FIT5101   Enterprise Systems

Lecture 11

❖ Future Trends in ERP

❖ eExam

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# Unit Topics (Subject to change)

Week	Date (W/C)	Lecture	Tutorial		Assessment
1	1/3	Introduction	Introduction		
2	8/3	Business Functions & Processes	Business Functions		
3	15/3	ERP Structures	SAP Introduction		Ass 1 Rel
4	22/3	Materials Management & Procurement	Materials Management	**S A P**	
5	29/3	Sales & Distribution	Procurement		
	5/4	BREAK		**W O R K S H O P S**	
6	12/4	Production Planning	Sales & Distribution		Ass 1 Due 16/4
7	19/4	Financials	Production Planning		
8	26/4	Process Integration & Modelling	Financials		
9	3/5	ERP Implementation	Process Modelling		Ass 2 Due 7/5
10	10/5	Current Technologies	Work on Assignment		
11	17/5	Future Trends	Sample eExam / Review		
12	24/5	Review	??		Ass 3 Due 28/5

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Future Trends in ERP System

- ➢ Social Media
- ➢ IOT
- ➢ AI
- ➢ Automation
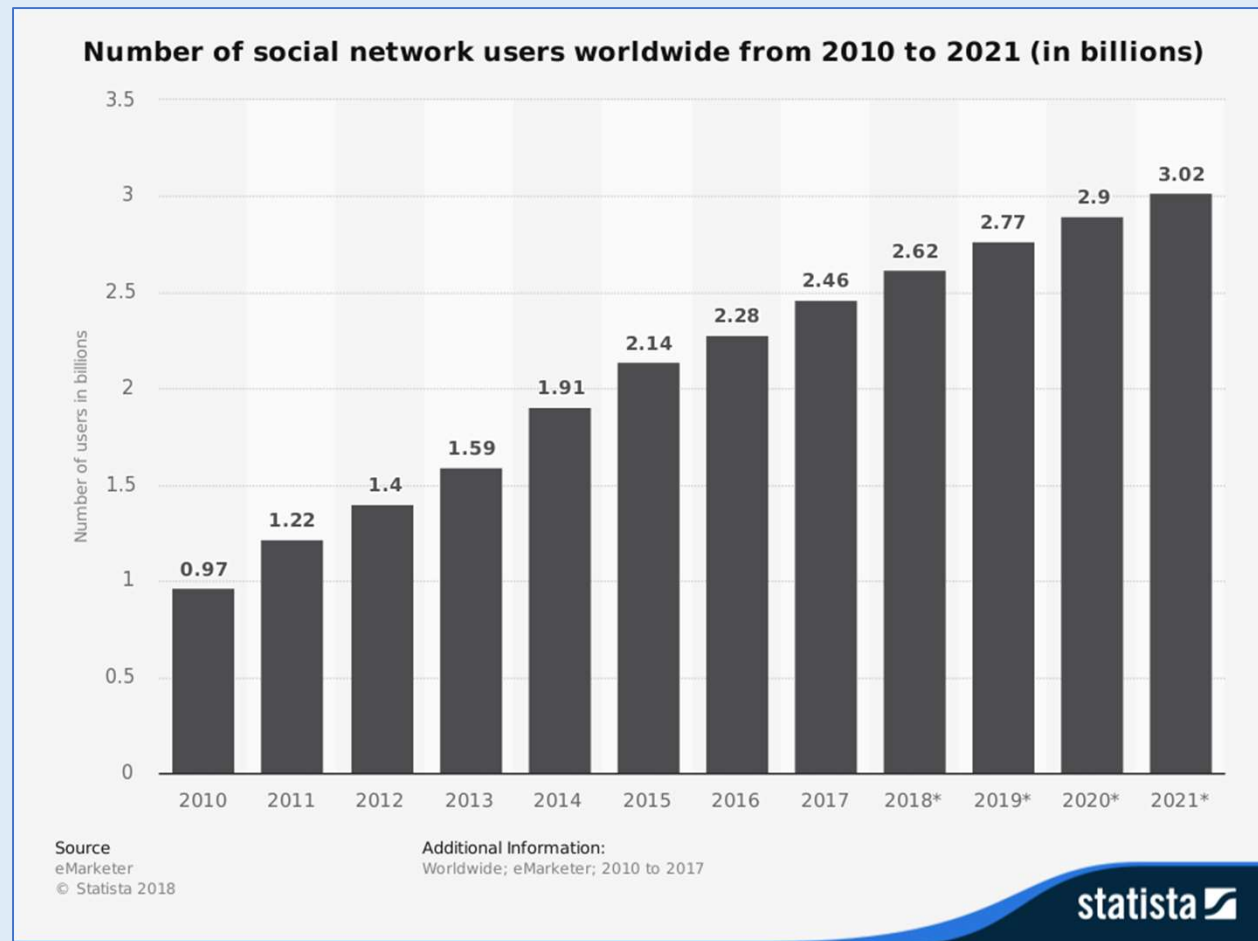- ➢ Blockchain
- ➢ Additive Manufacturing

Future Trends : Social Media
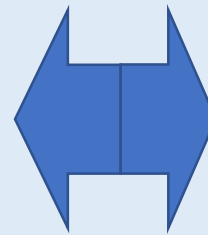
As social media has become increasingly important, it has found its way to ERP platforms.

SYSPRO Harmony – Social ERP Platform   https://youtu.be/VVBw46i1KjA

Future Trends : Social Media

The number of social media users in the world is expected to reach 3.02 billion by 2021.

Number of social network users worldwide from 2010 to 2021 (in billions)

Year	Number of users in billions
2010	0.97
2011	1.22
2012	1.4
2013	1.59
2014	1.91
2015	2.14
2016	2.28
2017	2.46
2018*	2.62
2019*	2.77
2020*	2.9
2021*	3.02

Source
eMarketer
© Statista 2018

Additional Information:
Worldwide; eMarketer; 2010 to 2017

statista

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Future Trends : Social Media

- Many applications already integrated within the system, such as human resources and customer relationship management software, have long been connected to social media e.g. it's quite common for a recruiter in the human resources department to use LinkedIn to review potential candidates, and many salespeople reach out to prospects via Facebook.

- 84 percent of marketers view social media as crucial to their companies.

- The main ERP vendors, like Oracle and Salesforce, are working hard to perfect social media and ERP integration.

Future Trends : Social Media
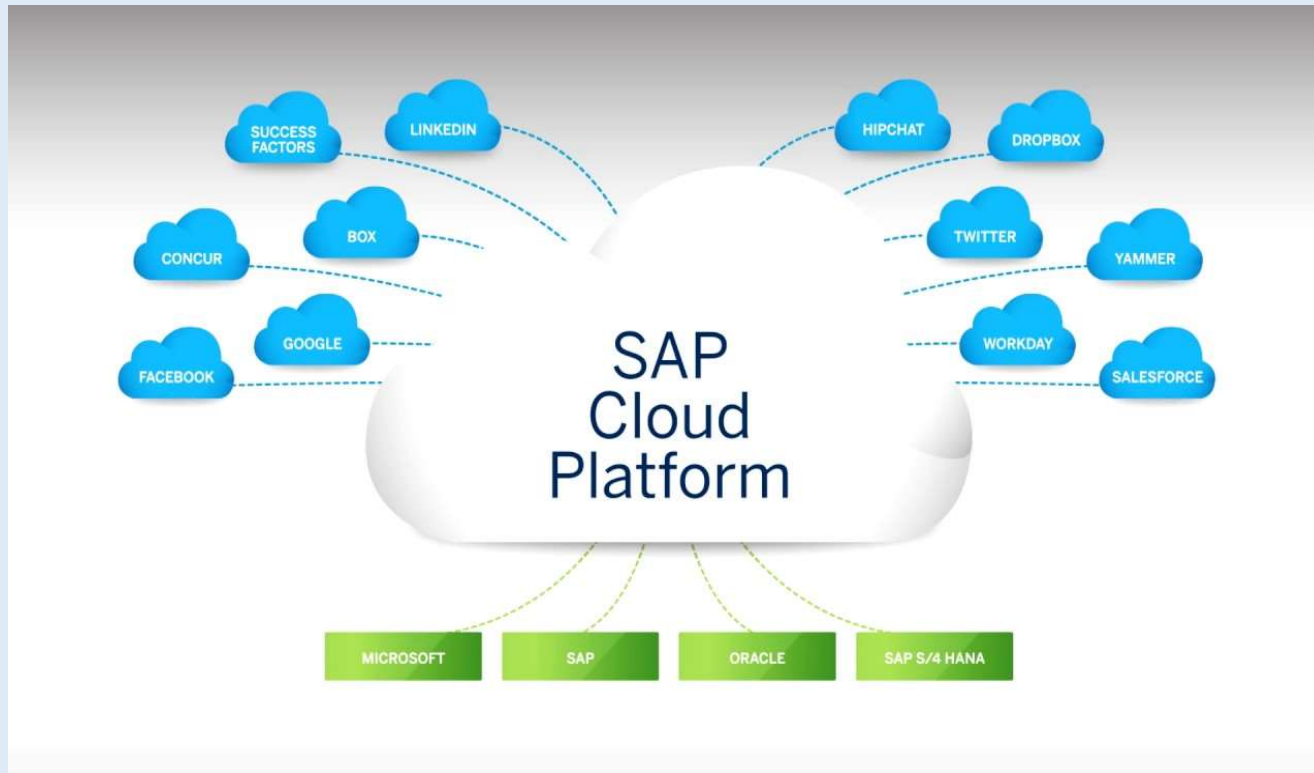
SAP Cloud platform can be integrated with the following to get data and development −

- SAP Applications
- 3rd party applications
- Internal solutions

Future Trends : Internet of Things

Definition :

IoT is simply the network of interconnected things/devices which are embedded with sensors, software, network connectivity and necessary electronics that enables them to collect and exchange data making them responsive.

Gartner states that the "**Internet of Things (IoT)** is the network of physical **objects** that contain embedded technology to communicate and sense or interact with their internal states or the external environment

IoT : How it works   https://youtu.be/QSIPNhOiMoE
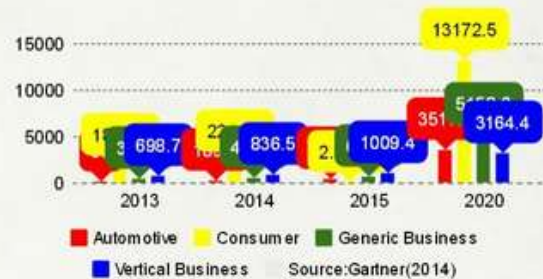
Future Trends : Internet of Things

1. Smart locks
2. Smart sprinklers
3. Smart plugs
4. Smart baby monitors
5. Smart cookers

6. Smart thermostats
7. Smart mirrors (!)
8. Smart cleaners
9. Smart refrigerators
10. Connected cars

Future Trends : Internet of Things

According to a report by Gartner there will be 30% increase in the number of connected devices in 2016 as compared to 2015 with 6.4 billion IoT devices entering the realm of internet of things. The number is further expected to increase to 26 billion by 2020.

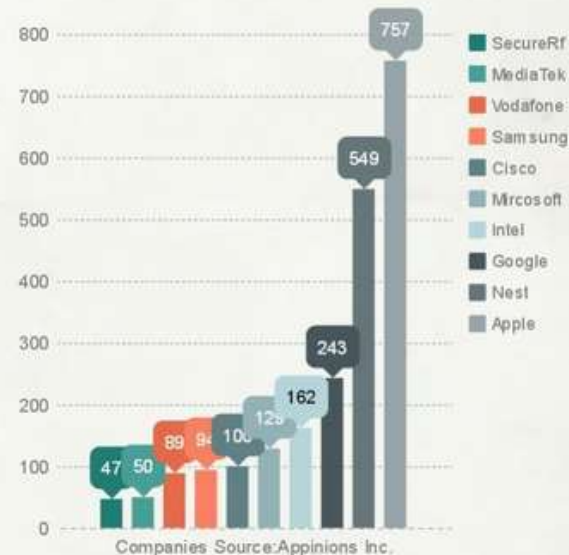**Internet of Things Units Installed Base by Category**

Automotive / Consumer / Generic Business / Vertical Business   Source:Gartner(2014)

Important Internet of Things Components

Hardware (30%) / Software (30%) / Communication/Protocols (40%)

Wireless connectivity with low power consumption is vital for the success of IoT.

Companies Already In The Game

Most Influential IoT Companies

SecureRf, MediaTek, Vodafone, Samsung, Cisco, Mircosoft, Intel, Google, Nest, Apple

Companies Source:Appinions Inc.

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Future Trends : Internet of Things

Projected IoT Revenue from 2007 to 2020

This timeline shows the forecast global revenue of the "Internet of Things" until 2020.

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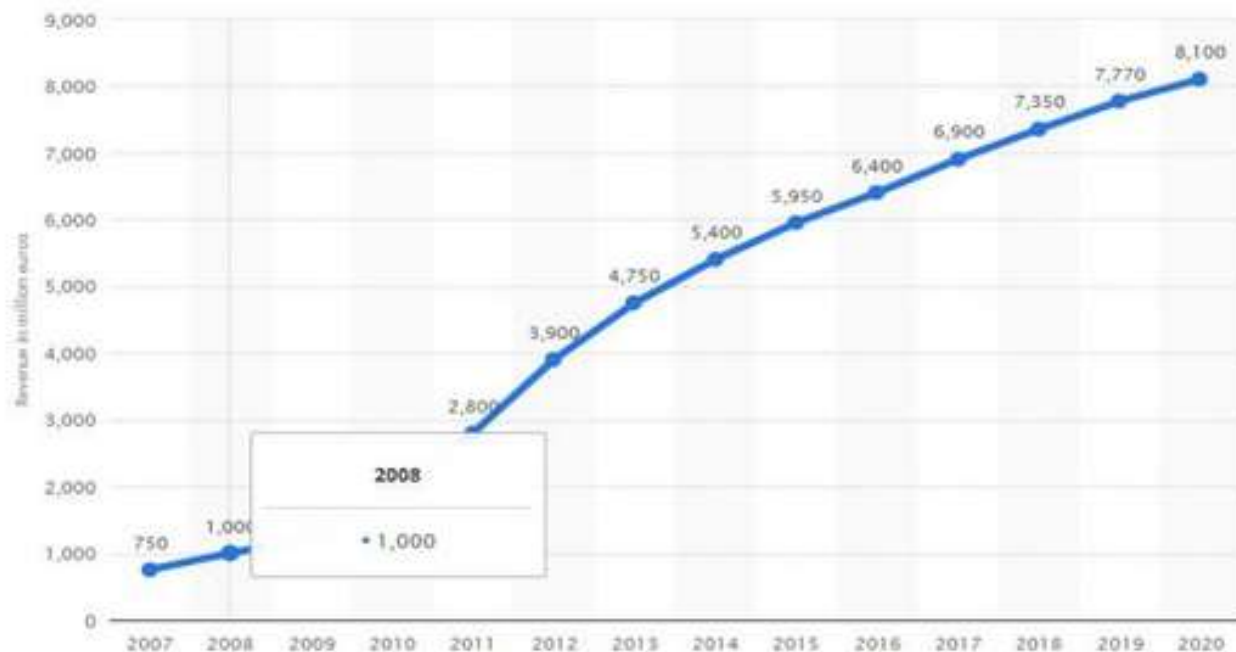
Future Trends : Internet of Things

Top IoT Challenges

- Security Threats (37%)
- Data Privacy (27%)
- Access Management (9%)
- External Attacks (9%)
- Compliance Requirements (7%)
- Hardware Challenges (6%)
- 3rd Party Data Sharing (2%)
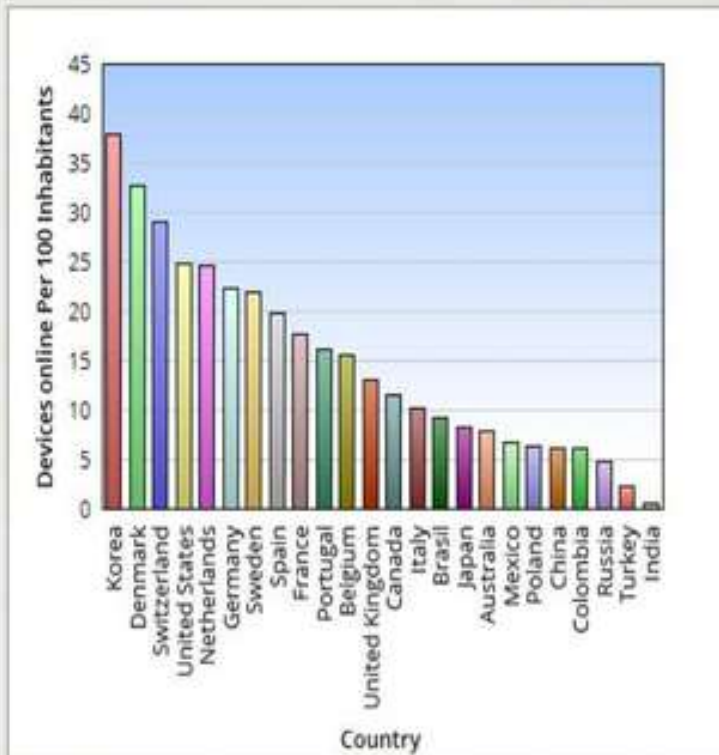- others (3%)

Like any other technology there are challenges which make the viability of IoT doubtful. Security is one of the major concerns of experts who believe virtually endless connected devices and information sharing can severely compromise one's security and well being.

Countries By IoT Devices Online

Sources: Gartner.com
Forbes .com

Infogram by:
Internetofthingswiki.com

Future Trends : Benefits of IoT

Improve data availability

The IoT has significant implications for enhancing ERP in areas including customer service, forecasting, inventory and asset management, and business intelligence.
IoT has already made a substantial impact in the manufacturing sector. For instance, sensors attached to equipment enable a greater level of maintenance automation and ensure vital data is accessible to those who rely on it.

Improve communication

Now, IoT enables a product to communicate directly with the manufacturer from the moment it leaves the warehouse, providing both service and engineering departments a wealth of information.
Inventory management also benefits from products being able to communicate directly with the ERP system.

Improve business intelligence

Businesses can now monitor machine operations anywhere in the world and perform real-time analysis of streaming data. As well as managing machine maintenance, the IoT enables social analytics and a more direct interface with customers. The instant availability of accurate business intelligence helps managers make better tactical decisions.

Future Trends : Benefits of IoT

Quality Processes in Manufacturing

Traditional quality processes have been dependent on sampling techniques to determine if products are being manufactured as per standards. Not only is this not accurate, it is also too late in the process. IoT technologies integrated with ERP can significantly reduce these incidents.

Fleet Management

One of the biggest beneficiaries of IoT and ERP integration have been the fleet management industry. Apart from the regular benefits like vehicle tracking & geo fencing, data passed from IoT sensors can really help validate and help achieve business goals.

Future Trends : Artificial Intelligence

Artificial Intelligence (**AI**) is the branch of computer sciences that emphasizes the development of **intelligence** machines, thinking and working like humans. For **example**, speech recognition, problem-solving, learning and planning.

The Future of ERP.. Artificial Intelligence

https://youtu.be/yO8UxtozfwU

AI-enabled ERP (iERP) systems create an environment where a company's data is "conversational and actionable". Not only that, but ERP systems can learn from the data sources, create workflows, and reduce the time it takes to load data and reduce errors in the data. Since AI technology learns the different ways in which an organisation and individual users interact with the ERP software on a daily basis. AI-enabled ERP systems can suggest different ways to optimize the system for individual users.

Future Trends : Artificial Intelligence

What AI Looks Like in an ERP System
Gartner defines AI as "*technology that appears to emulate human performance*".
AI ERP systems can recognize patterns and automate routine tasks, and they do all of it in the blink of an eye, giving businesses an unprecedented level of efficiency, functionality and insight into their data.

A good example of an AI-driven ERP solution is SAP Leonardo, which includes a number of microservices* integrated with a cloud platform.

Video : SAP Leonardo
https://youtu.be/AYefMjKbq8A

*A software development technique —a variant of the service-oriented architecture (SOA) structural style— that arranges an application as a collection of loosely coupled services.

AI in ERP : Benefits

1. Offers Deeper Insights Into Your Data

AI systems can detect less obvious trends and make insightful inferences about specific business operations, which in turn allows for more accurate forecasting and informed decision-making.

2. Automates Routine Processes

When a human performs a given task within their ERP system, they're following a set of rules that governs their actions and methodology. Such behavioral tasks can often be expressed in mathematical terms and programmed into software.

3. Improves User Experience Through Interaction

For example : Searching for information and consistently interacting with a certain set of record types, such as customer data or product catalog data. The software can then prioritize those search results.

Future Trends : Automation

Developments in enterprise resource planning software open possibilities to address potential pitfalls with automation features. Functions preprogrammed through ERP solutions can ensure more repetitious tasks do not suffer from user error, as well as allow human input to be transferred to monitoring the system.
With more resources devoted to oversight, and processes delegated well ahead of execution, potential glitches can be identified and solved more easily.

SAP Connected Manufacturing :
https://youtu.be/z_Auifovjcc

Future Trends : BLOCKCHAIN

A *blockchain* is a decentralized, distributed, and oftentimes public, digital ledger that is used to record transactions across many computers so that any involved record cannot be altered retroactively, without the alteration of all subsequent blocks.

Understanding Blockchain
https://youtu.be/r43LhSUUGTQ

Blockchain : The background.

- In addition to ERP systems, where it's used for enabling data interoperability for transactions, blockchain technology has found its way into many different industries.
- It was first invented in 2008 when it was used with the Bitcoin.
- Today, it has found its place in cybersecurity and fraud prevention.
- In 2016, it was used within the U.S. election where it provided an unhackable electronic system for counting votes.
- Shipping businesses use blockchain technology to track their cargo, trading platforms are also starting to experiment with it, as well as law firms
- Even entertainment industry showed its interest. Poker rooms such as CoinPoker are built on blockchain technology that offers immediate and trustworthy transactions to players.

Future Trends : BLOCKCHAIN

Integrating blockchain technology into ERP creates a highly secure collaboration platform within which system of records can be freely shared with trusted parties.

ERP Integration enables optimization of all operations of several different organizations, as well as trusted sharing data, in particular financial transactions.

Blockchain is suitable for manufacturing businesses, as this technology gives manufacturers an opportunity to have various types of information within the same chain – from the specifications and the history of iterations to data about the exact machine that made the product.

SAP has also been experimenting with using blockchain in if-then operational threads, 3D printing, and digital manufacturing.

How Can Blockchain Improve ERP Systems?

- Visibility in Every Stage of the Supply Chain Improves Transparency
- Promotes Trusts among All the Supply Chain Participants
- Authenticating and Verifying Personals before Giving Access to Participants
- Smart Contract Implementation to Automate Processes and Payments
- Lowers The Risk Factors In Digital Transactions
- Offers a High Level Of Security and Data Privacy in Real-Time
- Compliance With GDPR And Secure Storage Facility For Sensitive Information
- Lowers The Costing Drastically
- Gives a Competitive Edge and Helps to Be On Top Of the Competitors
- Provides Accurate Forecasting Reports of the Market In Real-Time

Blockchain : Examples

In April 2018, electronics maker Samsung revealed it was looking at blockchain technology to reduce its supply chain costs. Samsung had estimated that blockchain could reduce its shipping expenses by 20%.

Transport and logistics company Maersk announced a partnership with IBM to use blockchain for shipping.

Future Trends : ADDITIVE MANUFACTURING

Additive manufacturing (AM) is the industrial production name for 3D printing, a computer-controlled process that creates three dimensional objects by depositing materials, usually in layers.

Introduction to Additive Manufacturing
https://youtu.be/Ev-MM9cGKiQ

Additive Manufacturing : Benefits

AM has the ability to execute a wider variety of design. The design of an object that cannot be manufactured in one entire piece with traditional manufacture is not impossible in additive manufacturing.

The process is also quick. Any change in the design can be done by clicking the mouse. With this flexibility, companies can cut budgets effectively.

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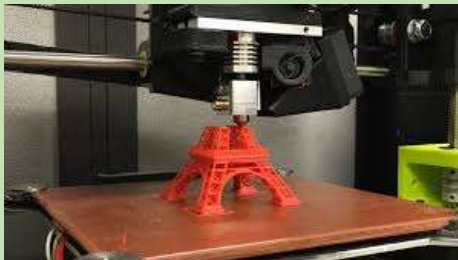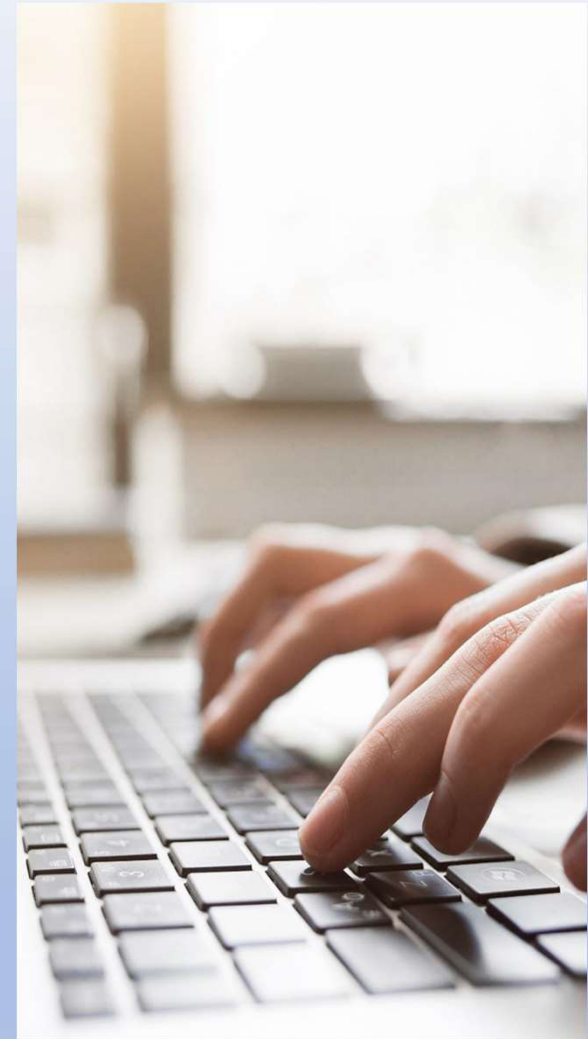
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eExams
Semester One, 2021

Semester one, 2020

This semester, your **final assessment** will be conducted via the eAssessment platform (using your own device in your own home). These are known as **eExams**.

➢ Your exam **will have** online supervision.

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What to expect

You'll use your **own device in a secure space at your home** to complete your test or exam. If you don't have a suitable device or quiet place to take your exam, you can register to take the it on campus. Details about this option will be available shortly.

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eExam helpful features

These include:

- a **timer** to let you know how much time you have left
- a **progress bar**
- a way to easily identify **unanswered questions**
- an **autosave** every 30 seconds
- a **split screen view** to help with long-answer questions
- **a notes section** for each question

Watch Monash eExams: An introduction (7:41min)

https://www.youtube.com/watch?v=eofMjoBD-eQ

Monash eExams
AN INTRODUCTION
Semester 1 2020

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Possible eExam Question Types

- Multiple choice
- True/false
- Fill in the blank
- Short answer
- Case study

Not sure what an eExam looks like? Try out our
general knowledge practice eExam.

Question Types : Multiple Choice

A business process describes a sequence of activities or tasks for the creation of goods and services, affecting the success of the company and is driven by _____.

1 Mark

Select one:

○ a. Data

○ b. Transactional Data

○ c. Master data

○ d. Transactions

Notes ⊕

Question Types : Short Answer

Identify four MAIN characteristics that makes ERP systems unique from other enterprise systems: (No explanation or elaboration is necessary.)

2 Marks

Question Types : Case Study

The following is an article by Paul Taylor entitled 'Big Companies Poised to Embrace Cloud ERP' (February 2, 2017) located at https://news.sap.com/2017/02/big-companies-poised-to-embrace-cloud-erp/. Read the article below and then answer the questions provided.

16 Marks

> Over the next few years, midsize and enterprise businesses will move from 'legacy' ERP systems to next-generation intelligent ERP systems running in the cloud.
>
> Enterprise resource planning, the core software that powers most large businesses, has reached a crucial tipping point. By 2020, industry analysts believe that four out of every 10 of large organizations will have at least 60% of their ERP applications in the cloud. Overall, the cloud ERP market (worth $21.1 billion in 2015) is forecast to grow at a compound average rate of 15.5% through 2020 to reach $43.3 billion.

d) Why does Taylor (2017) state that cloud based ERP systems have become a corporate IT imperative.

(approx 250-300 words) (2 marks)

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Your eExam details:

- Your final eExam is worth 40% of your overall mark.

- Exam duration is 2 hours 10 mins.

- The exam is Closed Book and will test your *understanding* of the materials covered in the lectures, tutorials, assignments and workshops.

- The link to access your exam will be posted on this unit's Moodle page. You can access this exam's landing page at any time, but you won't be able to access the exam questions until after the scheduled start time.

- You'll find plenty of information, user guides and IT support at: monash.edu/e-exams

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Questions?

Ask me or …

- Email me (stephen.paull@monash.edu)

- Check out the [eExams](#) website

- if you have a medical condition and require alternative assessment arrangements, contact [Disability Support Services](#).

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