20210929_Supplier_Management_MB7

w³.profH4.com → Lectures → Playlist

Python 3.8 → www.anaconda.com → Download (W-M-L)
App "CARNETS" (iPad)

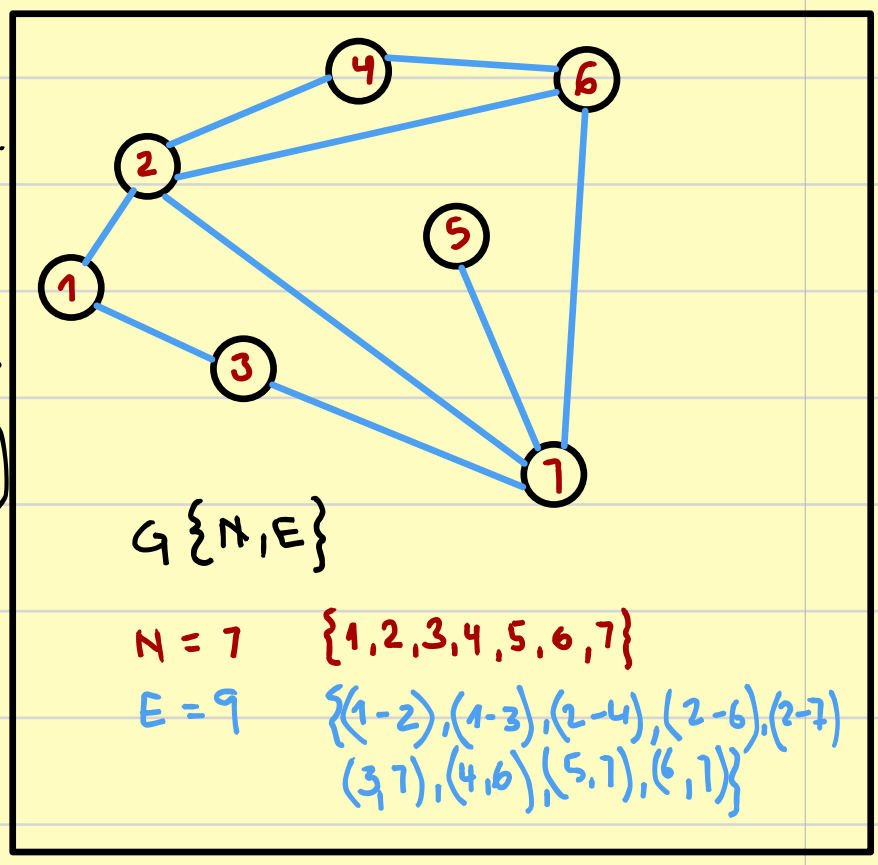
Industry 4.0 gives us the framework in which we study Supplier Management.

Def 14.0 . can be understood as a socio-technical complex-network.

Network . Set of nodes $\{n=1,\dots,N\}$ and edges $\{e=1,\dots,E\}$ described a Graph $G=\{n,e\}$.

Our 14.0 Graph is formed by cyber-physical assets.

i.e.: Robot, Gadget, Python algorithm, Artificial Vision device, PPS-SAP, ...



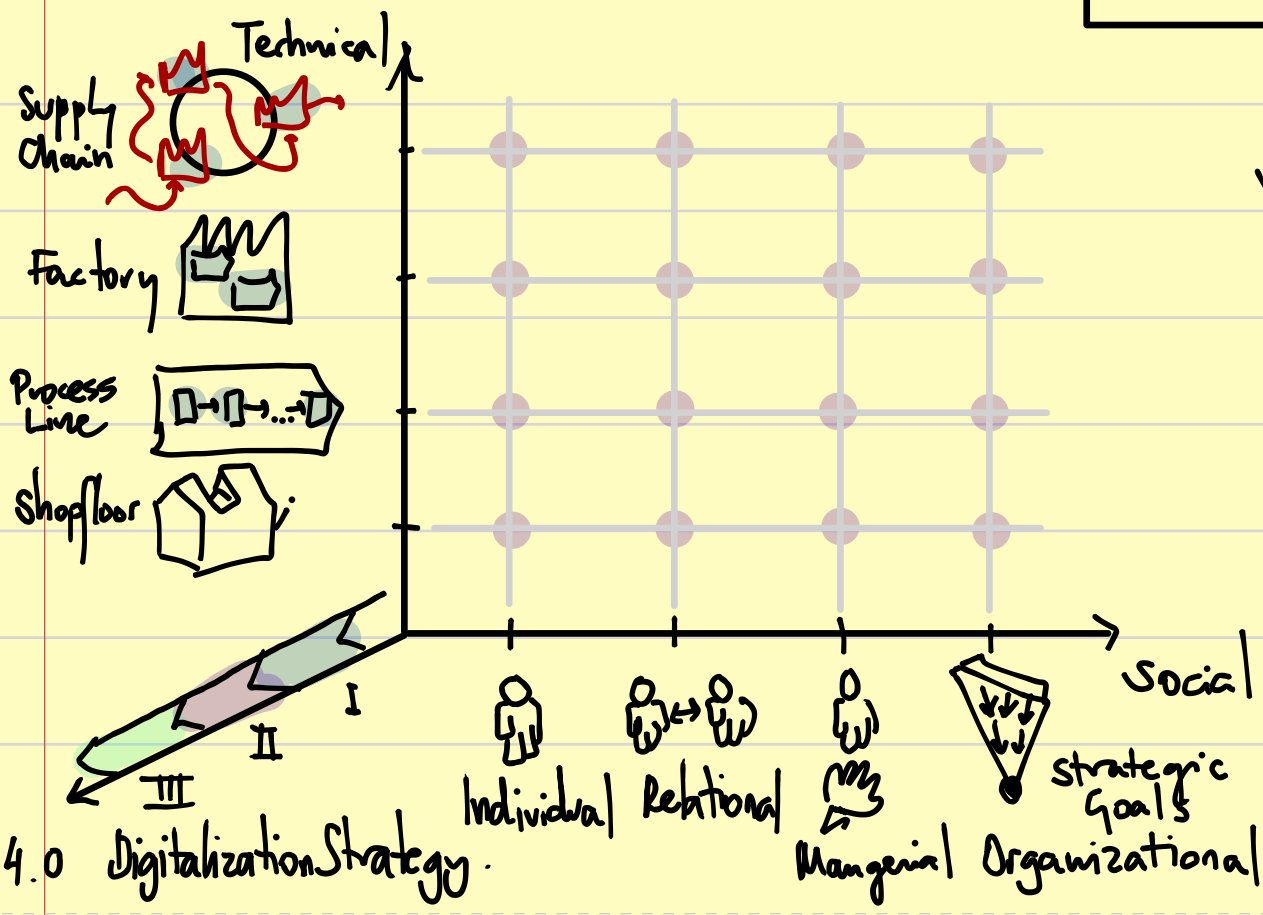
G{N,E}

N = 7 {1,2,3,4,5,6,7}

E = 9 {(1-2),(1-3),(2-4),(2-6),(2-7)
(3,7),(4,6),(5,7),(6,7)}

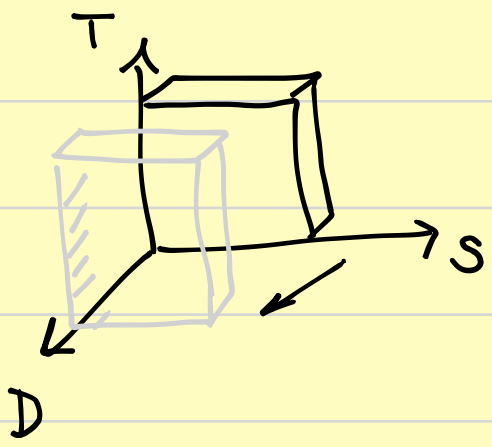
Complex. Average Path Length $\sim \ln(\ln N)$
Clustering Coefficient ↓↓
$P(k)=k^{-\gamma}$ $2<\gamma<5$

Socio-Technical



14.0 Digitalization Strategy.

We introduce a 3rd Dimension:
DIGITALIZATION Process.



I. Information.

I.1. DATA ACQUISITION.

- SENSORS (Nodes) (RFID, EEG, Wearables, Raspberry Pi)
- Infrastructure of communication (5G, ...) (Edges)

I.2. DATA STRUCTURE.

- SELECTION (Statistical methods to get the most relevant information i.e. PCA).
- CLEANING (Get rid of noise in the data i.e. clustering).
- TRANSFORMING (Transform the data so that it can be understood i.e. t-sne).

II. Knowledge.

II.1. BUSINESS ANALYTICS

- DESCRIPTIVE
  - Power Bi
  - SAP
- DIAGNOSTIC
  - Deeplearning
  - Monte Carlo
- PREDICTIVE
  - LSTM
  - Quantum computing
- PRESCRIPTIVE

  BUSINESS INTELIGENCE (first steps)

III. Value

III.1. DECISSION MAKING

- PRESCRIPTIVE

  DECISSION SUPPORT

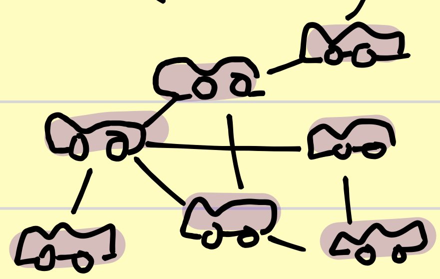
III.2. OPERATIONALIZATION

II PRESCRIPTIVE DECISSION AUTOMATION = BUSINESS INTEL.

Data are distributed in Graphs!

i.e. SOCIAL NETWORK (Twitter)

AUTOMOBILE



INFORMATION LOSS

→ Transform the data into Matrix (Excell)

→ Business Analytics on graphs.

W.profH4.com → Research
th · Geometric Deep Learning
i.e · Application on Twitter.