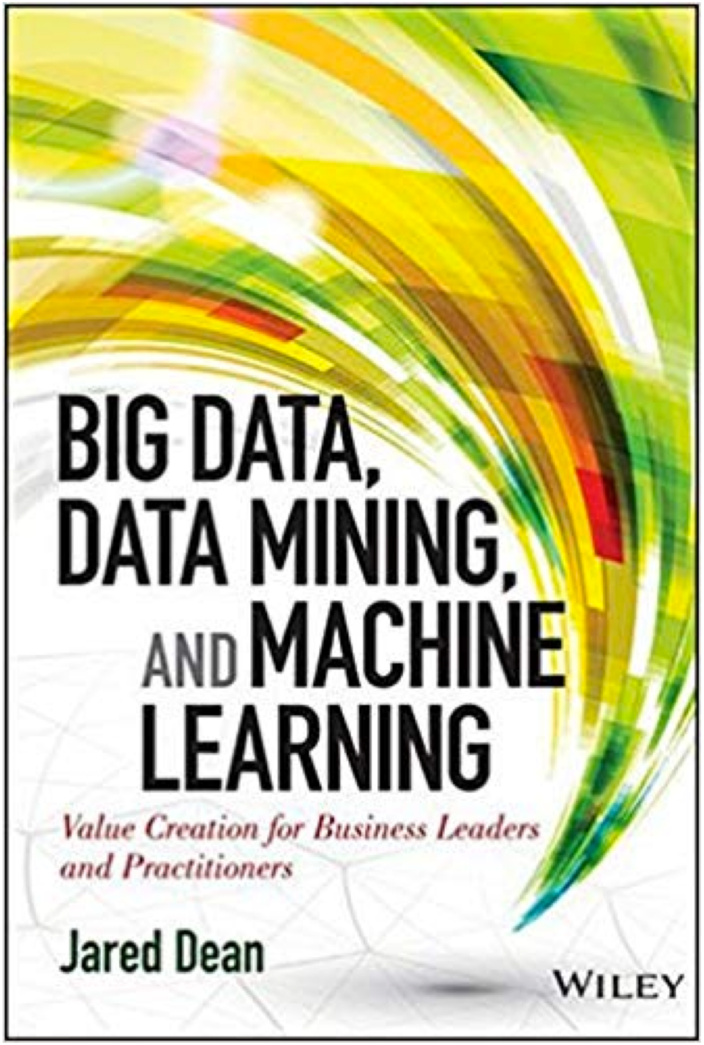
Source: https://www.amazon.com/Practical-Machine-Learning-Python-Problem-Solvers/dp/1484232062

Python Machine Learning: Machine Learning and Deep Learning with Python, scikit-learn, and TensorFlow, 2nd Edition, Sebastian Raschka and Vahid Mirjalili, Packt Publishing, 2017.



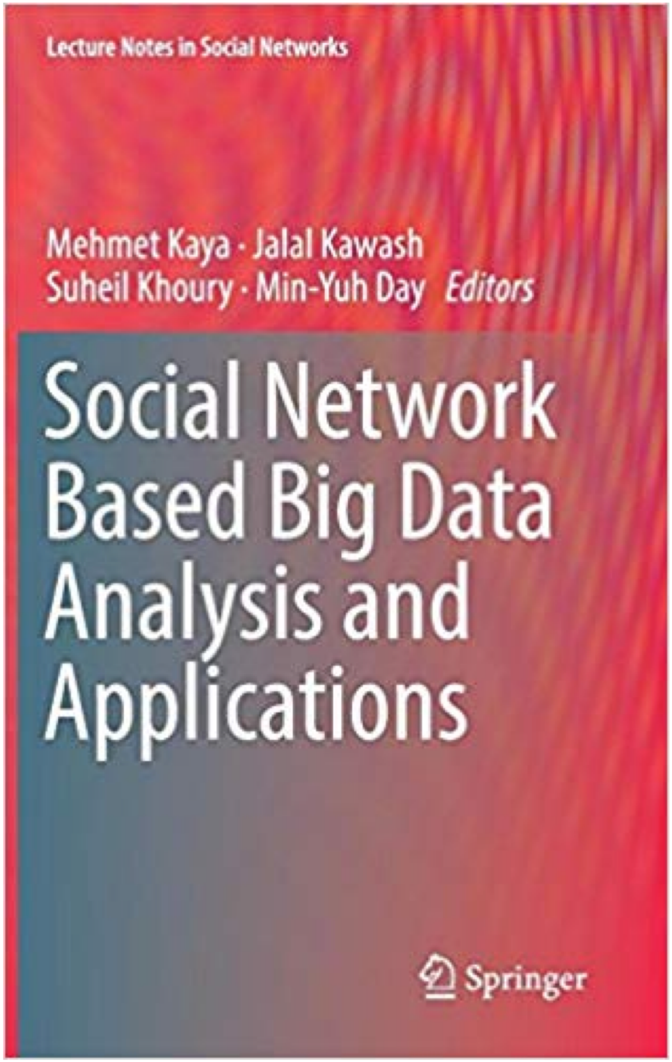
Source: https://www.amazon.com/Python-Machine-Learning-scikit-learn-TensorFlow/dp/1787125939

Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners,
Jared Dean,
Wiley, 2014.



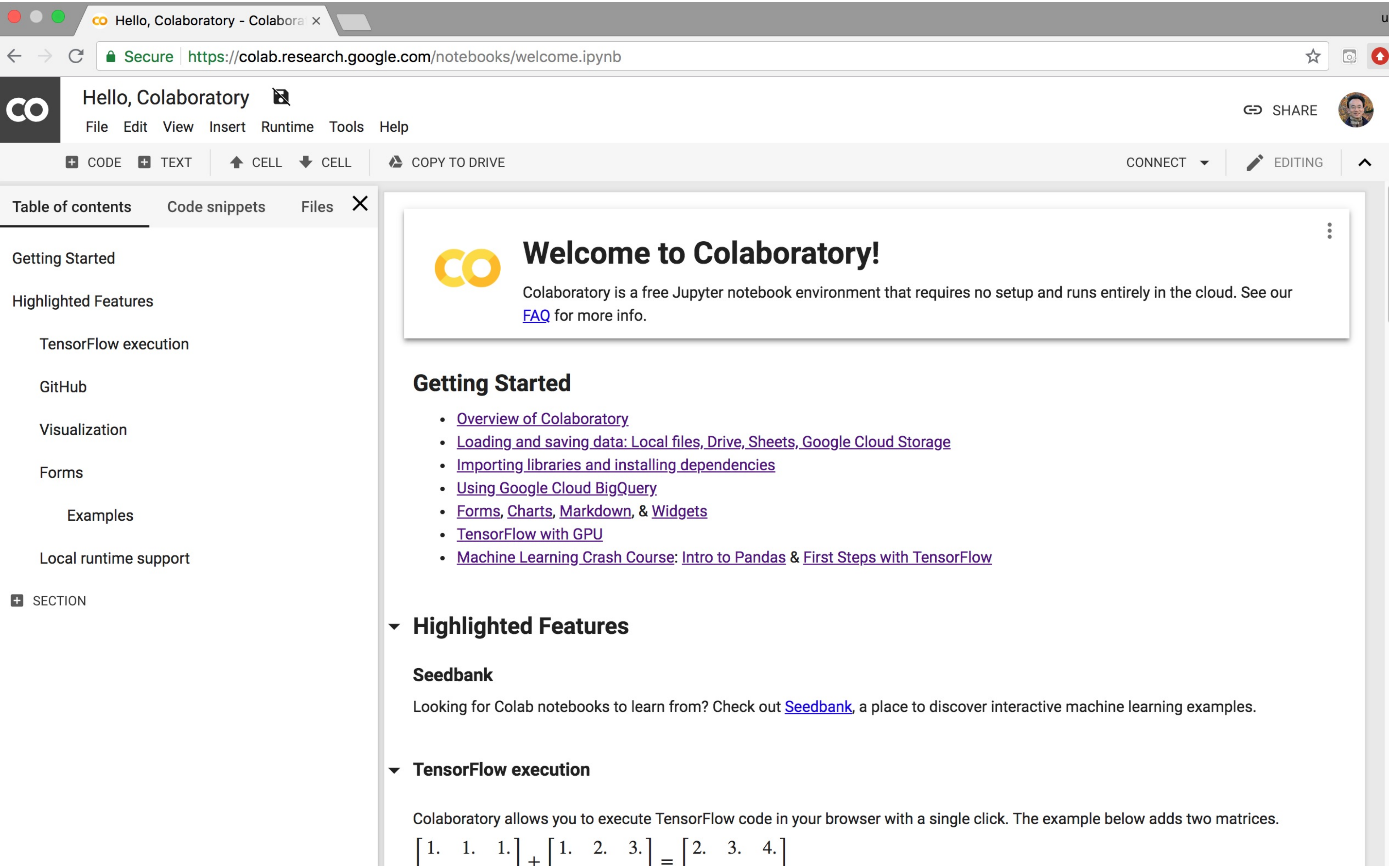
Source: https://www.amazon.com/Data-Mining-Machine-Learning-Practitioners/dp/1118618041

Social Network Based Big Data Analysis and Applications, Lecture Notes in Social Networks, Mehmet Kaya, Jalal Kawash, Suheil Khoury, Min-Yuh Day, Springer International Publishing, 2018.



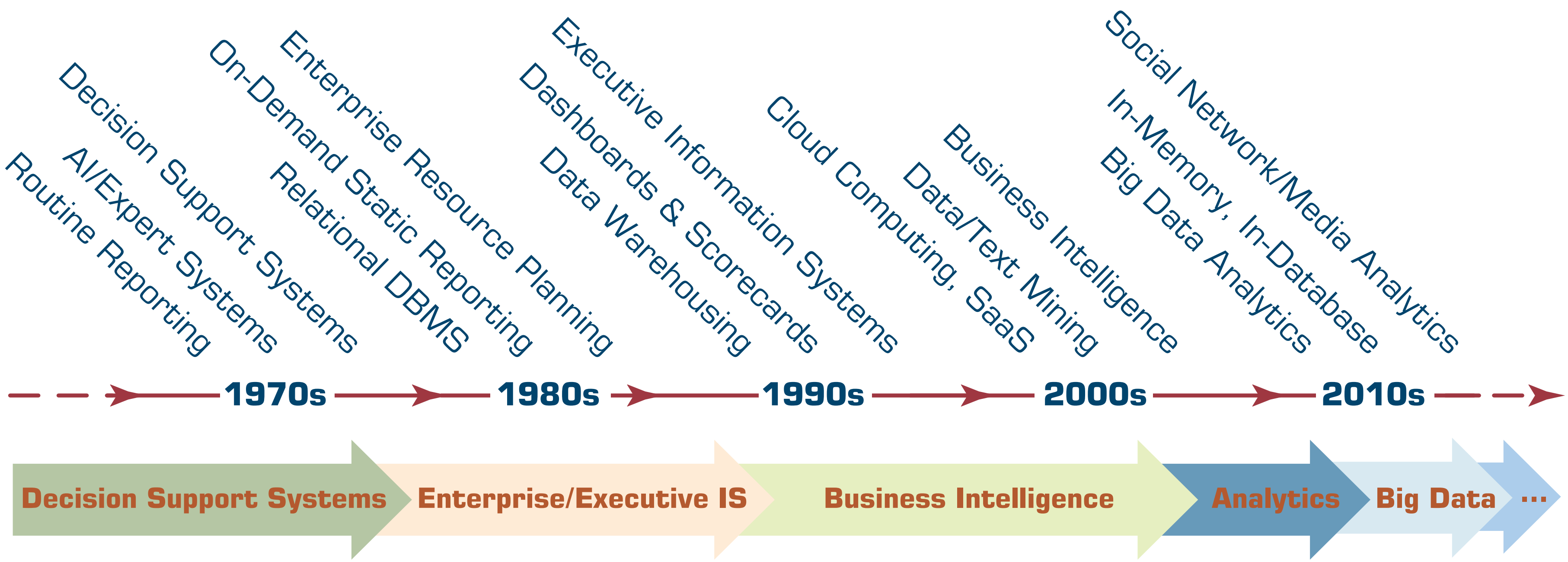
Source: https://www.amazon.com/Network-Analysis-Applications-Lecture-Networks/dp/3319781952

Google Colab



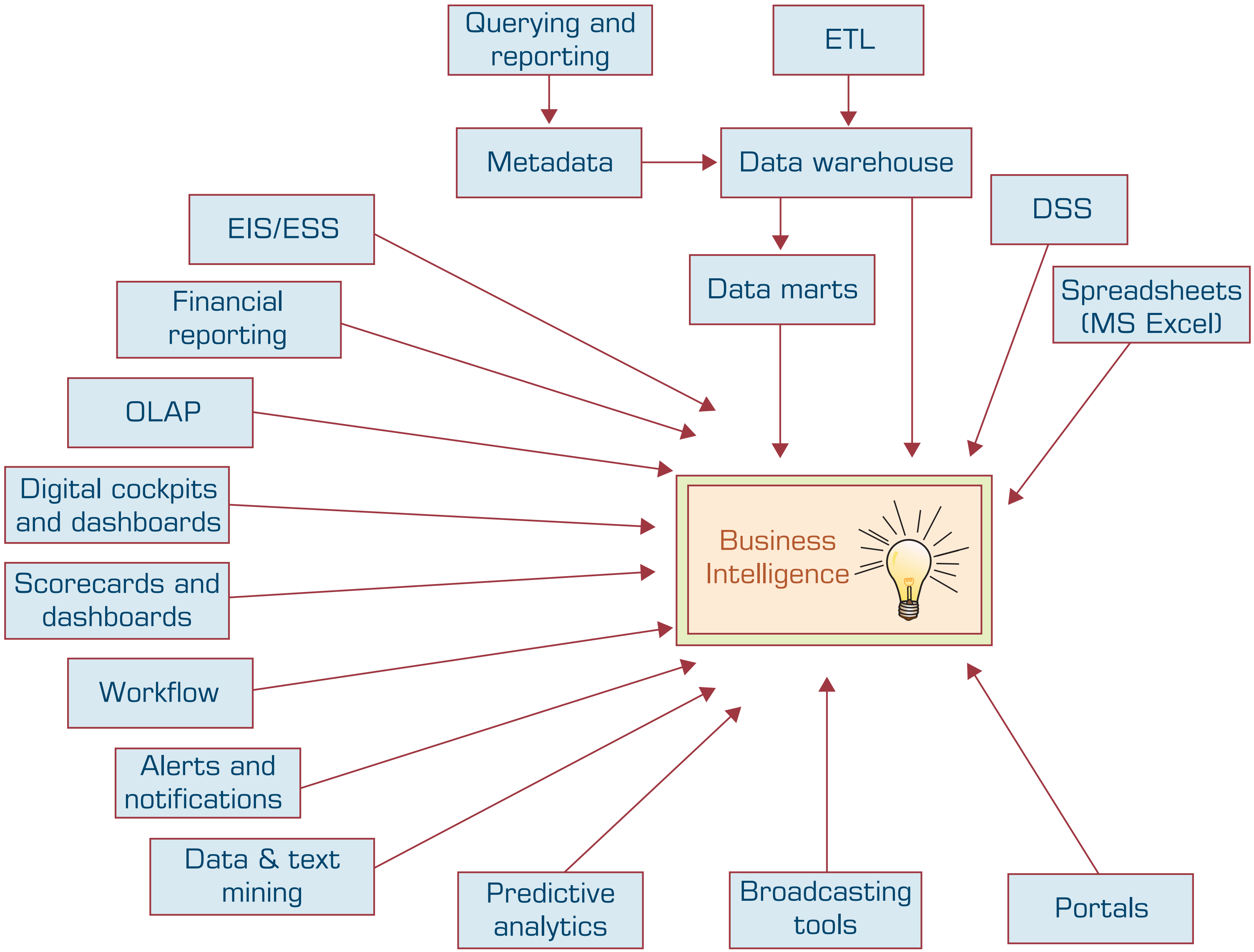
https://colab.research.google.com/notebooks/welcome.ipynb

Evolution of Decision Support, Business Intelligence, and Analytics



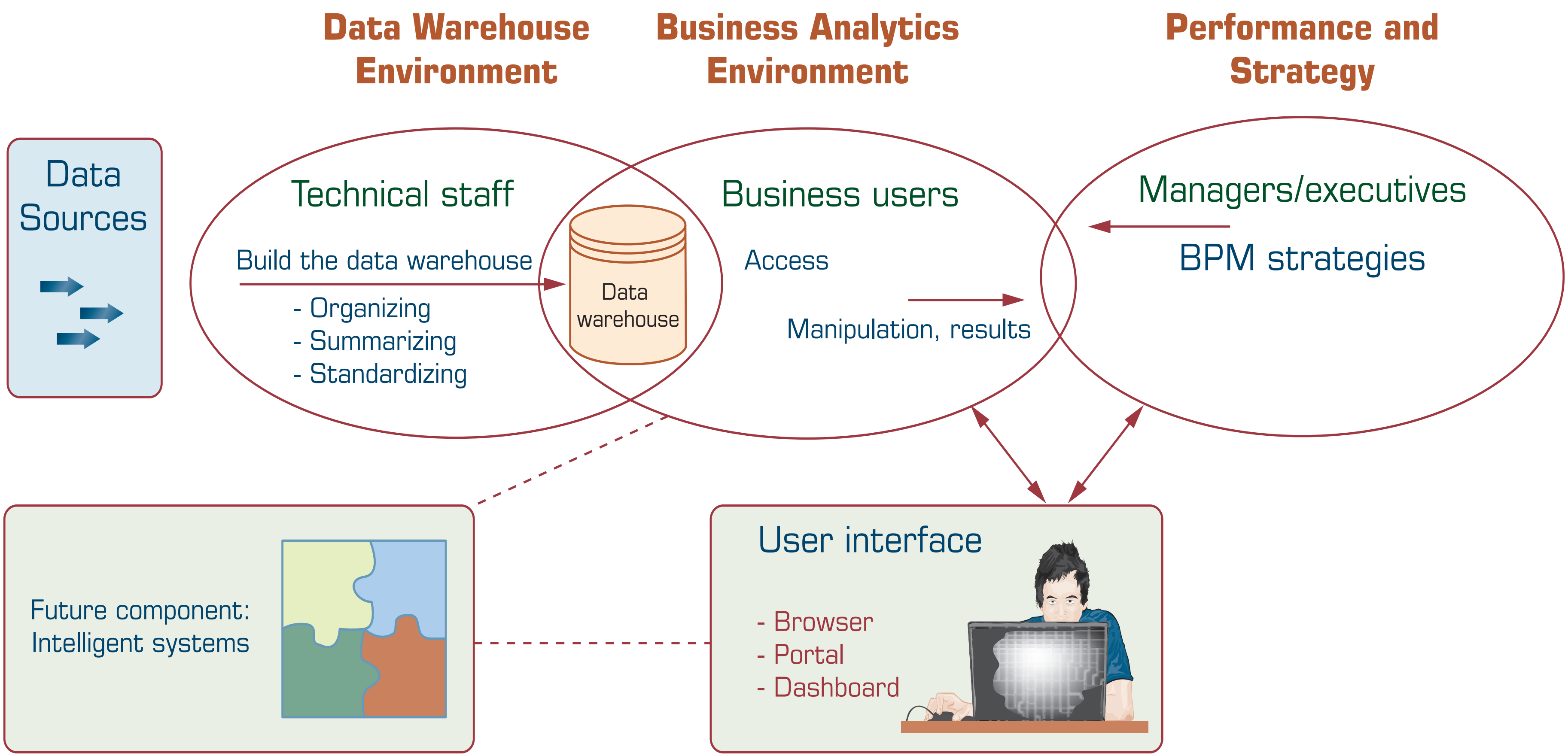
Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017),
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

Evolution of Business Intelligence (BI)



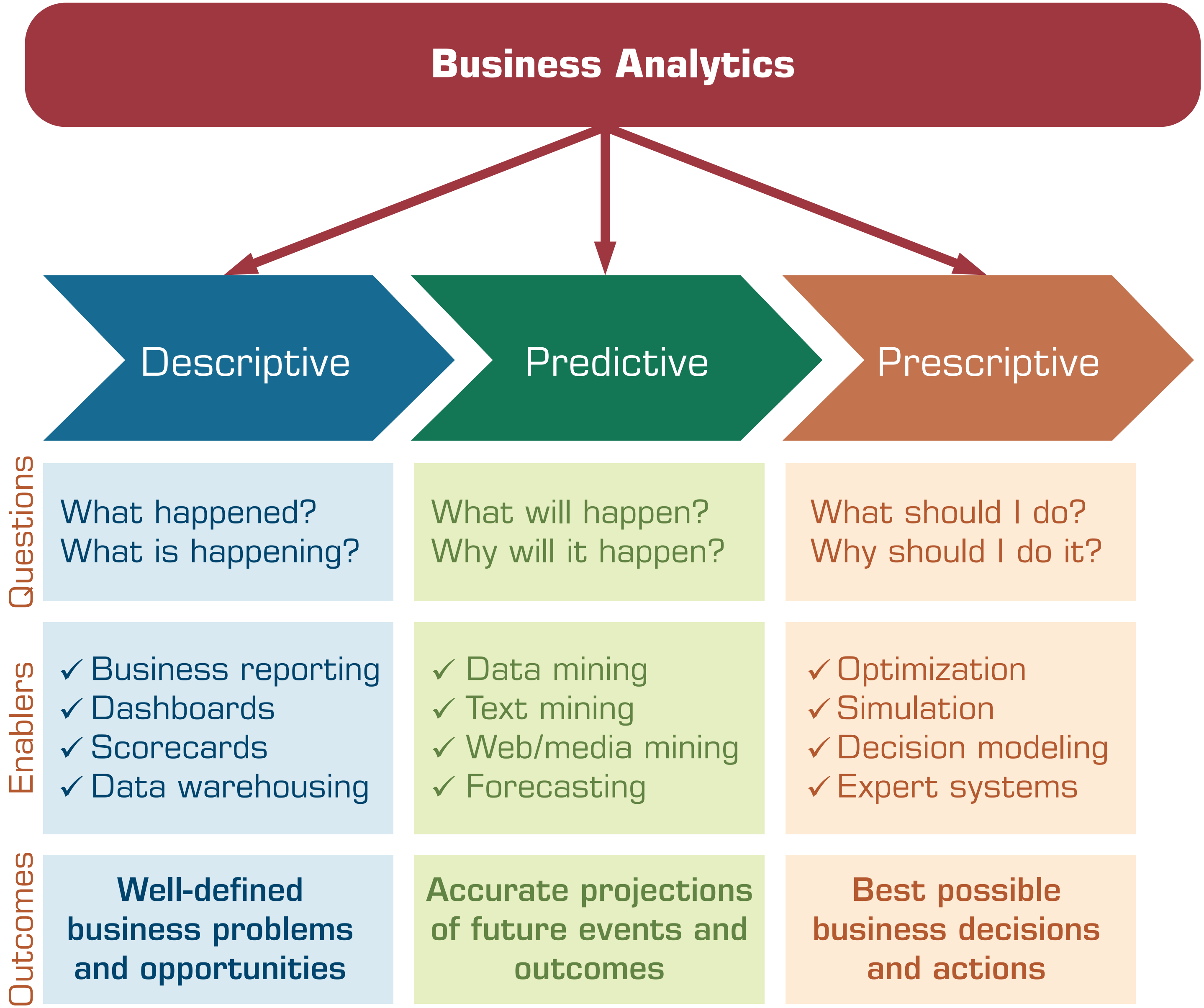
Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017), Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

A High-Level Architecture of BI



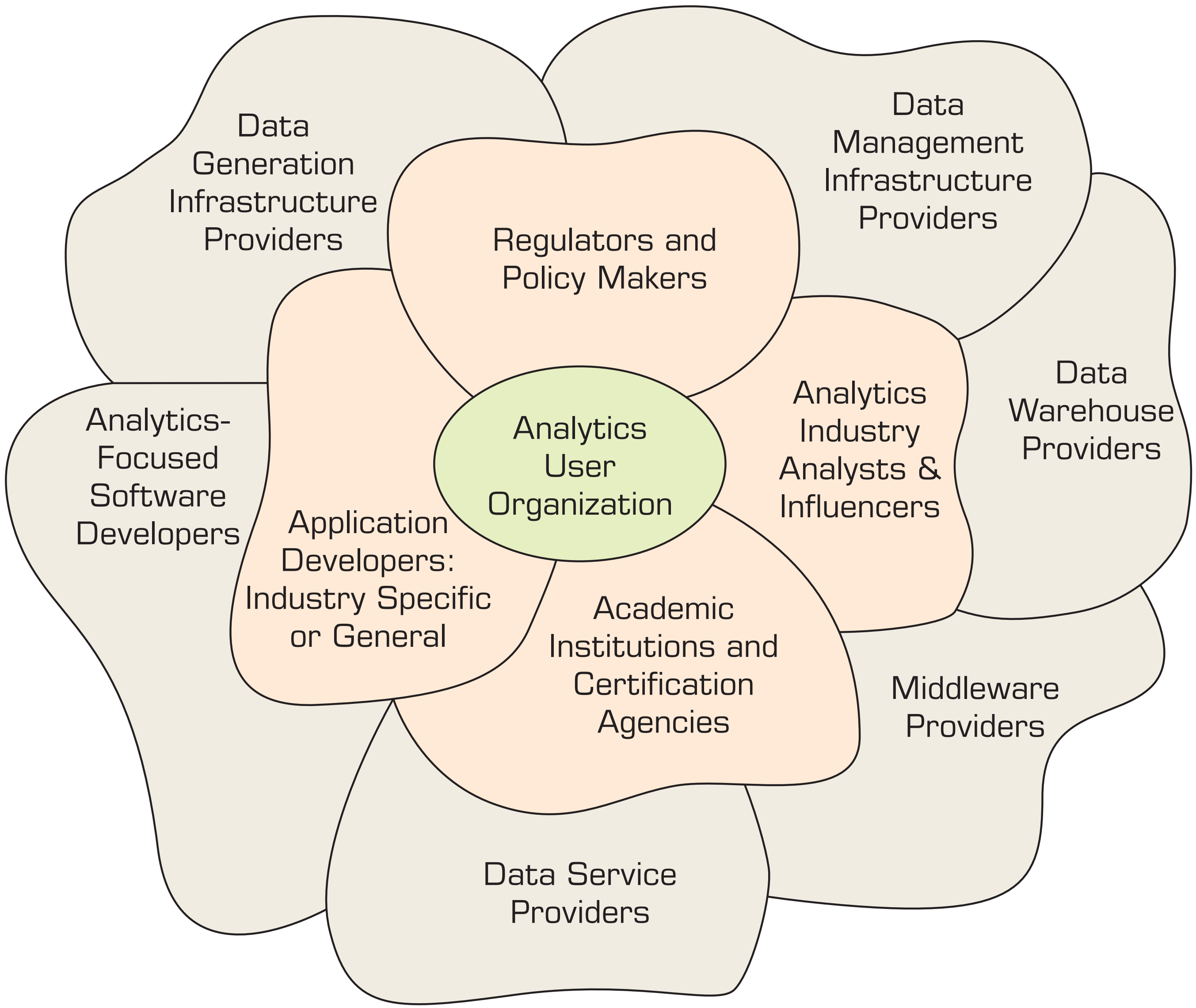
Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017), Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

Three Types of Analytics



Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017),
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

Analytics Ecosystem

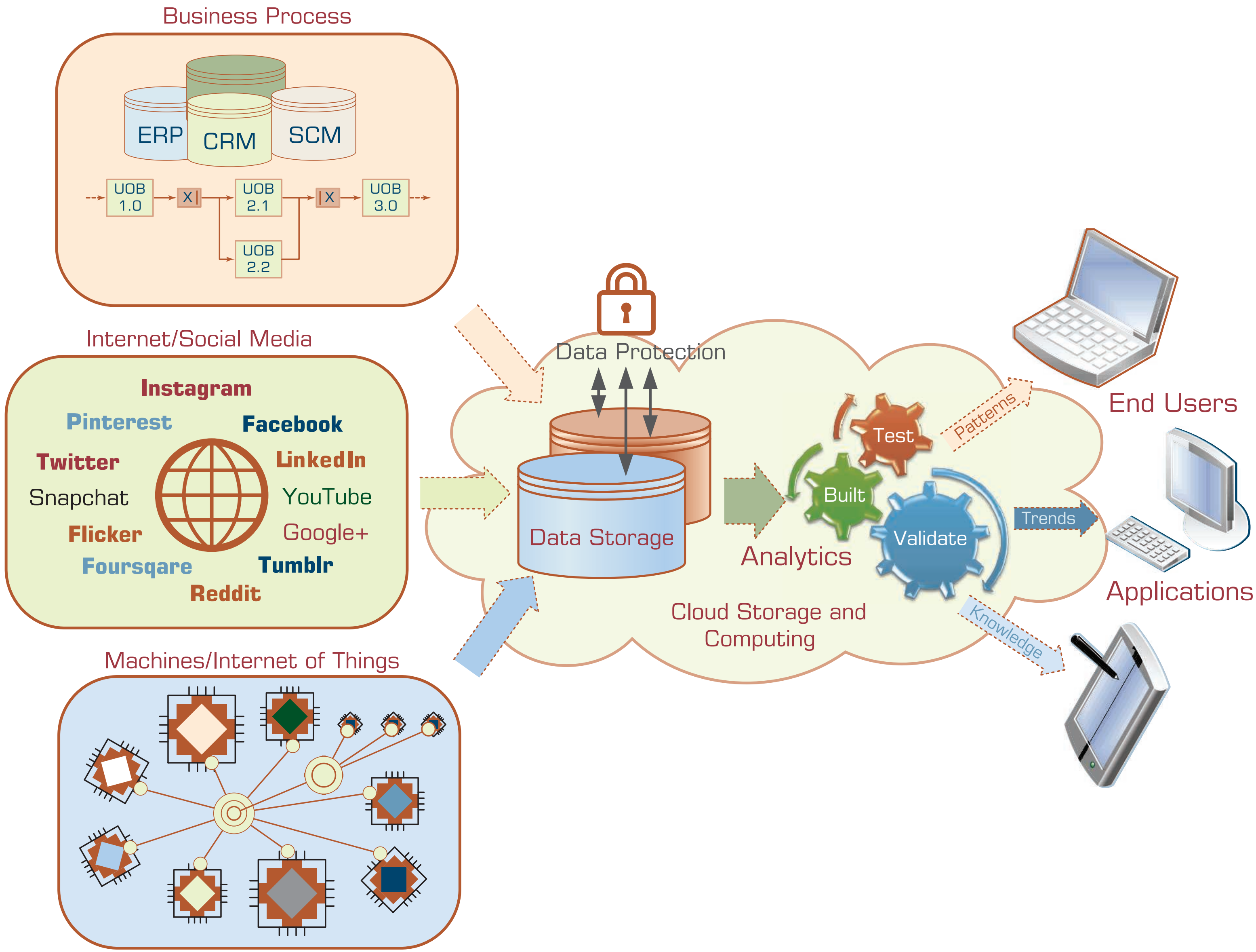


Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017),
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

Job Titles of Analytics

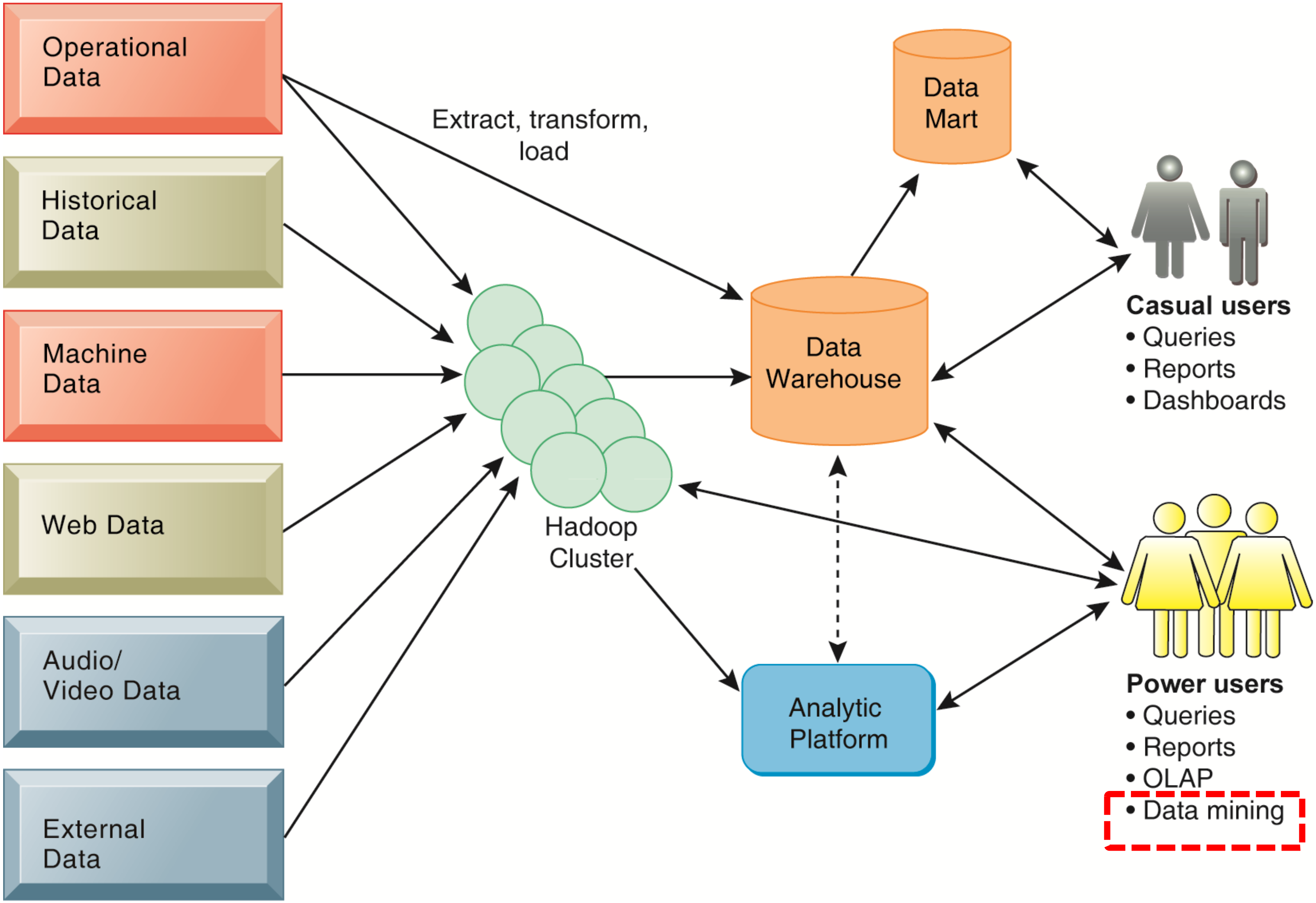
Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017), Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

A Data to Knowledge Continuum



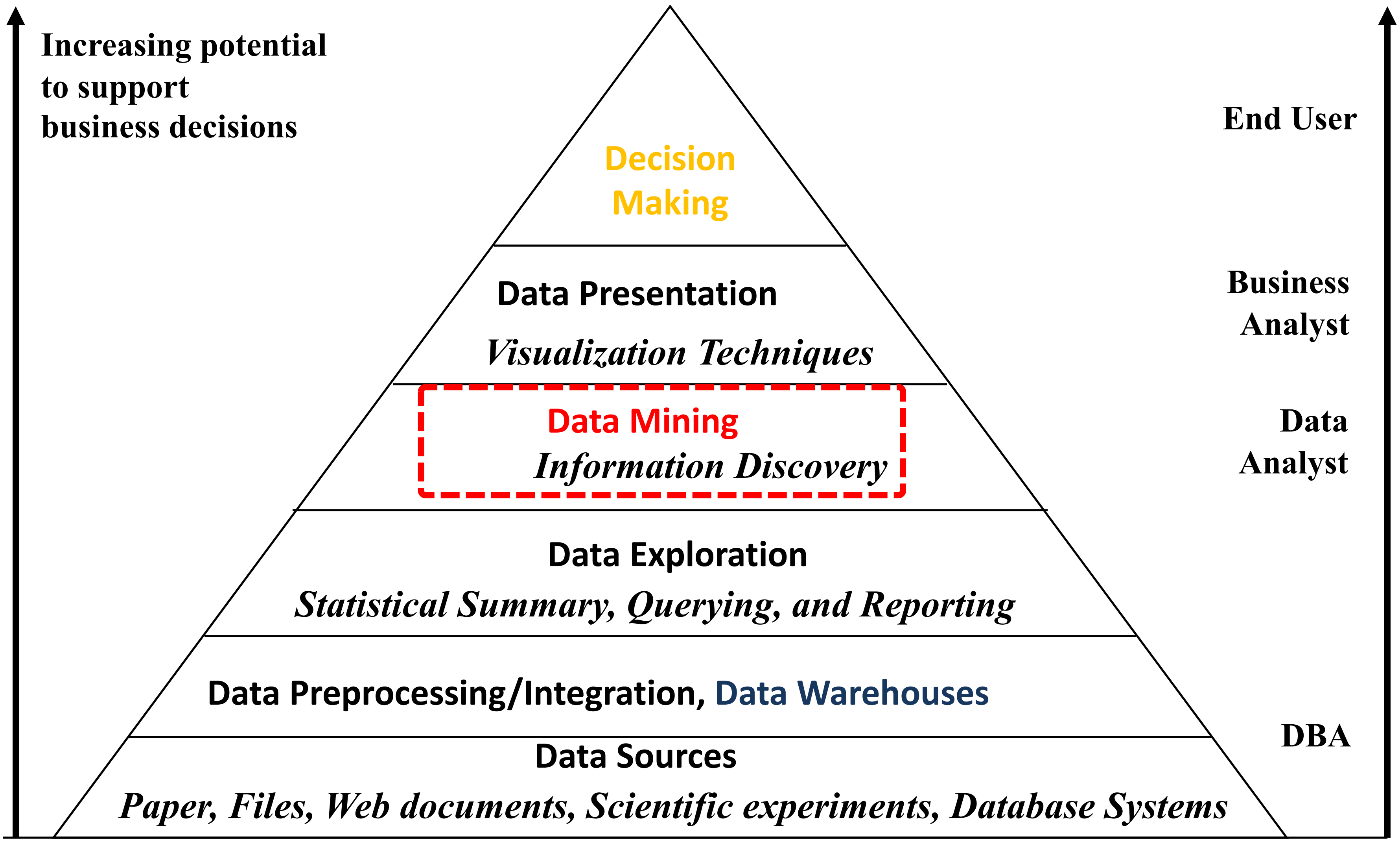
Source: Ramesh Sharda, Dursun Delen, and Efraim Turban (2017),
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition, Pearson

Business Intelligence (BI) Infrastructure



Source: Kenneth C. Laudon & Jane P. Laudon (2014), Management Information Systems: Managing the Digital Firm, Thirteenth Edition, Pearson.

Business Intelligence and Data Mining

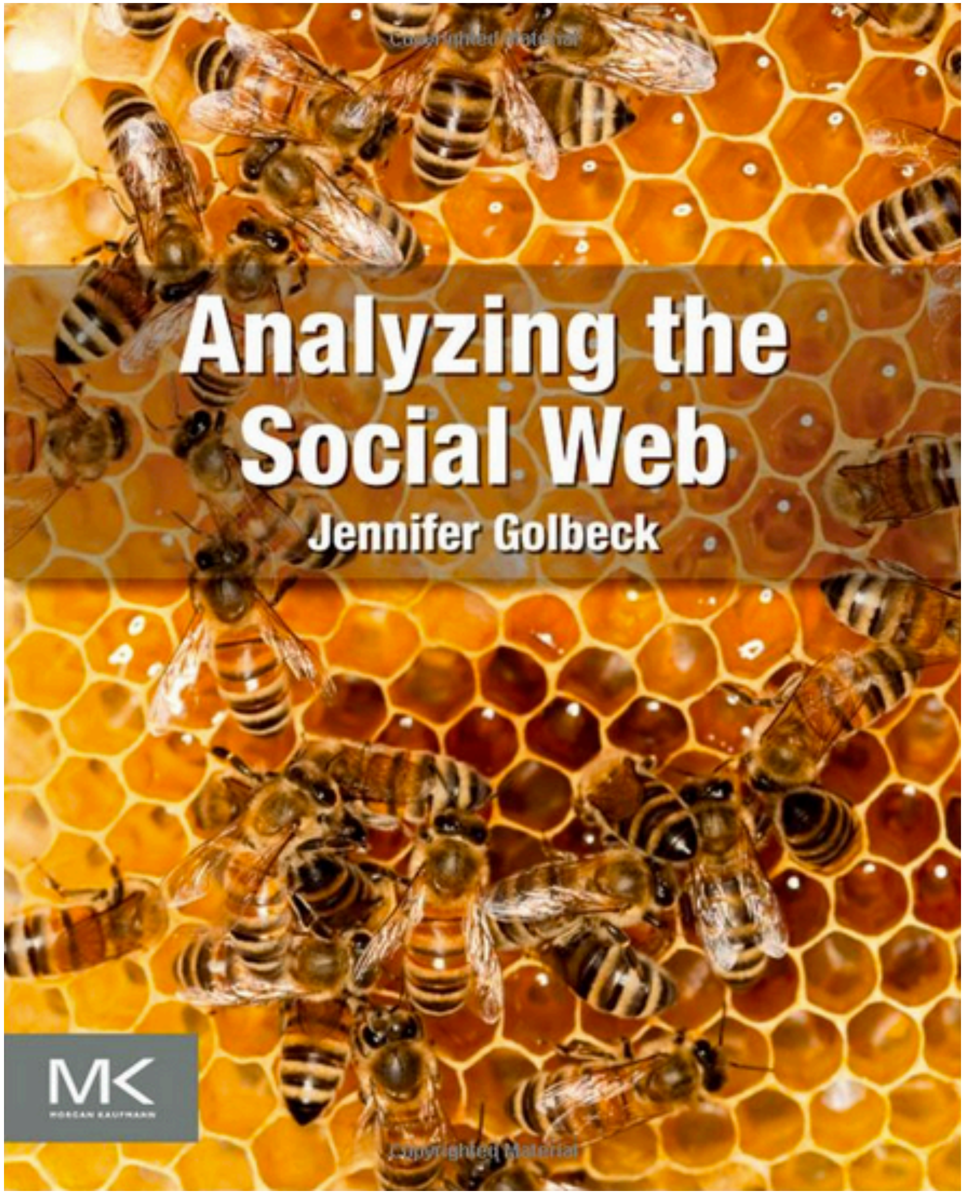


Source: Jiawei Han and Micheline Kamber (2006), Data Mining: Concepts and Techniques, Second Edition, Elsevier

Business Insights with Social Analytics

Analyzing the Social Web:
Social Network Analysis

Jennifer Golbeck (2013), Analyzing the Social Web, Morgan Kaufmann



Source: http://www.amazon.com/Analyzing-Social-Web-Jennifer-Golbeck/dp/0124055311

AI Challenge Champion

科技大擂台 與AI對話 (正式賽)

科技大擂台 與AI對話(正式賽)

報名時間：2017-12-27 ~ 2018-02-28

人工智慧（AI）正加速改變全球產業、經濟與社會生活發展型態，亦成為各大產業的發展重點。各項AI技術研發項目中，尤以語音應用為最重要的技術，因為語音對話是人機互動最直覺、最人性化的方式，語意理解技術是AI智慧應用的核心。科技部舉辦台灣首屆「科技大擂台 與AI對話」，以獎勵賽的模式鼓勵創新者運用創意與技術來解決語音AI應用的挑戰。

一、競賽目的 |

1. 建置多情境的中文語音大數據，提升我國AI團隊技術。
2. 加速中文語音對話的核心技術開發。

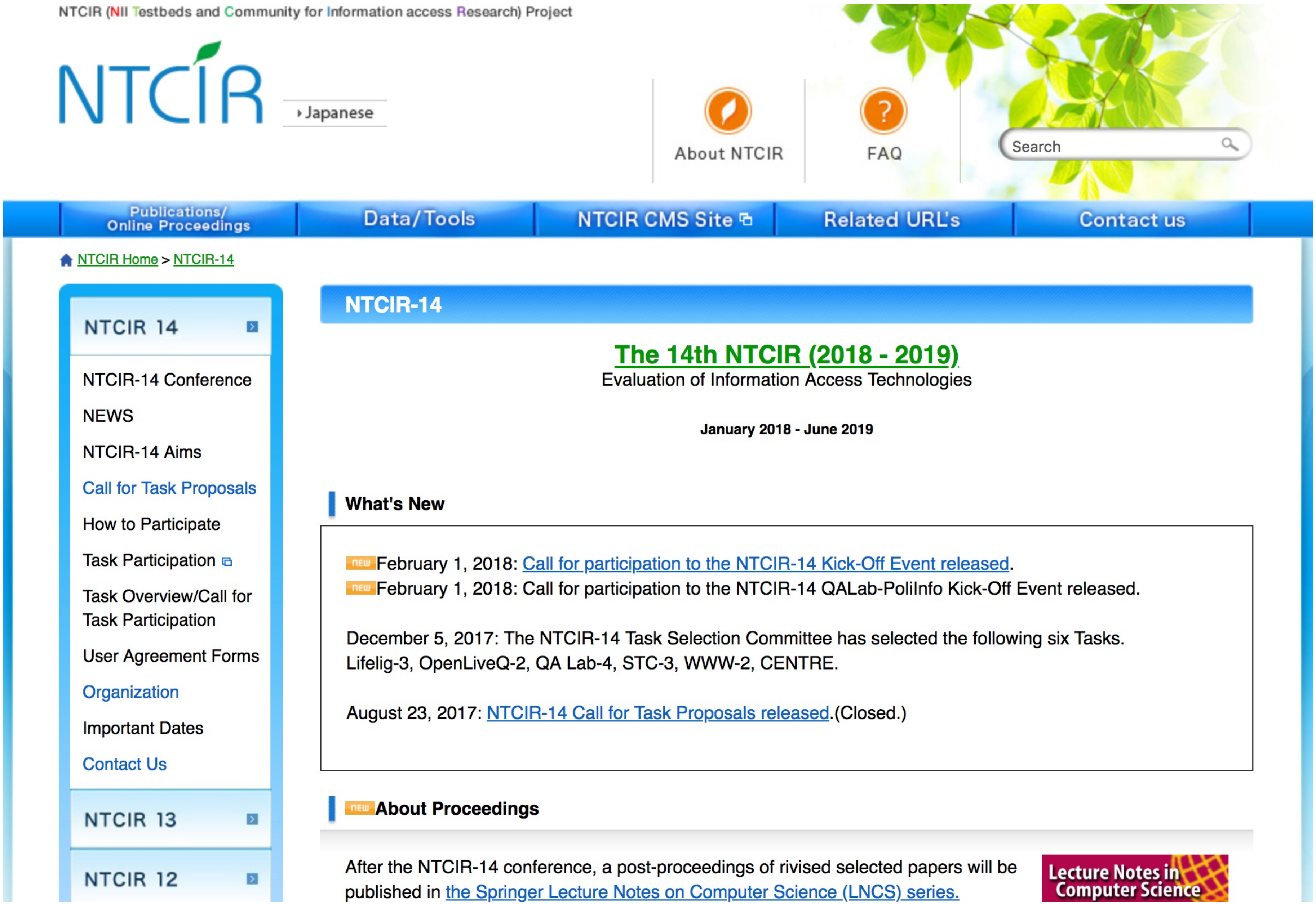
二、賽程規劃 |

三、參賽方式與資格 |

1. 初賽：本賽事採團體報名， 團員人數以10名為限。團隊中至少有一位中華民國公民，且其他成員若非本國籍者需持有中華民國工作許可或我國學籍，非本國籍成員報名時須檢附有效中華民國工作證明或在學證明，上述參賽資格需於本賽事報名截止日前(含當日)取得。詳細內容請參考簡章內容。

https://fgc.stpi.narl.org.tw/activity/techai2018

The 14th NTCIR (2018 - 2019)



http://research.nii.ac.jp/ntcir/ntcir-14/index.html

NTCIR-14
Short Text Conversation Task (STC-3)

NTCIR-14 Short Text Conversation Task (STC-3)

- NTCIR
- Twitter: @ntcirstc
- STC-3@NTCIR-14

Welcome to the top page of STC-3@NTCIR-14!
STC-3 offers three subtasks:

- Chinese Emotional Conversation Generation (CECG) Subtask
- Dialogue Quality (DQ) Subtask (for Chinese and English)
- Nugget Detection (ND) Subtask (for Chinese and English)

Key dates for DQ and ND Subtasks

Feb-Mar 2018Crawling Chinese test data from Weibo

Oct 2017-Jan 2018	Training data translation into English
Apr-Jun, 2018	Test data translation into English
Jul-Aug 2018	Training/test data annotation
Aug 31, 2018	STC-3 task registrations due (CECG, DQ, ND)
Sep 1, 2018	Training data with annotations released
Nov 1, 2018	Test data released
Nov 30, 2018	Run submissions due
Dec 20, 2018	Results and draft overview released to participants
Feb 1, 2019	Participant papers due
Mar 1, 2019	Acceptance notification
Mar 20, 2019	All camera-ready papers due
Jun 2019	NTCIR-14 Conference@NII

NTCIR-14 STC-3

Short Text Conversation Task (STC-3)

Chinese Emotional Conversation Generation (CECG) Subtask

NTCIR

Short Text Conversation Task (STC-3)

Chinese Emotional Conversation Generation (CECG) Subtask

- Home
- Task Definition
- Dataset Description
- Evaluation Metric
- Time Schedule
- Copy Rights & Contacts

Call for Participation

In recent years, there has been a rising tendency in AI research to enhance Human-Computer Interaction by humanizing machines. However, to create a robot capable of acting and talking with a user at the human level requires the robot to understand human cognitive behaviors, while one of the most important human behaviors is expressing and understanding emotions and affects. As a vital part of human intelligence, emotional intelligence is defined as the ability to perceive, integrate, understand, and regulate emotions. Though a variety of models have been proposed for conversation generation from large-scale social data, it is still quite challenging (and yet to be addressed) to generate emotional responses.

In this challenge, participants are expected to generate Chinese responses that are not only appropriate in content but also adequate in emotion, which is quite important for building an empathic chatting machine. For instance, if user says “My cat died yesterday”, the most appropriate response may be “It’s so sad, so sorry to hear that” to express sadness, but also could be “Bad things always happen, I hope you will be happy soon”to express comfort.

Previous Evaluation Challenge at NLPCC 2017

Overview of the NLPCC 2017 Shared Task: Emotion Generation Challenge

Links

NTCIR NTCIR-14

STC-3 NTCIR-14 STC-3

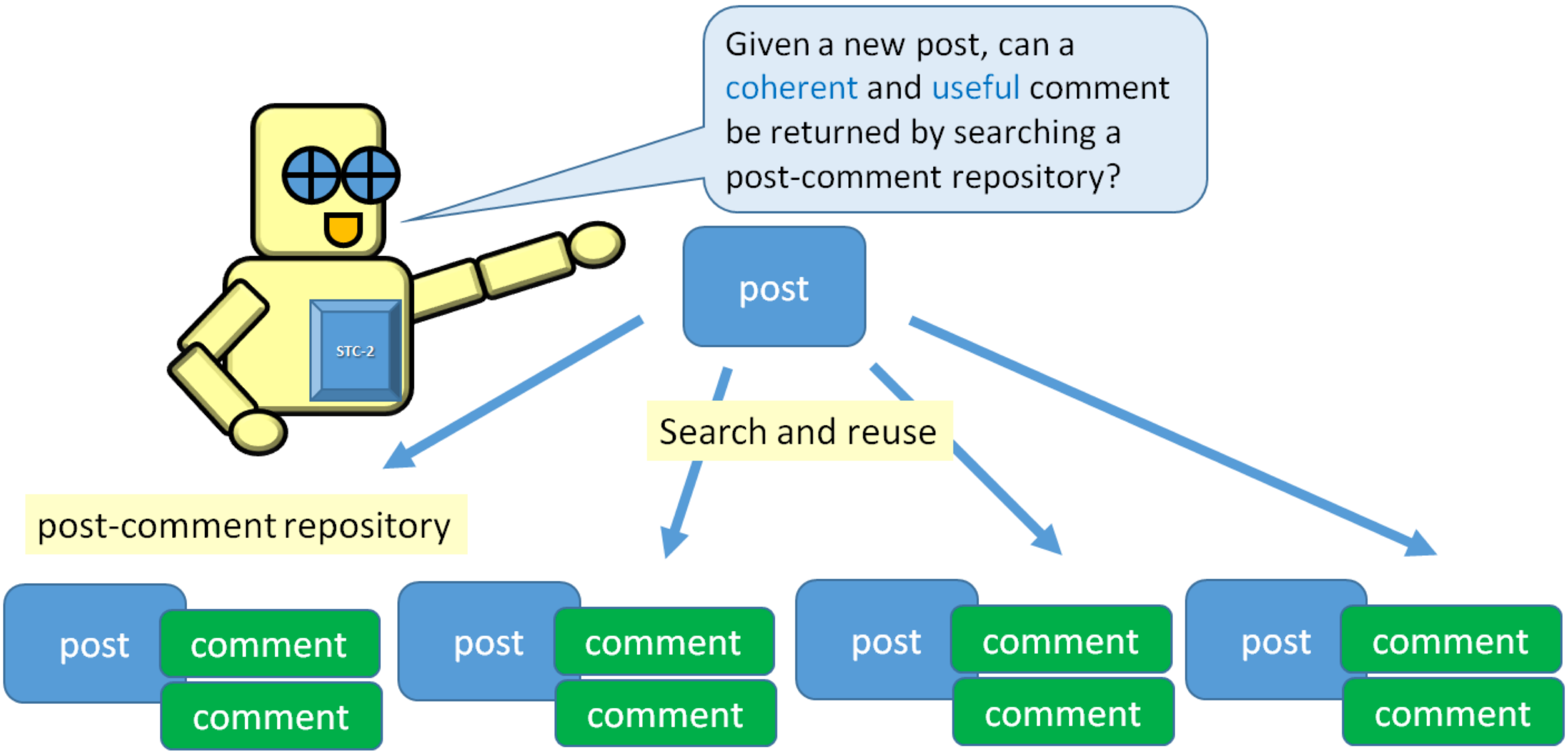
NLPCC NLPCC 2017

AI lab. of Computer Science, Tsinghua University, Beijing 100084, China.

http://www.aihuang.org/p/challenge.html

Short Text Conversation (NTCIR-13 STC2) Retrieval-based

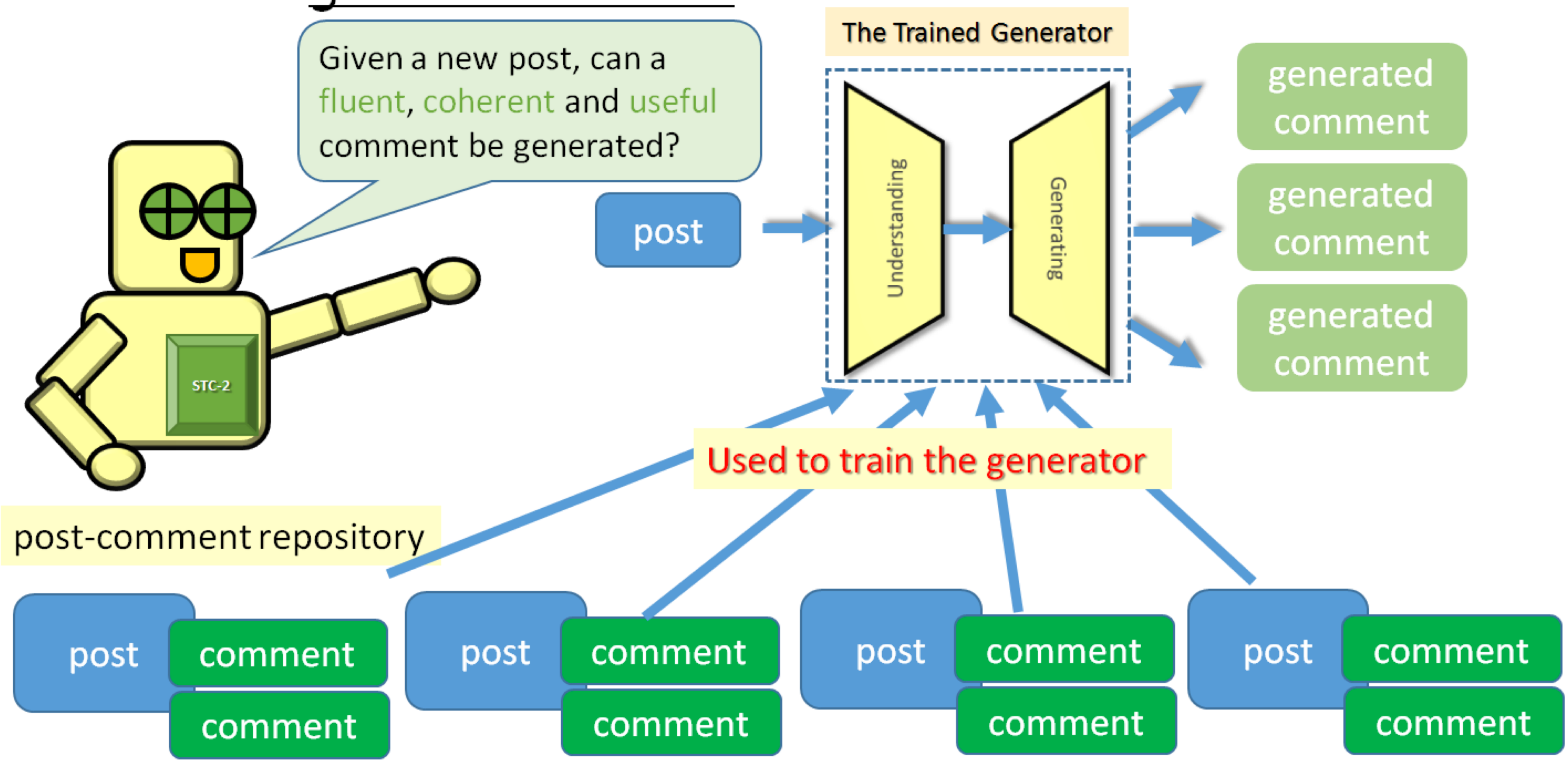
retrieval-based method



Source: http://ntcirstc.noahlab.com.hk/STC2/stc-cn.htm

Short Text Conversation (NTCIR-13 STC2) Generation-based

generation-based method



Source: http://ntcirstc.noahlab.com.hk/STC2/stc-cn.htm

Summary

- This course introduces the fundamental concepts and technology practices of business intelligence.
- Topics include
  - Business Intelligence, Analytics, and Data Science,
  - AI, Big Data, and Cloud Computing,
  - Descriptive Analytics: Nature of Data, Statistical Modeling, and Visualization, Business Intelligence and Data Warehousing,
  - Predictive Analytics: Data Mining Process, Methods, and Algorithms, Text, Web, and Social Media Analytics,
  - Prescriptive Analytics: Optimization and Simulation,
  - SNA, Machine and Deep Learning, NLP,
  - AI Chatbots and Conversational Commerce,
  - Future Trends in Analytics.

Contact Information

戴敏育 博士 (Min-Yuh Day, Ph.D.)

專任助理教授
[淡江大學](#) [資訊管理學系](#)

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Email： myday@mail.tku.edu.tw
網址：http://mail.tku.edu.tw/myday/