



Information System Management (MIS)

Transformative Technologies
And Business

Dr. Baha'eddin Alhaj Hasan
Department of Industrial Engineering

Key Transformative Technologies

التكنولوجيا التي لها علاقة بتغيير وسائل
الإنتاج

- The current and next technologies that will make an impact on business.
- The key technologies driving digital transformation.
- By adopting digital technologies, businesses can increase productivity relative to the resources they consume.
- 2) Increasing automation and using data analytics in a business make planning and process management much more efficient.

الامتعة رح تزاد

What is digital transformation?

- Digital transformation is the integration of digital technology into all areas of a business, fundamentally changing how you operate and deliver value to customers. It's also a cultural change that requires organizations to continually challenge the status quo, experiment, and get comfortable with failure.



Learn to be A part of The Future....

<https://www.youtube.com/watch?v=7vQznLKEfBs&t=15s>

<https://www.youtube.com/watch?v=yubzJw0uiE4>

<https://www.youtube.com/watch?v=mo1lNRKnayA&t=265s>

<https://www.youtube.com/watch?v=bcTzyx35odY>

<https://www.youtube.com/watch?v=ad79nYk2keg>

1) transfer of data
more expensive : Technologies الأساس من هاي ال
2) processing of data

Key Transformative Technologies

Five **key transformative technologies** will be in demand:

» Virtual and augmented reality

كل اشئ قائم على فكرة ال
digitalization

» 5G mobile

اسرع و أكثر أمان

high level of
automation ,capacity,accessibility,
handle more information, effective

» 3D printing

Completely digital manufacturing , new product, new process

» Blockchain

like transaction of money using bitcoin

تحويل العملات إلى عملات رقمية مما
يسهل تحويل الأموال من غير اختراقها
digital coins

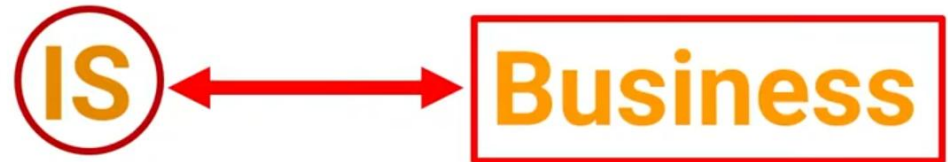
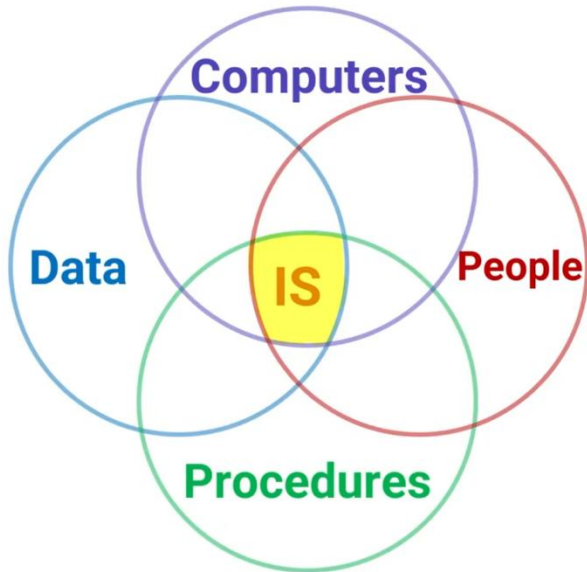
» Artificial intelligence (AI)

It has reasoning and creating solution

معالجة الامور بطريقة ذكية

Source: "The Next Talent Wave: Navigating the Digital Shift – Outlook 2021," The Information and Communications Technology Council (ICTC) of Canada 2017.

Introduction to Business



» What is **business**?

- ♦ *"Any endeavor or enterprise that achieves a **goal** through the effort of a person or persons that involves a **monetary** component."*

What is business

- ♦ “Any endeavor or enterprise that achieves a **goal** through the effort of a person or persons that involves a **monetary** component.”



Service



Product

سواء كان هاي أو هاي لازم يكون عندي مردود مالي

What is business



For-profit



Nonprofit



Government

All operate on the same basic principle

What is business

Businesses require money in order to operate

All have the same goal:

Money Coming In > Money Going Out

What is business

Money Coming In - Money Going Out

The difference is known as:

MARGIN

هامش الربح

MARGIN

يختلف حسب هدف المؤسسة

Money Coming In - Money Going Out



For-profit

> Profit

< Loss



Nonprofit

فائض

> Surplus

< Deficit

عجز



Government

> Under Budget

< Over Budget



MARGIN

Success: Money Coming In $>$ Money Going Out

Failure: Money Coming In $<$ Money Going Out

MARGIN

Where does it come from?

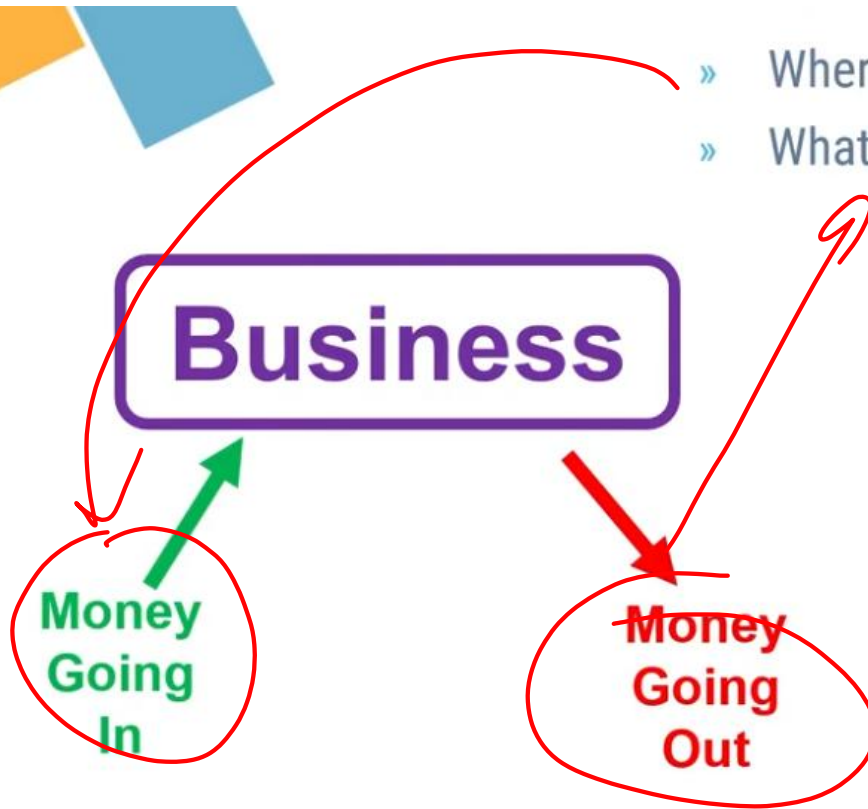
Operations

or business process or business function

- » What does it take for a business to operate?
- » What are all the components (parts) of a business?
- » How does a business actually work?

OPERATIONS

- » Where does the money going in come from?
- » What is the money going out go to?



النجاح أو الفشل يتعلق فقط بال margin

OPERATIONS

Business



لما بدي اجي افكر فيه لازم افكر بالفكرة الأساسية

Starts with a **core idea**

- » Is it feasible? بدي اشوف اذا رح تحقق ربح
 - ◊ i.e. will it make money?
 - ◊ i.e. is it worth your time as an investment?
- » **How can we tell?**

هل تستحق الوقت والجهد

FEASIBILITY

Starts with a core idea

- » Is it feasible?
- » How much money will I need to bring in, in order to make this a viable business?
 - ◇ How much money is going out?
 - ◇ What are our costs and expenses?
 - ◇ How much money will be needed to run the business?

COSTS

لازم تفكير المهندس يكون
اقتصادي

Identifying Costs

Direct Material Costs

- » Cost of raw material and parts directly tied to a unit of product
- » **Examples:** material cost
 - ◇ Plastic used to make toys
 - ◇ Cloth and thread used to make clothing
 - ◇ Screws, nuts, and bolts
 - ◇ Resistors, capacitors, chips, and other electronic components

COSTS

Identifying Costs

Direct Labour Costs

- » Cost of wages, benefits, and insurance that are paid to employees directly involved in manufacturing a product.
- » **Examples:**
 - ◇ Wages paid to assembly line workers.
 - ◇ Employee health plan premiums paid by the business for workers directly involved in manufacturing.

COSTS

Identifying Costs

مثلا سعر الكهرباء
العمال التي لا تعمل مباشرة على خط الانتاج

لها علاقة في إنتاج المنتج

Manufacturing Overhead

- » Indirect product costs that can not be tied directly to a single unit of product.
- » **Examples:**
 - ♦ Glue, oil, tape, cleaning supplies, and other material costs that can not be tied to a single unit of product.
 - ♦ Electricity for equipment, lights, heating, etc. and depreciation on equipment.
 - ♦ Wages paid to employees only indirectly involved in manufacturing a product such as security guards, supervisors, QA, maintenance, etc.
 - ♦ Cost of shipping the product (including packaging).

COSTS

Identifying Costs

ليس لها علاقة مباشرة في إنتاج المنتج

Period Costs

- » Non-manufacturing costs that are expensed within an accounting period and not related to creating a product.
- » **Examples:**
 - ◇ Cost of sales and marketing.
 - ◇ Accounting and audit fees.
 - ◇ Office building costs.
 - ◇ Salary paid to executives and office workers.
 - ◇ Maintenance and depreciation on office equipment.
 - ◇ Cost of office supplies.

COSTS

Identifying Costs

Many Other Costs

- » Only gave a small number of examples.
- » Also costs related to product support, returns, etc.
- » Startup costs, buying new equipment, creating your website/hosting it, etc.
- » Cost to recruit new employees.
- » And many many more.

RUNNING A BUSINESS

The most important commodity?

» Is it:

- ♦ Profit?
- ♦ Margin?
- ♦ Money in the bank?
- ♦ Your product and IP?
- ♦ Employees?
- ♦ Your IT infrastructure?

No

RUNNING A BUSINESS

The most important commodity?

» Is it:

INFORMATION

RUNNING A BUSINESS

How do we run a successful business?

TRACK EVERYTHING

What to track?

How to track it?

Why?

RUNNING A BUSINESS

- » **Data:** Recorded facts or figures.
- » **Information:** Data presented in a meaningful context or processed to provide a meaningful context.
- » **Knowledge:** What we know from past experience or the use of information to solve a problem.

Today's Temperature Forecast for London Ontario

High: 5C

Low: -10C

It's cold, therefore I should wear a jacket today.

الارقام عبارة عن data
High and low (info)
اخر سطر هو ال
knowledge

Data, Information, or Knowledge?

- 1) The tallest student in the class is 175.3cm tall.
- 2) Cat, dog, gerbil, rabbit, and cockatoos are permitted household pets in London Ontario.
- 3) 161.2, 175.3, 166.4, 164.7, 169.3
- 4) The heights of the students in the class are 161.2cm, 175.3cm, 166.4cm, 164.7cm, and 169.3cm.
- 5) Cat, dog, gerbil, rabbit, cockatoo
- 6) A lion is not a permitted household pet in London Ontario as it is not in the list of permitted pets.

Data, Information, or Knowledge?

- 1) The tallest student in the class is 175.3cm tall.
- 2) Cat, dog, gerbil, rabbit, and cockatoos are permitted household pets in London Ontario.
- 3) 161.2, 175.3, 166.4, 164.7, 169.3
- 4) The heights of the students in the class are 161.2cm, 175.3cm, 166.4cm, 164.7cm, and 169.3cm.
- 5) Cat, dog, gerbil, rabbit, cockatoo
- 6) A lion is not a permitted household pet in London Ontario as it is not in the list of permitted pets.

Data, Information, or Knowledge?

- 1) The tallest student in the class is 175.3cm tall.
- 2) Cat, dog, gerbil, rabbit, and cockatoos are permitted household pets in London Ontario.
- 3) 161.2, 175.3, 166.4, 164.7, 169.3
- 4) The heights of the students in the class are 161.2cm, 175.3cm, 166.4cm, 164.7cm, and 169.3cm.
- 5) Cat, dog, gerbil, rabbit, cockatoo
- 6) A lion is not a permitted household pet in London Ontario as it is not in the list of permitted pets.

Data, Information, or Knowledge?

- 1) The tallest student in the class is 175.3cm tall.
- 2) Cat, dog, gerbil, rabbit, and cockatoos are permitted household pets in London Ontario.
- 3) 161.2, 175.3, 166.4, 164.7, 169.3
- 4) The heights of the students in the class are 161.2cm, 175.3cm, 166.4cm, 164.7cm, and 169.3cm.
- 5) Cat, dog, gerbil, rabbit, cockatoo
- 6) A lion is not a permitted household pet in London Ontario as it is not in the list of permitted pets.

we need info. to run the sys

RUNNING A BUSINESS

How to track data?

- » **Databases**
- » **Spreadsheets**
- » **IT Systems**

RUNNING A BUSINESS

How do we run a successful business?

TRACK EVERYTHING

What to track?

Everything

Why?

To obtain or
create
information

How to track it?

Databases
Spreadsheets
IT Systems