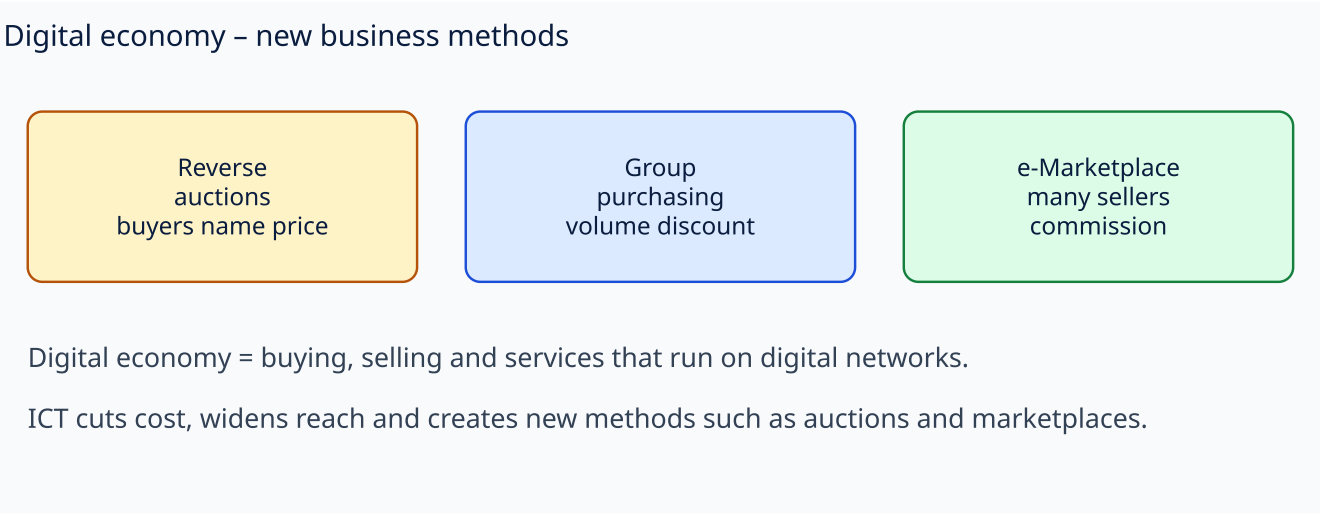
Grade 13 A/L ICT · Lesson 12

12.1 Digital Economy and ICT in Business

Syllabus 12.1. The **digital economy** is the part of the economy that uses computers, the Internet and digital networks to create, buy and sell goods and services. New methods include **reverse auctions**, **group purchasing** and **e-marketplaces**. Organisations may be **pure brick**, **brick and click** or **pure click**. ICT supports **accounting**, **HR**, **production**, **marketing and sales**, **supply chain management (SCM)** and **business communication**. **Secure payment** uses gateways, encrypted card payments, third-party systems such as PayPal, and micro-payments. E-commerce also brings **threats** (privacy) and **opportunities** (product commercialisation).

1. Digital economy



Reverse auctions, group purchasing and e-marketplace

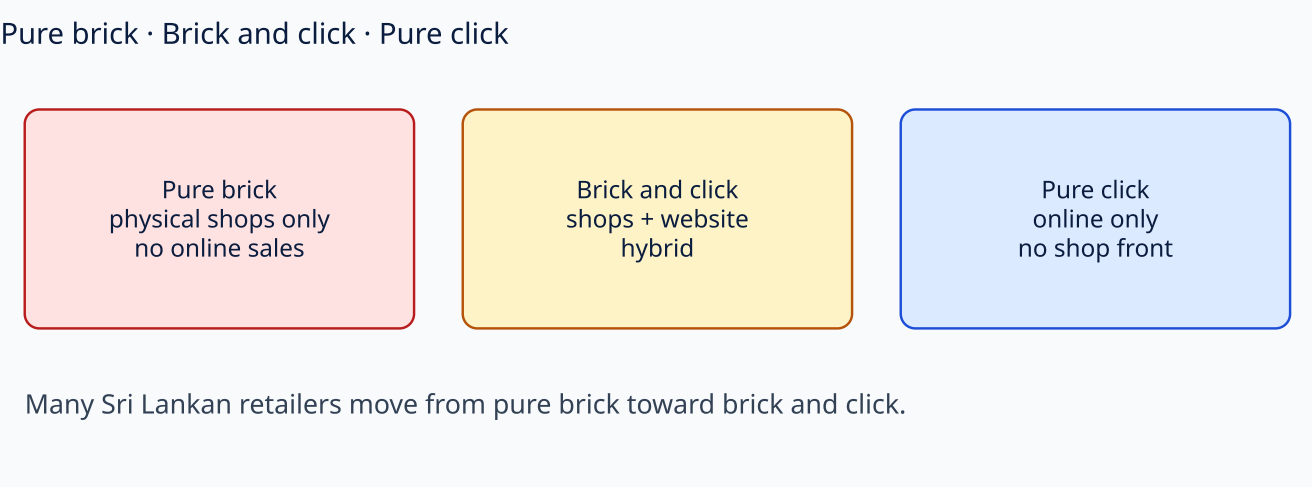
- **Digital economy** – economic activity that depends on digital networks and ICT.
- **Reverse auction** – buyers state what they want; sellers bid down the price.
- **Group purchasing** – many buyers join to get a volume discount.
- **e-Marketplace** – online place where many sellers and buyers meet; the platform often takes a **commission**.

🧱 **Worked example: A product lists at Rs. 12000. Group of 20 gets 15% off. What is the group price and saving?**
Group price = 12000 × (1 − 0.15) = **Rs. 10200**. Saving = **Rs. 1800**.

🧱 **Worked example: Reverse auction: starting bid Rs. 80000, winning bid Rs. 65500. Saving?**
Saving = 80000 − 65500 = **Rs. 14500**.

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2. Pure brick, brick and click, pure click



Three organisation types

- **Pure brick** – only physical shops; no online sales channel.
- **Brick and click** – physical shops plus a website or app (hybrid).
- **Pure click** – online only; no physical shop front.

> 🧱 **Worked example: Offline fulfilment costs Rs. 200 per unit; online Rs. 50. Margin Rs. 500, 100 units. Compare profits.**
> Offline profit = 100 × (500 − 200) = **Rs. 30000**. Online = 100 × (500 − 50) = **Rs. 45000**. Extra online = **Rs. 15000**.

🐍 Online vs offline profit

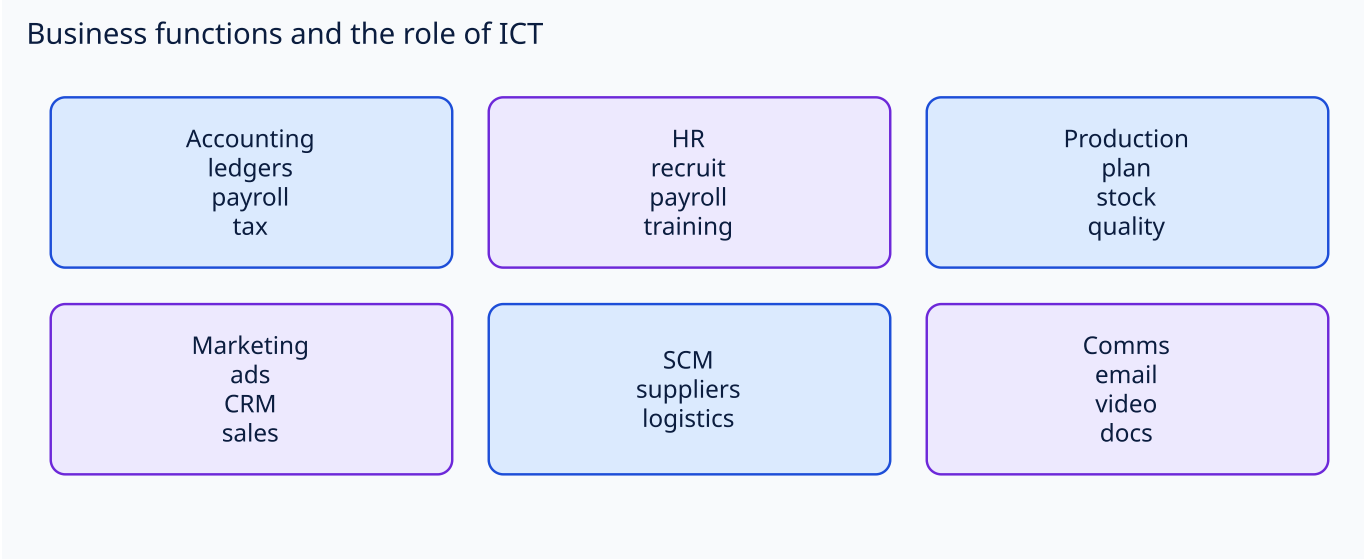
```
units, margin = 100, 500
off_cost, on_cost = 200, 50
off_profit = units * (margin - off_cost)
on_profit = units * (margin - on_cost)
print("Offline profit Rs.", off_profit)
print("Online profit Rs.", on_profit)
print("Extra online Rs.", on_profit - off_profit)
```

▶ Output

```
Offline profit Rs. 30000
Online profit Rs. 45000
Extra online Rs. 15000
```

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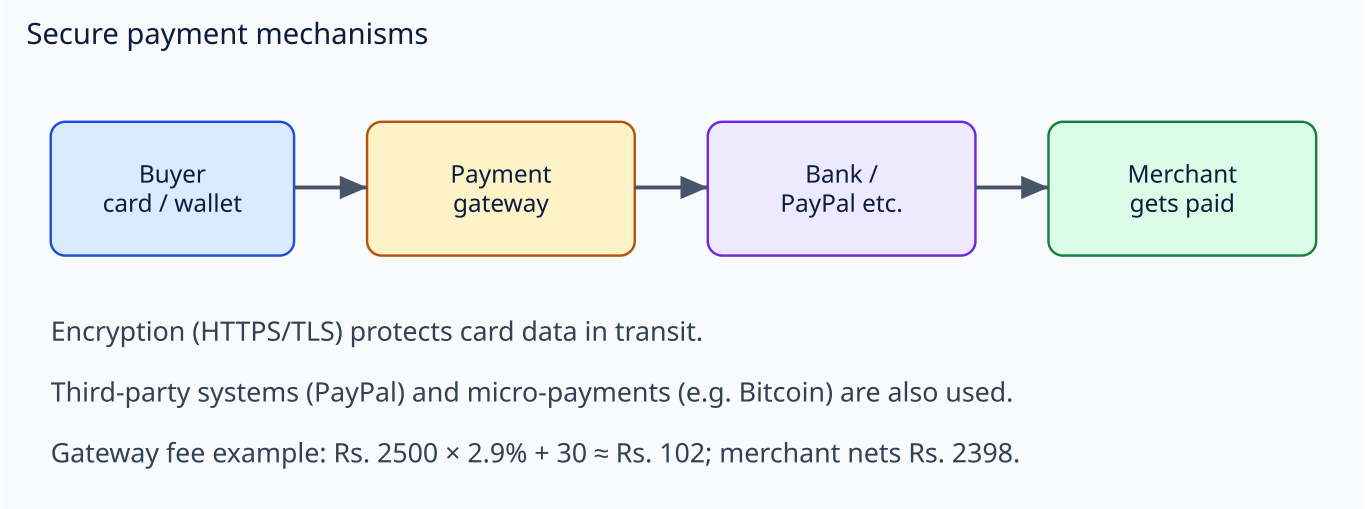
3. Business functions and ICT



ICT across accounting, HR, production, marketing, SCM and communication

- **Accounting and ICT** – ledgers, invoices, payroll and tax software.
- **Human resource and ICT** – recruitment portals, attendance, e-learning.
- **Production and ICT** – planning, stock control, quality monitoring.
- **Marketing & sales and ICT** – websites, CRM-style customer records, online ads.
- **Supply chain management (SCM) and ICT** – track suppliers, logistics and inventory.
- **Business communication and ICT** – email, video meetings, shared documents.

4. Secure payment mechanisms



From buyer through gateway to merchant

- **Payment gateway** – service that takes card/wallet data and talks to the bank.
- **Secure credit card payments** – card details travel over encrypted links (HTTPS/TLS).
- **Third-party systems** – e.g. **PayPal**; the buyer pays the third party, which pays the merchant.
- **Data encryption** – scrambles data so eavesdroppers cannot read it.

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- **Micro credit payments** – very small online payments; digital currencies such as **Bitcoin** are one example.

> 🧱 **Worked example: Sale Rs. 2500. Gateway charges 2.9% + Rs. 30. Fee and net amount?**
> Fee = round(2500 × 0.029 + 30) = **Rs. 102**. Merchant nets **Rs. 2398**.

🐍 Payment gateway fee

```
sale = 2500
fee = round(sale * 0.029 + 30)
print("Gateway fee Rs.", fee)
print("Merchant nets Rs.", sale - fee)
```

▶ Output

```
Gateway fee Rs. 102
Merchant nets Rs. 2398
```

> 🧱 **Worked example: Marketplace price Rs. 4500, commission 8%. Commission and seller amount?**
> Commission = 4500 × 0.08 = **Rs. 360**. Seller receives **Rs. 4140**.

🐍 Marketplace commission

```
price = 4500
rate = 0.08
commission = round(price * rate)
seller = price - commission
print("Commission Rs.", commission)
print("Seller receives Rs.", seller)
```

▶ Output

```
Commission Rs. 360
Seller receives Rs. 4140
```

5. Threats and opportunities

- **Privacy threat** – customer data can be stolen or misused if systems are weak.
- **Product commercialisation opportunity** – ICT lets firms reach new markets and sell digital products worldwide.

> 💡 Think of a payment gateway as the secure checkout clerk between your browser and the bank.

> 🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* In 2026 many Sri Lankan shops take LankaQR and app wallets beside cards; open-banking APIs and tokenised cards further reduce the need to type a full card number. Interesting for news, not required for the exam.

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Key Words

Digital economy – Economy based on digital networks and ICT.

Reverse auction – Sellers compete by lowering the price for a buyer's request.

Group purchasing – Buyers join to get a volume discount.

e-Marketplace – Online place where many buyers and sellers meet.

Pure brick – Organisation with only physical shops.

Brick and click – Organisation with shops and an online channel.

Pure click – Organisation that sells only online.

SCM – Supply chain management – suppliers, logistics, inventory.

Payment gateway – Service that processes card or wallet payments securely.

Encryption – Scrambling data so only authorised parties can read it.

PayPal – Example of a third-party online payment system.

Privacy – Protecting personal data from misuse – a key e-commerce threat area.

Sample Q&A

1. Define digital economy.

> **Answer:** Economic activity that uses digital networks and ICT to create, buy and sell.

2. Name three new business methods in the digital economy.

> **Answer:** Reverse auctions; group purchasing; e-marketplace.

3. Difference between pure brick and pure click?

> **Answer:** Pure brick = shops only; pure click = online only.

4. List four business functions where ICT is used.

> **Answer:** Any four of: accounting, HR, production, marketing & sales, SCM, communication.

5. What does a payment gateway do?

> **Answer:** Securely takes payment data and connects buyer, merchant and bank.

6. One privacy threat and one commercialisation opportunity?

> **Answer:** Threat: stolen customer data. Opportunity: sell digital products to new markets.

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MCQ

1. The digital economy mainly depends on

A. steam engines
B. hand delivery only
C. digital networks and ICT
D. paper ledgers only
E. cash registers alone

2. In a reverse auction, sellers typically

A. close all shops
B. raise prices together
C. ban the Internet
D. ignore the buyer
E. bid the price down

3. Group purchasing of a Rs. 12000 item at 15% off costs

A. Rs. 10200
B. Rs. 12000
C. Rs. 15000
D. Rs. 6000
E. Rs. 9000

4. A firm with shops and a website is

A. offline only
B. pure click
C. cash-only
D. brick and click
E. pure brick

5. SCM with ICT mainly helps

A. write poems
B. paint walls
C. track suppliers, logistics and stock
D. ban email
E. ignore stock

6. A payment gateway sits between the buyer and the

A. CRT monitor
B. bank / card network
C. floppy disk
D. keyboard only
E. printer only

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7. Sale Rs. 2500 at 2.9% + Rs. 30 gateway fee is

A. Rs. 102
B. Rs. 500
C. Rs. 200
D. Rs. 50
E. Rs. 10

8. Marketplace commission on Rs. 4500 at 8% is

A. Rs. 450
B. Rs. 900
C. Rs. 360
D. Rs. 45
E. Rs. 100

9. Encrypting card data in transit mainly uses

A. CRT glow
B. loudspeakers
C. plain HTTP only
D. postcard mail
E. HTTPS / TLS

10. A privacy risk in e-commerce is

A. cheaper ads
B. misuse of customer personal data
C. faster delivery
D. more PDF manuals
E. wider stock

11. Which term means: “Economy based on digital networks and ICT”?

A. Group purchasing
B. Brick and click
C. SCM
D. PayPal
E. Digital economy

12. Which term means: “Sellers compete by lowering the price for a buyer’s request”?

A. Payment gateway
B. Pure click
C. Privacy
D. Reverse auction
E. e-Marketplace

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13. Which term means: “Buyers join to get a volume discount”?

A. Digital economy
B. Pure brick
C. Encryption
D. Group purchasing
E. SCM

14. Which term means: “Online place where many buyers and sellers meet”?

A. e-Marketplace
B. Payment gateway
C. Reverse auction
D. Brick and click
E. PayPal

15. Which term means: “Organisation with only physical shops”?

A. Pure brick
B. Privacy
C. Group purchasing
D. Encryption
E. Pure click

16. Which term means: “Organisation with shops and an online channel”?

A. e-Marketplace
B. PayPal
C. SCM
D. Digital economy
E. Brick and click

17. Which term means: “Organisation that sells only online”?

A. Privacy
B. Pure click
C. Pure brick
D. Payment gateway
E. Reverse auction

18. Which term means: “Supply chain management – suppliers, logistics, inventory”?

A. Group purchasing
B. Encryption
C. SCM
D. Digital economy
E. Brick and click

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19. Which term means: "Service that processes card or wallet payments securely"?

A. Reverse auction
B. Payment gateway
C. PayPal
D. Pure click
E. e-Marketplace

20. Which term means: "Scrambling data so only authorised parties can read it"?

A. Privacy
B. Pure brick
C. SCM
D. Encryption
E. Group purchasing

Structured Questions

1. Define the digital economy and describe reverse auctions, group purchasing and e-marketplaces. *(4 marks)*

> Definition; reverse auction; group purchasing; e-marketplace with commission.

2. Compare pure brick, brick and click and pure click organisations. *(3 marks)*

> Shops only; hybrid; online only – with one example each.

3. Explain the role of ICT in four business functions including SCM. *(2 marks)*

> Any four clear roles with SCM included.

4. Describe secure payment: gateway, encryption, third-party systems and micro-payments. *(4 marks)*

> Gateway; HTTPS/TLS; PayPal-style; Bitcoin/micro-payments.

5. Work out group price for Rs. 12000 at 15% off, marketplace commission on Rs. 4500 at 8%, and gateway fee on Rs. 2500. *(3 marks)*

> Group Rs. 10200; commission Rs. 360; fee Rs. 102.

Summary

- Digital economy uses ICT networks for trade.
- New methods: reverse auctions, group purchasing, e-marketplace.
- Orgs: pure brick, brick and click, pure click.
- ICT supports accounting, HR, production, marketing, SCM, communication.

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- Secure pay: gateway, encryption, PayPal, micro-payments.
- Threats: privacy. Opportunities: product commercialisation.

MCQ answer key – 12.1

1. **C** – Networks + ICT.
2. **E** – Price falls.
3. **A** – 12000×0.85.
4. **D** – Hybrid.
5. **C** – Supply chain.
6. **B** – Banks.
7. **A** – round(2500×0.029+30).
8. **C** – 4500×0.08.
9. **E** – TLS.
10. **B** – Data misuse.
11. **E** – Digital economy – Economy based on digital networks and ICT.
12. **D** – Reverse auction – Sellers compete by lowering the price for a buyer’s request.
13. **D** – Group purchasing – Buyers join to get a volume discount.
14. **A** – e-Marketplace – Online place where many buyers and sellers meet.
15. **A** – Pure brick – Organisation with only physical shops.
16. **E** – Brick and click – Organisation with shops and an online channel.
17. **B** – Pure click – Organisation that sells only online.
18. **C** – SCM – Supply chain management – suppliers, logistics, inventory.
19. **B** – Payment gateway – Service that processes card or wallet payments securely.
20. **D** – Encryption – Scrambling data so only authorised parties can read it.

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