FAB RUNS ON CODE
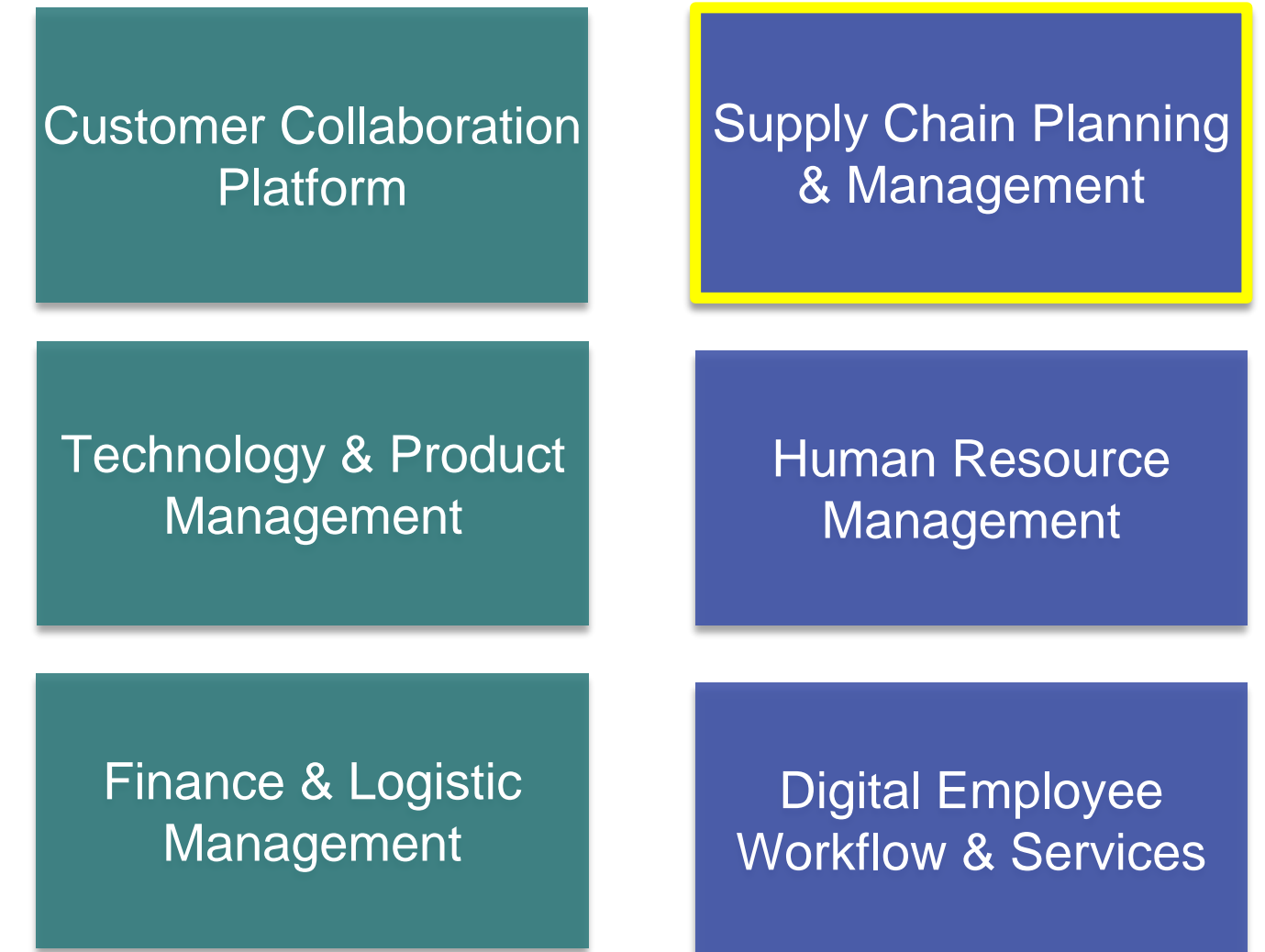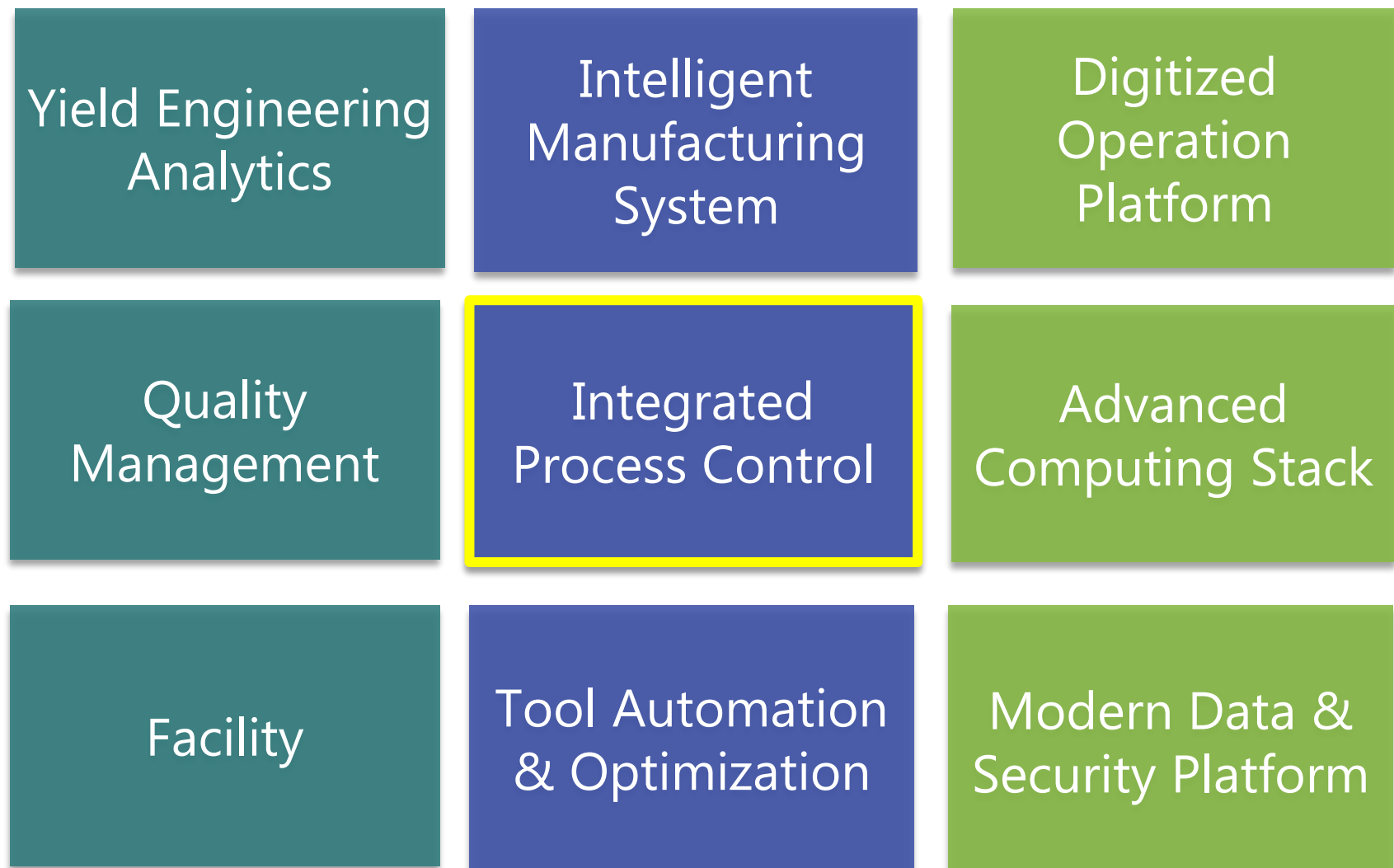
Aligning IT Products and Mission to Business Outcomes

Fab Automation, Yield Analysis, Productivity, R&D

Yield Engineering Analytics	Intelligent Manufacturing System	Digitized Operation Platform
Quality Management	Integrated Process Control	Advanced Computing Stack
Facility	Tool Automation & Optimization	Modern Data & Security Platform

Business Management

Customer Collaboration Platform	Supply Chain Planning & Management
Technology & Product Management	Human Resource Management
Finance & Logistic Management	Digital Employee Workflow & Services

課堂實作 A : DIGITAL BUSINESS (BSID 胡君怡/陳鴻毅)

俄烏戰爭気氣面臨斷供？ 台積電：已建立風險系統確保貨源多樣化

□ **Market Information**

- 請透過網路爬蟲，找出全球気氣的供應商
- 當世界發生某些特殊事件時 (地震、火災、天災、戰爭、倒閉)，對 TSMC 供應鏈是否會造成供貨風險?

□ **Materials Planning**

- 根據 TSMC 法說會的營收預估，請預估 TSMC Q2, 2022 Raw Wafer, 気氣及硫酸的需求量

Procurement & Inventory
How much of Materials to procure?
Which Supplier? What's the Inventory level?

Supply Chain Planning
What and how much of materials does tsmc need? When and Which FAB?

Manufacturing
Where and When to start the Wafer Manufacturing?

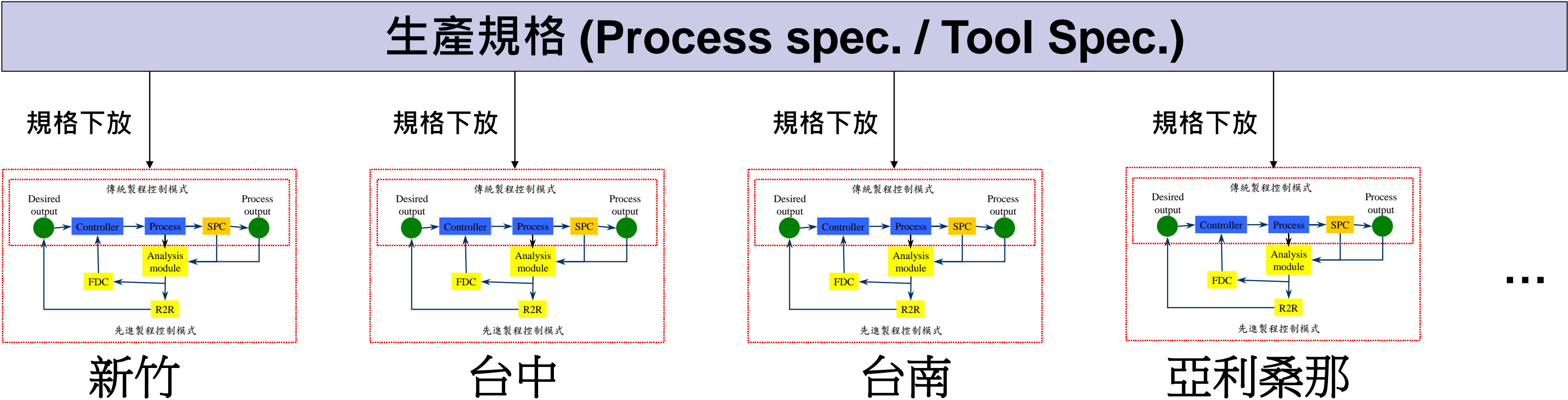**Customer Demand**
What kind of Wafer and how much does customer need?

Supplier Information
Supplier location?
Which materials do they provide?

SCPM
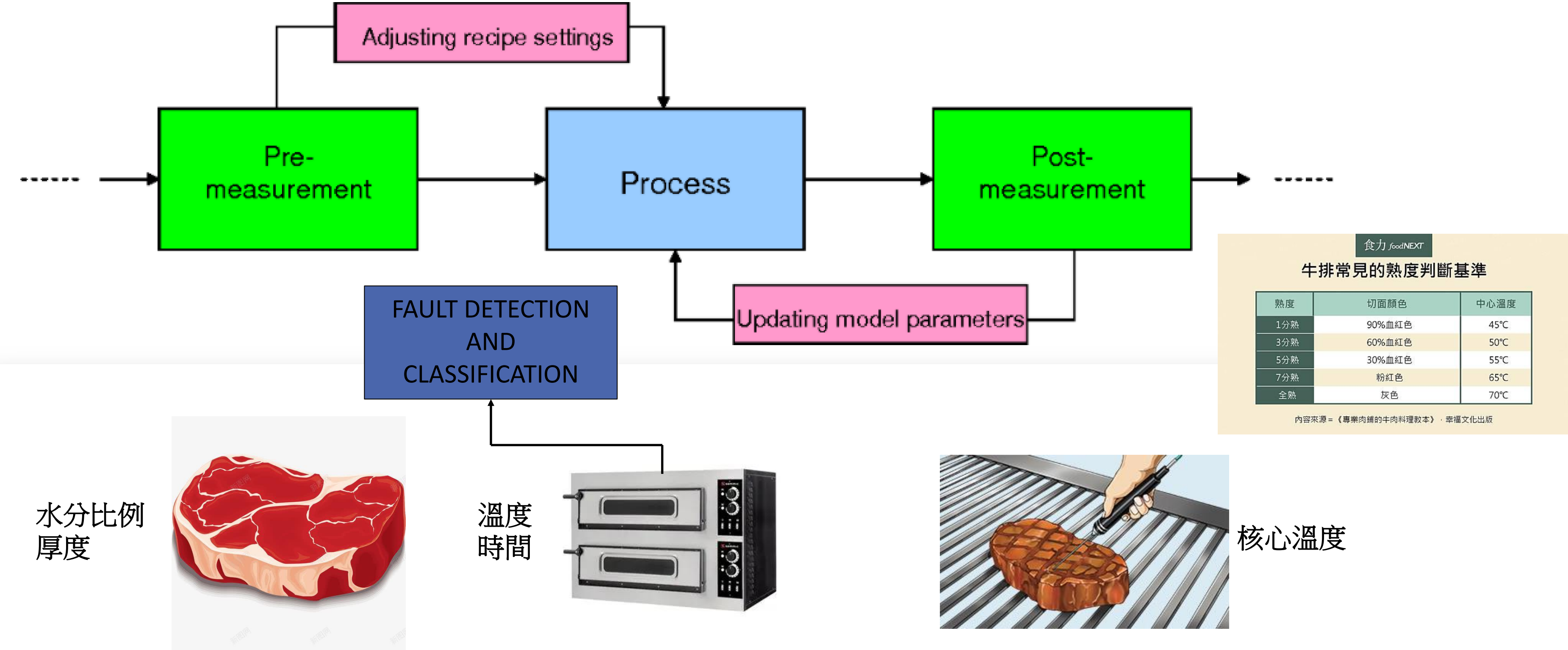Supply Chain Planning & Management

課堂實作 B – SMART MANUFACTURING (TSID 黃舜熙/陳蕙猛)

- 為了達到不同廠區生產出來的產品規格一致, 產品規格由中央訂定, 規格下放到各個獨立生產的廠區
- 廠區的生產穩定由APC (Advanced Process Control) 控管 (不同產品的Spec. 在各個不同獨立廠區都相同)
- 機台是否正常由FDC (Fault Detection and Classification) 管控 (機台 sensor 每秒報出機台溫度, 溫度的上下限也由中央控管)

生產規格 (Process spec. / Tool Spec.)

規格下放	規格下放	規格下放	規格下放

新竹　　　　　　台中　　　　　　台南　　　　　亞利桑那　　...

課堂實作 B – SMART MANUFACTURING

Adjusting recipe settings

Pre-measurement → Process → Post-measurement

FAULT DETECTION AND CLASSIFICATION

Updating model parameters

水分比例
厚度

溫度
時間

核心溫度

食力 foodNEXT
牛排常見的熟度判斷基準

熟度	切面顏色	中心溫度
1分熟	90%血紅色	45℃
3分熟	60%血紅色	50℃
5分熟	30%血紅色	55℃
7分熟	粉紅色	65℃
全熟	灰色	70℃

內容來源 =《專業肉舖的牛肉料理教本》·幸福文化出版

課堂實作

☐ **Programming and Runtime**

- **Programming language no limitation. Recommend - Java/Javascript/Go/Python, avoid using C/C++ (相關的套件不容易找)**

- **Deploy on GKE (Google Kubernetes Engine).**

☐ **期末專題Evaluation Criteria**

- **Application meet requirement & presentation – 20%**

- **Application Architecture – 15%**

- **Code Contribution – 15%**

- **Testing Coverage – 15%**

- **Code Healthy Metric – 10%**

- **Deployment (Canary, High Availability) – 15%**

- **Application Monitor – 10%**