

Agenda		BESTFIT BUSINESS SOLUTIONS PVT. LTD.
 Importance of System A System Audit 	udit – Difi	ferent types of
 Various Methodologies t Audit–Standard and CO 		ct Technology





Audit Objective

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- What is IT Audit?
 - "IT audit is the process of collecting and evaluating evidence to determine whether a computer system (information system) safeguards assets, maintains data integrity, achieves organizational goals effectively and consumes resources efficiently."
- Why do we need Audit?
- Role of an auditor

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COBIT 4.3 Information Criteria

- Confidentiality
- Integrity
- Availability
- Efficiency
- Effectiveness
- Reliability

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Compliance

Confidentiality

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concerns the protection of sensitive information from unauthorised disclosure.

Confidentiality

•Concerns the protection of sensitive

information from unauthorized disclosure.

• Confidentiality Vs Privacy

Confidentiality Vs Secrecy

More of a cultural issue

Look at history

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•People who parted with confidential information were traitors and were not spared

Integrity

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relates to the accuracy and completeness of information as well as its validity in accordance with business values and expectations

Availability

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It relates to information being available when required by the business process *now and in the future*.

It also concerns the safeguarding of *necessary* resources and associated capabilities.

C vs A BESTFIT • Is confidentiality in direct conflict with

- Is confidentiality in direct conflict with availability?
- It is implied that it is available to the right person or the authorised person at the right time
- There has been a paradigm shift in the availability of information after the technological revolution
- · Our expectations of availability

Effectiveness

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deals with information being relevant and pertinent to the business process as well as being delivered in a timely, correct, consistent and usable manner.

Efficiency

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concerns the provision of information through the optimal (most productive and economical) usage of resources.

Efficient or Effective	BESTFIT BUSINESS SOLUTIONS PVT. LTD.
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Reliability of Information

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Reliability relates to the provision of appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities.

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Compliance

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It deals with complying with those laws, regulations, and contractual arrangements to which the business process is subject, i.e. externally imposed business criteria *as well as internal policies*.





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GIGO Principle

- <u>G</u>arbage
- <u>I</u>n
- <u>G</u>arbage
- <u>O</u>ut

Financial Audit

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- Integrity is a key factor in Financial Audit
- Need to go beyond the output based approach
- Auditor's need to go by the System Approach of ISO which talks about

Input

Process

Output

* Output of one process is the input to others

Vedanta and Integrity

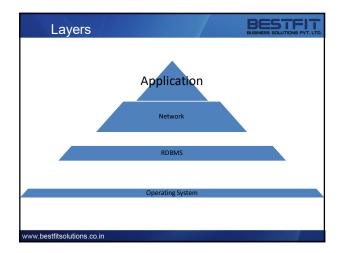
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- Pramana's are four in number
 Pratyaksha Pramanam
 - -Anumana Pramanam
 - Upamana Pramanam
 - -Vedam Pramanam
- Auditor's have to use the first three in their auditing profession







OS Layers

- Linux
- MS Server 2008
- Windows 7
- Vista
- XP
- Macintosh
- Proprietary

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- SQL
 - -2008

RDBMS

- -2005
- Oracle
- Sybase

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• Db2

LAN		
- Cabled		
- Bluetooth		
– Wi-fi		
WAN		
– PSTN		
– VSAT		
 Leased Line 		
- Microwave		
– Internet		
 Broad band/ADSL 		
MPLS		

Application	/	BESTEIT BUSINESS SOLUTIONS PVT. LTD.
Traditinal System		
ERP		
SAP		
Tally		
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Separate disciplines

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- Each of the four components have their own competency requirement.
- An IS auditor cannot claim to do all types of Audit similar to CA's doing
 - Tax Audit
 - Society Audit
 - Service Tax
 - Excise etc

Other Disciplines

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- Physical and environmental review—This includes physical security, power supply, air conditioning, humidity control and other environmental factors.(Data Centre Audit)
- Business continuity review—This includes existence and maintenance of fault tolerant and redundant hardware, backup procedures and storage, and documented and tested disaster recovery/business continuity plan
- Data integrity review—The purpose of this is scrutiny of live data to verify adequacy of controls and impact of weaknesses, as noticed from any of the above reviews. Such substantive testing can be done using generalized audit software (e.g., computer assisted audit techniques).Migration audit falls under this

Agenda

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- Importance of System Audit Different types of System Audit
- Various Methodologies to Conduct Technology Audit–Standard and COBIT

What is an Application

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- **Applications** are the automated user systems and manual procedures that process the information
- Control is defined as the policies, procedures, practices and organisational structures designed to provide reasonable assurance that business objectives will be achieved and undesired events will be prevented or detected and corrected.

Cobit and Application

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- AC1 Source Data Preparation and Authorisation
- AC2 Source Data Collection and Entry
- AC3 Accuracy, Completeness and Authenticity Checks
- AC4 Processing Integrity and Validity
- AC5 Output Review, Reconciliation and Error Handling
- AC6 Transaction Authentication and Integrity

G14 – Application Systems Review

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Sec1-Background

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- -Linkage to S6 Performance of Audit work
- -Linkage to COBIT
 - Primary IT processes are:
 - PO9 Assess and manage IT risks
 - AI2 Acquire and maintain application software
 - DS5 Ensure systems security
 - ME2 Monitor and evaluate internal control

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G14 – Application Systems Review

• Sec2-Planning

- Application-level risks at the system and data level include such things as: • System availability risks relating to the lack of system operational
 - capability

 System security risks relating to unauthorised access to systems
 - and/or data

- System integrity risks relating to the incomplete, inaccurate, untimely or unauthorised processing of data
- System maintainability risks relating to the inability to update the system when required in a manner that continues to provide for system availability, security and integrity
- Data risks relating to its completeness, integrity, confidentiality, privacy and accuracy

G14 – Application Systems

- Sec3-Performance of Audit work
 - -Documenting the flow of transactions
 - Identifying and testing the Application Systems control
- Sec 4-Reporting
 - -Weaknesses

Understanding the Application

- The Operating system
- The Database

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- Centralised and decentralised mode
 - One system across or multiple system. Database replication
- Networking
 - Leased Line
 - VSAT
 - ADSL
 - Broad band

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Data Storage Concepts

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- -Multiple Servers
 - Production
 - Reporting
- -Multiple server architecture
 - Database Server (SQL, Oracle, MySQL)
 - Web Server (IIS,TOMCAT, Apache)
- -New Storage Concepts
 - SAN
 - NAS

Data Storage Concepts

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• Seeing is not believing

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- Data output can emanate in any form
 - Data can be pulled as it is from the back end and displayed
 - Data can be computed on the fly and displayed
- Data Display may be partial or complete
- Data output can be displayed on the screen using a form or in the form of a Report

Access

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- Physical Access
- Logical Access
- All access requires
 - Identification
 - Method of establishing the subject's (user, program, process) identity.
 - Authentication
 - Method of proving the identity.
 - Authorisation
 - Determines that the proven identity has some set of characteristics
- associated with it that gives it the right

Access Control Methods

- What you know
- -Password
- What you have
 - -USB token
 - -Smart Card
- What you are
 - -Biometrics

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-Retina Scan

Password- Best Practices

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- First time creation system generated
- Forced Changing of Password on first logging in
- Mixture of Alpha & Numeric
- Password saved in the backend encrypted
- Forced changing password at periodic rests
- Last 4 or 5 passwords not to be allowed
- System Locked on 3 unsuccessful attempts
- Simple English words not allowed
- Repetition in patterns like 1111

What you have

USB Token

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- Smart Card
- Digital Signature

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- **Digital Signature**
- Used for multipurpose Signing the documents like MCA
- Logical access to specific sites
- Types of Digital certificate
- Class-1
 Class-2

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- Class-3 (Highest Level)
- Non Repudiation
- IT Act also accepts digital signature
- Technology
- USB based - Pfx Based
- Attributes
- Come with an expiry periodCan be revoked at any pint of time

Device Linking

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- What you have devices like USB needs to be linked to the user id for which the device is being used.
- Linking normally happens through the serial number
- Even digital signatures needs to be linked to the user id

What you are-Biometric

Finger Print

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- Iris Scan
- Palm Scan
- Hand Geometry
- Signature Dynamics
- Keyboard Dynamics
- Voice Print
- Facial Scan
- Hand Topography

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Retina Scanning



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Aadhar Vs NPR

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- Innovations using Adhaar as an identification mechanism and the finger prints as authentication
- E-KYC by Banks is the real innovation
- Cross verification of the NPR and UIDAI databases

	Multi Factor	BESTEIT BUSINESS SOLUTIONS PVT. LTD.
•	HSBC VbV	MasterCard. SecureCode.
•	Master Card Secure Code Even digital signatures need a password	Verified by
•	One Time Password (OTP) is also multifactor(Mobile what you have and password what you receive)	HSBC H
•	Access restricted to a physical device like MAC address or Static IP can be treated as multifactor	

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4 W and 1 H Principle	BESTEIT BUSINESS SOLUTIONS PVT. LTD.
• What	
• Why	
• Where	
• When	
• How	
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Framework Vs Standard

- Standards can be certified
- Standards for certification has to be implemented in totality
- Frameworks cannot be certified
- Framework can be implemented in parts relevant to the organisation.
- What is COBIT?

Version

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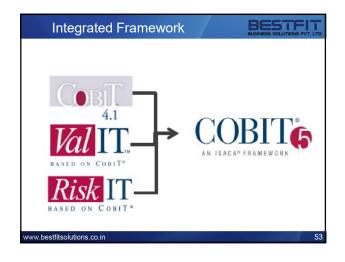
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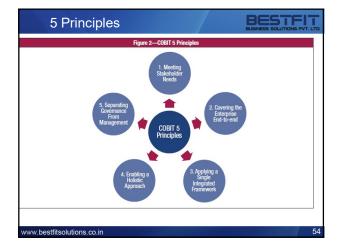
- Latest 5.0 released on 10th April 2012
- Earlier Versions -4.1 released in 2007
 - -4.0 released in 2005
- Major overhaul of the framework between 4.1 & 5.0
- Earlier COBIT was an acronym. Now it is not .

Evolut	ion of C	OBIT 5				
	Governan	ce of Enterpris	e IT		_	
	IT Governa	ance		BMIS		
Evolution	Manageme	ent		(2010) Val IT 2.0		
Evolu	Control			(2008)		
	Audit			Risk IT (2009)		
	COBIT1	Совіт2	СовіТЗ	Совіт4.0/4.1	COBIT 5	
	1996	1998	2000	2005/7	2012	
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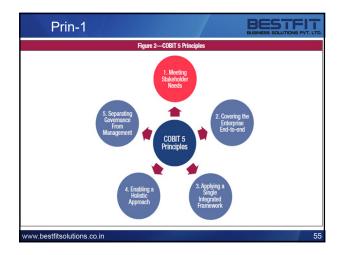














Stakeholder

public

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• Anyone who has a responsibility for ,an exception from or some other interest to the enterprise - e.g., shareholders, users, government, suppliers, customers and the

Governance defined

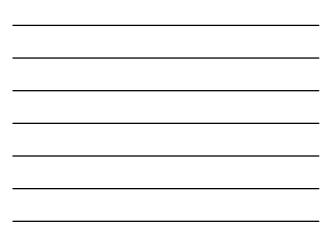
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• Governance ensures that stakeholder needs, conditions and options are evaluated to determine balanced ,agreed on enterprise objectives to be achieved ;setting direction through prioritisation and decision making and monitoring performance and compliance against agreed on condition and objective-

	Stakeholder Exercise	BESTEIT
 Flipkart 		
-What w	vas the issue ?	
-5000 s	ervers were in place	
• Mumbai /	Airport	
–Last ye	ear boarding confusion	
	htra Government online for 11th Standard.	admissions to
– Who a	are the stakeholders?	
CAT Adm	nission Fiasco	
-Who al	re the stakeholders affe	cted?





Benefit Realisation

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• One of the objectives of governance. The bringing about of new benefits for the enterprise, the maintenance and extension of existing forms of benefits, and the elimination of those initiatives and assets that are not creating sufficient value.

Risk Optimisation

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• One of the governance objectives. Entails recognising risk; assessing the impact and likelihood of that risk; and developing strategies, such as avoiding the risk, reducing the negative effect of the risk and transferring the risk, to manage it within the context of the enterprises' risk appetite

Resource Optimization One of the governance objectives. Involves effective, efficient and responsible use of all resources-human financial ,equipment facilities etc

Prin-2

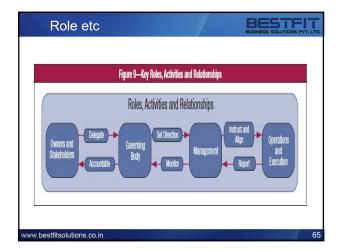


Principle-2

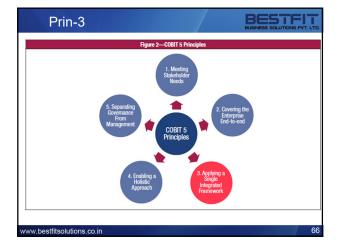
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- Covering the Enterprise end to end
- COBIT 5 integrates governance of enterprise IT into enterprise governance:
- It covers all functions and processes within the enterprise; COBIT 5 does not focus only on the 'IT function', but treats information and related technologies as assets that need to be dealt with just like any other asset by everyone in the enterprise.







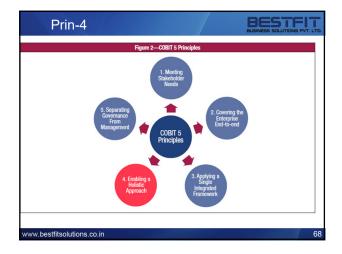


Principle-3

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- Applying a Single, Integrated Framework
- There are many IT-related standards and best practices, each providing guidance on a subset of IT activities. COBIT 5 aligns with other relevant standards and frameworks at a high level, and thus can serve as the overarching framework for governance and management of enterprise IT.



Principle-4

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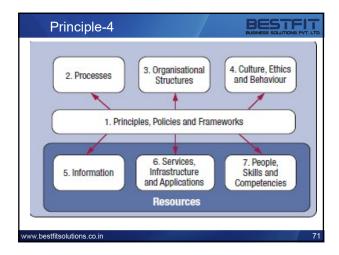
- Enabling a Holistic Approach—
- Efficient and effective governance and management of enterprise IT require a holistic approach, taking into account several interacting components. COBIT 5 defines a set of enablers to support the implementation of a comprehensive governance and management system for enterprise IT.
- Enablers are broadly defined as anything that can help to achieve the objectives of the enterprise

Prin-4 contd

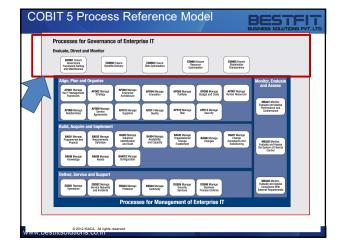
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- Seven categories of enablers:
- Principles, Policies and Frameworks
- Processes
- Organisational Structures
- Culture, Ethics and Behaviour
- Information

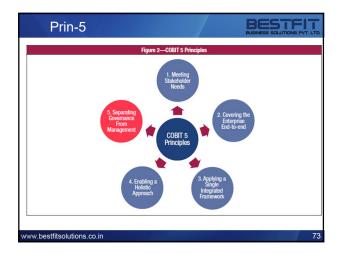
- Services, Infrastructure and Applications
- People, Skills and Competencies











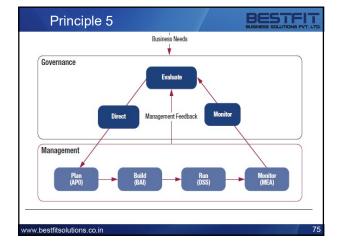


Principle-5

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 Separating Governance From Management—The COBIT 5 framework makes a clear distinction between governance and management. These two disciplines encompass different types of activities, require different organisational structures and serve different purposes. COBIT 5's view on this key distinction between governance and management is:





27000	Fundamentals & Vocabulary
	27001:ISMS
27005 Risk Management	27002 Code of Practice for ISM
	27003 Implementation Guidanc
	27004 Metrics & Measurement



Benefits of pursuing certification

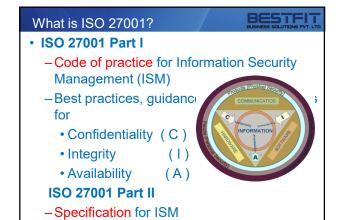
Allows organizations to mitigate the risk of IS breaches

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- Allows organizations to mitigate the impact of IS breaches
 when they occur
- In the event of a security breach, certification should reduce the penalty imposed by regulators
- Allows organizations to demonstrate due diligence and due care
 - to shareholders, customers and business partners
- Allows organizations to demonstrate proactive compliance to legal, regulatory and contractual requirements

 as opposed to taking a reactive approach
- Provides independent third-party validation of an organization's ISMS

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