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Benchmarking Security Standards and Knowledge Innovations of Physical Protection of Nuclear Materials and Facilities: Organizational Absorptive Capacity Perspectives

Presented by:

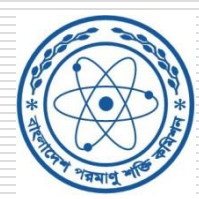
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INTRODUCTION



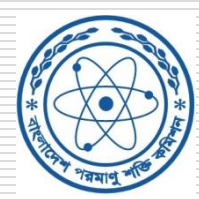
Research Motivation & Approach

➤ **Organizational Sustainable development/Assimilation of Security Standards and Knowledge Innovations: Complex Issues!**

- Lack of Benchmarking/Standards of **Security Innovations!**
- Lack of **Organizational Absorptive Capacity !**
- Lack of Organizational **Nuclear Knowledge Frames Interactions!**

Physical Protection of Nuclear Material and Nuclear Facilities **Matter**





INTRODUCTION



Research Motivation & Approach

❖ The adequate PP of nuclear materials and facilities has emerged as a strategic imperative:

-Tied to benchmarking its security standards and knowledge innovations into the organization

❖ In the light of this, CPPNM, and IAEA have developed convention, recommendations for PP standards for nuclear materials and facilitated to assist member states in implementing a comprehensive PP regime

❖ Individual states assure physical protection through establishing and operating a PP oversight system

**Physical Protection of
Nuclear Material and
Nuclear Facilities
Matter**





INTRODUCTION



Research Motivation & Approach

❖ However, despite the clear benefit of protection, there is currently lack in many organizations establishing standards of PPS

❖ Hence, the benchmarking of these PP standards raises the issues of **absorptive capacity of an organization**

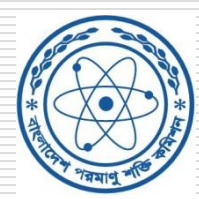
❖ **These gaps are the prime motivators for this work**

-Aims to **benchmarking** these Security Standards, Knowledge Innovations as organizational absorptive capacity of PP of Nuclear Materials and Facilities

➤ **Sustainable Development**/assimilating these innovations into nuclear organizations

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INTRODUCTION



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Research Motivation & Approach

❖ To fill these gaps, a new conceptual model is developed to **benchmarking the process of security standards and knowledge innovations of PP** of nuclear materials and facilities in organization

-Grounded upon contextual theories of **organizational absorptive capacity**, and **benchmarking principle** [1]

-Through benchmarking relevant nuclear organizations can **best understand** the progression of PP and mitigate the consequences by **reference to external perspectives of security standards and knowledge innovations from stakeholders**

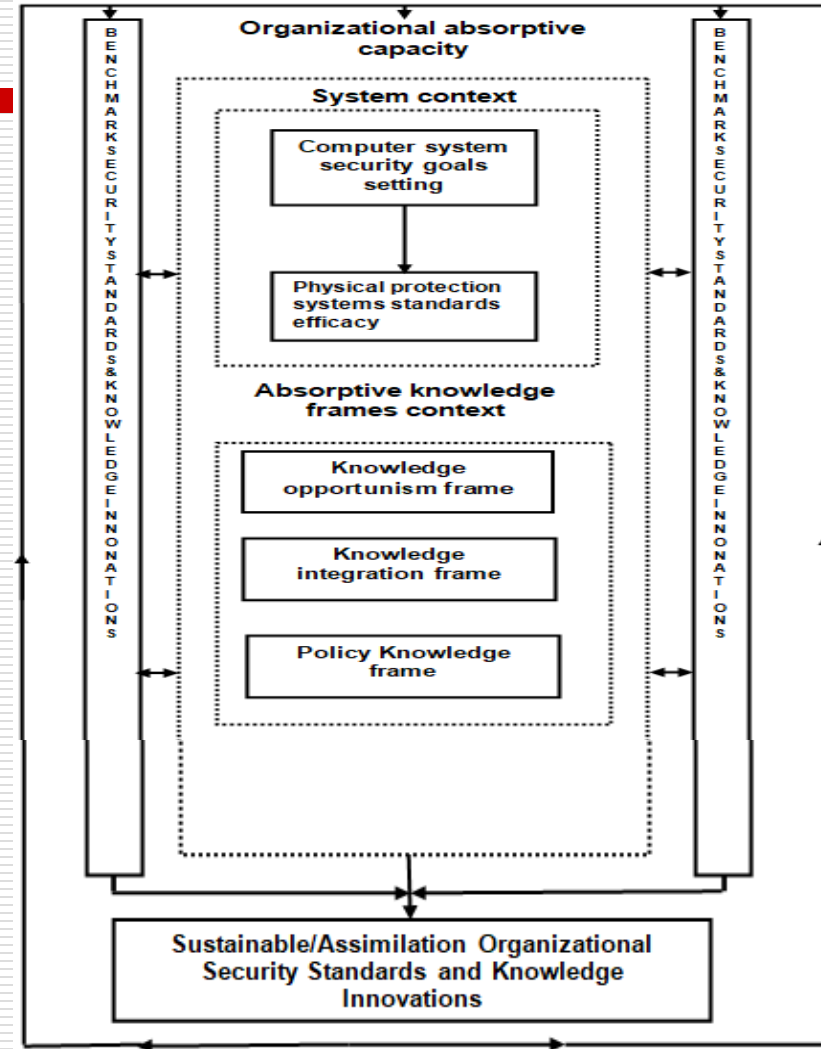
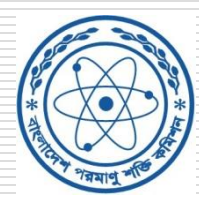


FIG. 1. The conceptual model of benchmarking process of Security Standards and Knowledge Innovations of Physical Protection of Nuclear Materials and Facilities in Organization (Adapted from Camp, C. 1989).



THEORETICAL FRAMEWORK



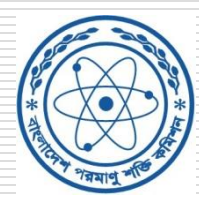
❖ Hence, the **essence of benchmarking of PP** standards and knowledge innovations

-Develop these external perspectives, and to search for innovation levels and practices that will provide a **competitive edge** to the nuclear organizations

-Offers a useful framework to assess the organizational absorptive capacity as system and knowledge frames context that impact on the sustainable PP standards and knowledge innovations in organization

❖Organizational absorptive capacity is the ability of an organization to absorb, assimilate, and establish new standards, knowledge innovations through its prior related infrastructures [2]





RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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- ❖ In this context, the related infrastructure refers to **organizational prior internal knowledge frames** and **systems standards efficacy**
- ❖ Organizational absorptive capacity is widely understood to enhance an organization's innovative capabilities [3]
- ❖ The organizational absorptive capacity broadly conceptualizes as **absorptive system** and **knowledge frames context**
- ❖ The figure shows the **five central elements of organizational absorptive capacity as the process of benchmarking**

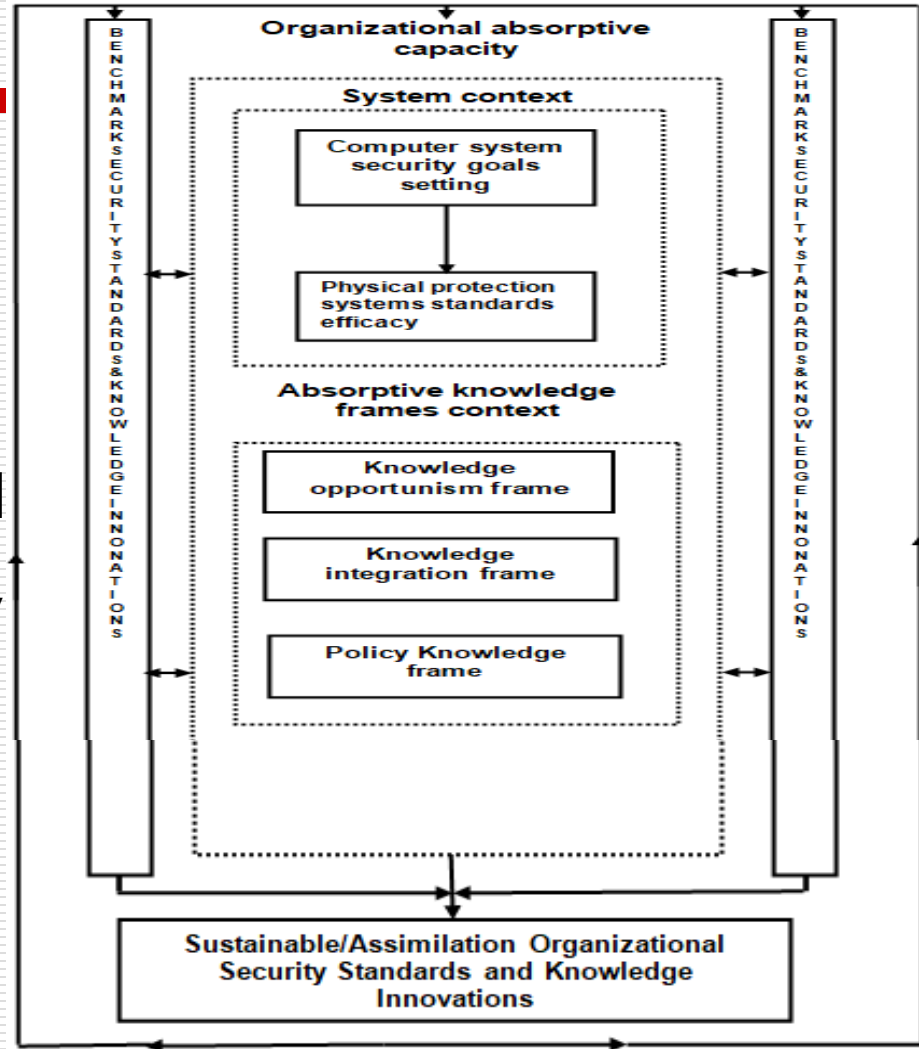


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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Five central elements of organizational absorptive capacity as the process of benchmarking

(1) Computer system security goals setting

-Vital to any attempted change, identifies sources of innovations information and increases the efficiency of the change process [2]

(2) Physical protection systems standards efficacy

-Reflects the perceptual measures of comprehensiveness, flexibility, and enforcement of organization to support **sustainable PPS** and value creation

-Nuclear organization can potentially accelerate sustainable PPS by establishing required sustainable PPS and laws

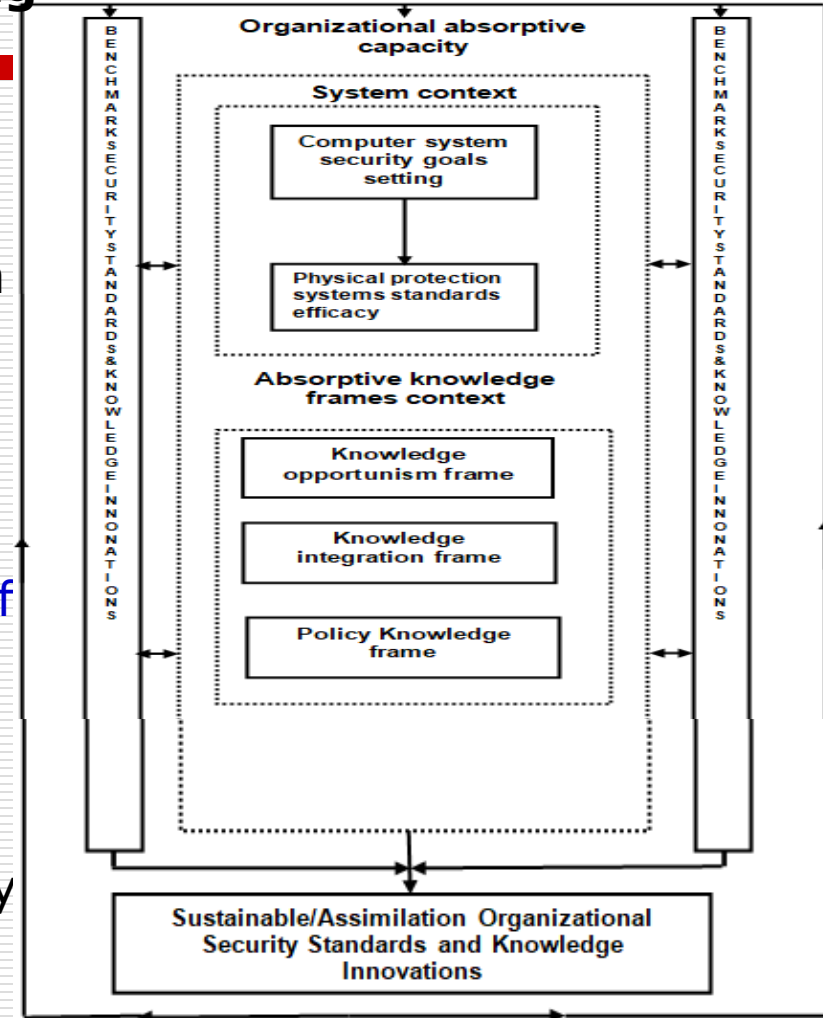
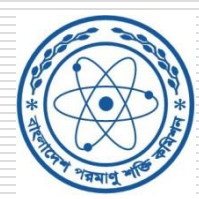


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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(3) Organizational Knowledge opportunism frame

:Reflects capacity of scanning the environment for emerging technologies/innovations and respond proactively to exploit, avoid, or ignore potential opportunities and threats[5]

(4) Organizational Knowledge integration frame

:Focuses on how people act and interact to generate knowledge regarding a specific innovations as a resource for individual and collective ends [5]

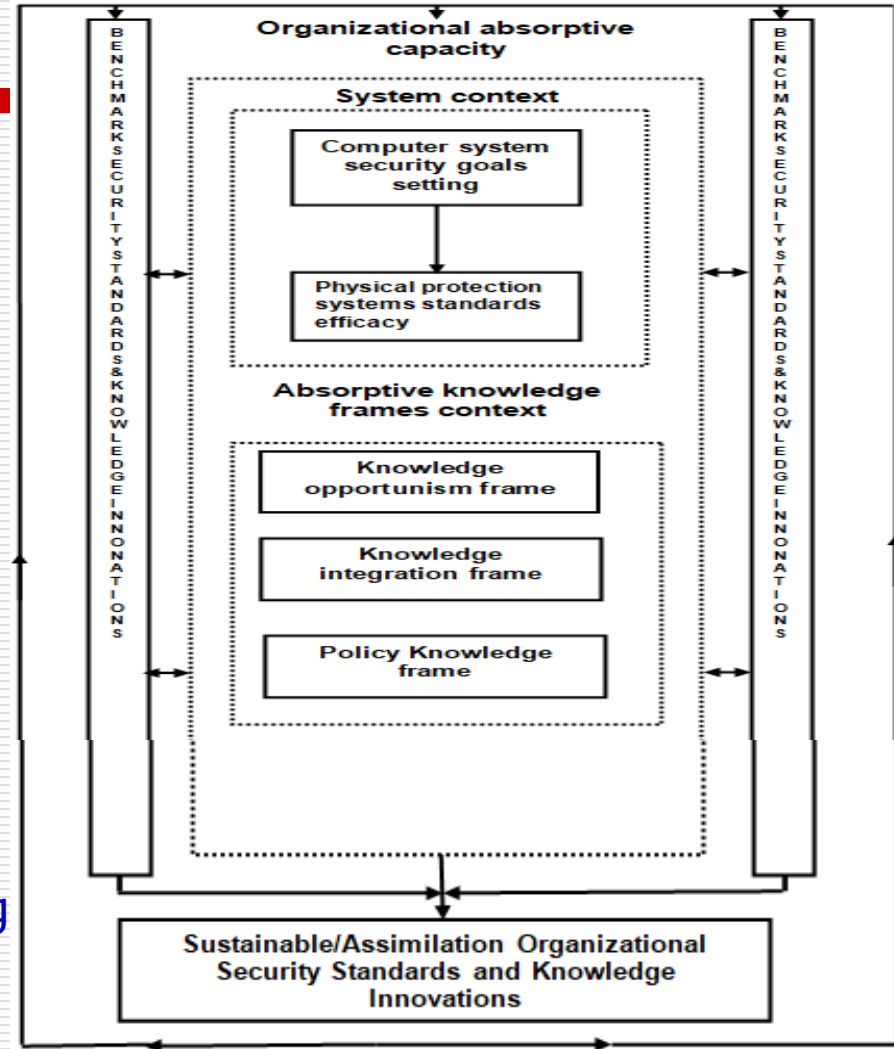


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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(5) Organizational policy knowledge frame

- ❖ **Constitutes** a capability developed in particular contexts and depends on **collective understandings regarding a specific technology process in organization [3.4]**
- ❖ The definition of organizational knowledge is sufficiently broad to include **policy knowledge** since such knowledge constitutes a capability developed in particular **contexts and depends on collective understandings**

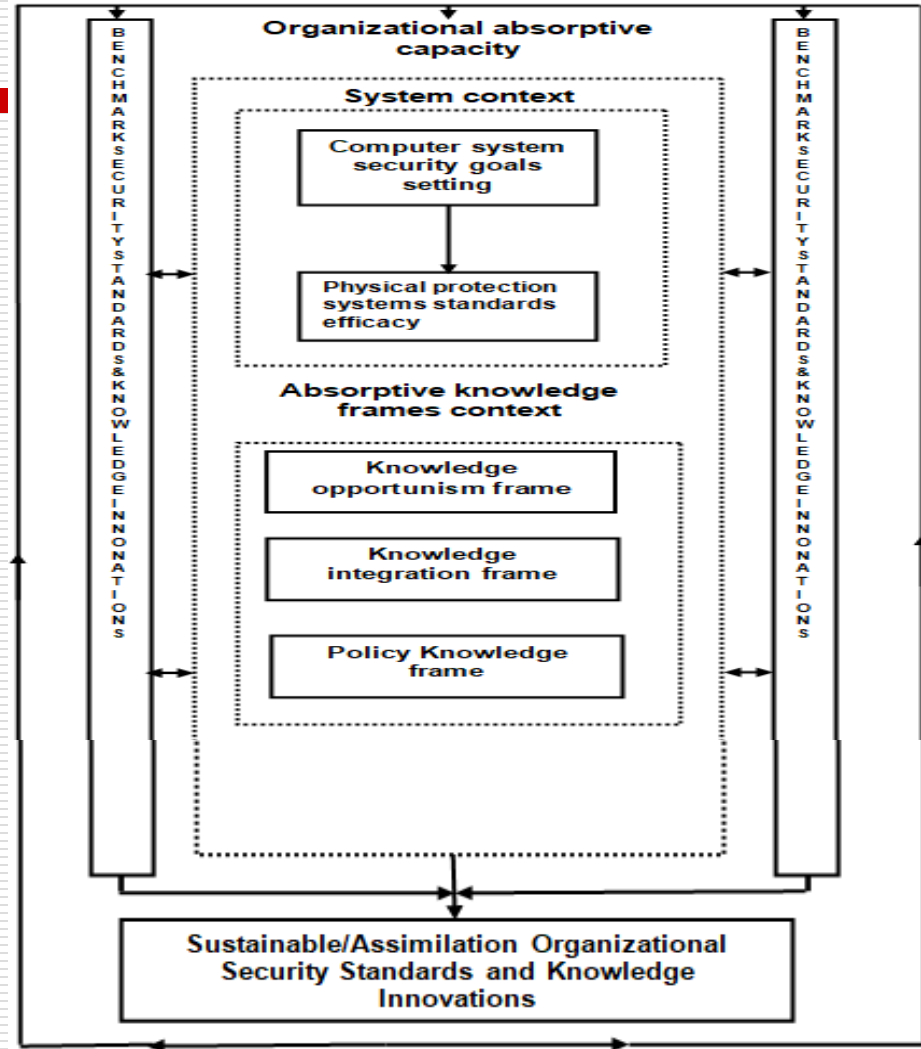
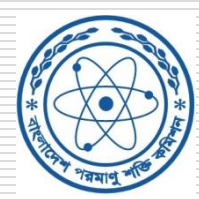


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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(5) Organizational policy knowledge frame

- ❖ The ways that **policies are developed, implemented, and used depend on how policy knowledge**, as a type of organizational knowledge, is constructed (Canary, H., 2010)
- ❖ The multi-level feature of the policy leads to ongoing development of **policy knowledge across related groups of people, including managers**

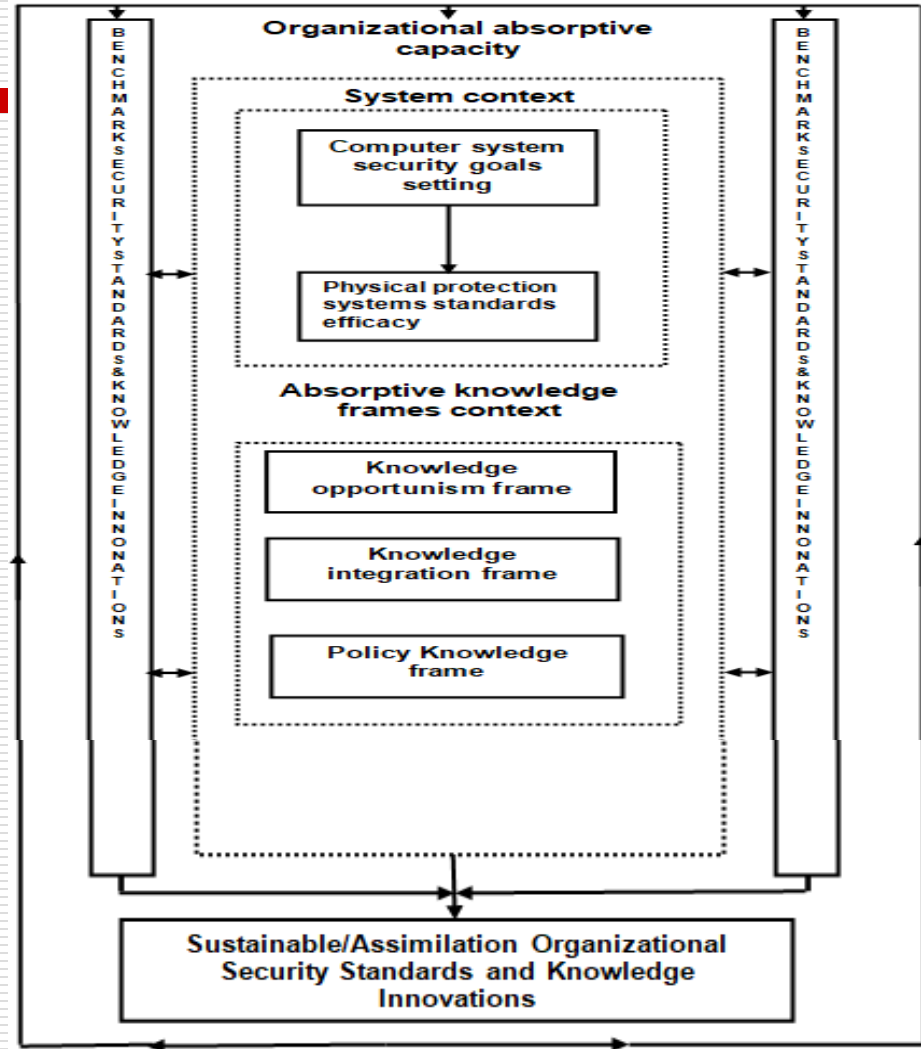


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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(5) Organizational policy knowledge frame

- ❖ Scholars have indicated that much remains to be learned regarding how **policy knowledge is developed across related groups** (Clases & Wehner, 2002; Gallucci, 2003; Jakubik, 2007; Spillane, Reiser, & Reimer, 2002)
- ❖ The **policy process is inextricably linked to organizational knowledge** (Jephcote & Davies, 2004; Parsons, 2004)
- ❖ **Policies increasingly influence** individuals' lives (Kirby & Krone, 2002; Stein, 2004)

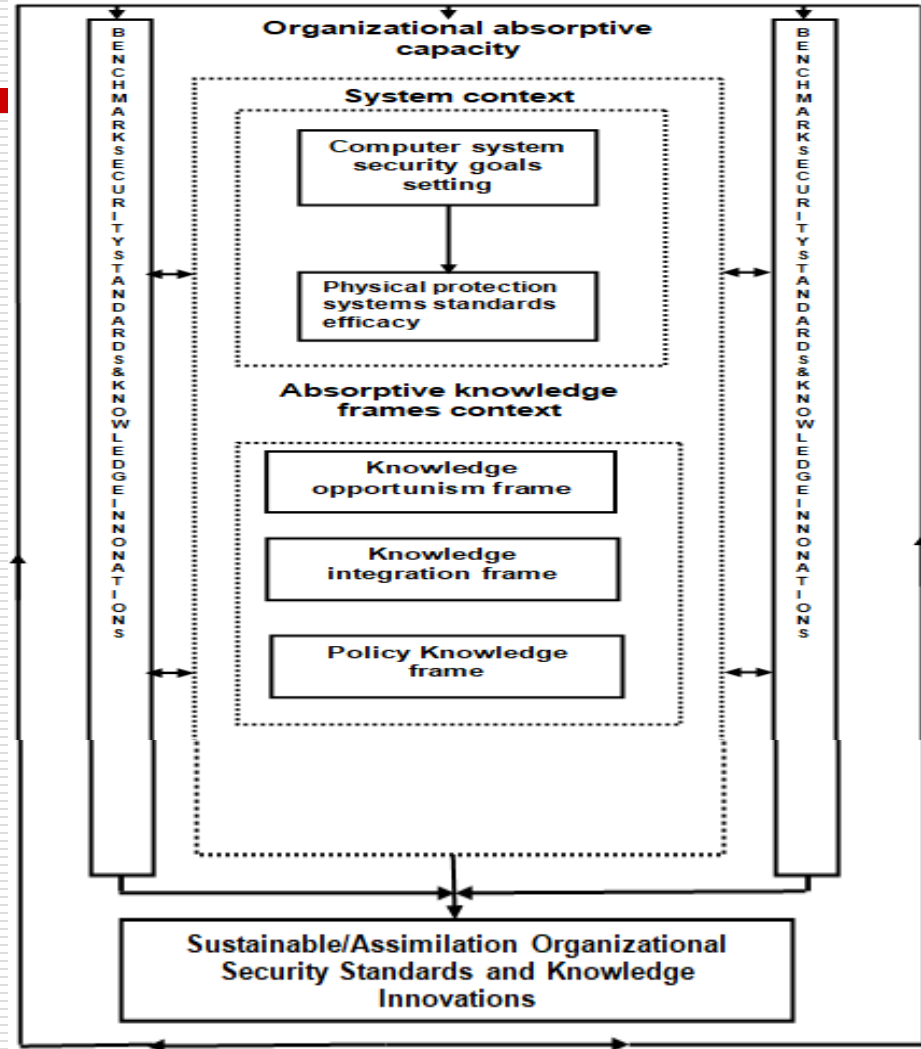
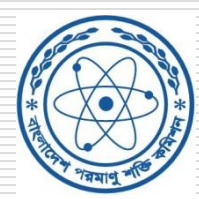


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RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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(5) Organizational policy knowledge frame

- ❖ More research is needed that takes **into account how policies are interpreted, adapted, and implemented within particular contexts** (Gallucci, 2003; Spillane et al., 2002)
- ❖ How members of policy-related groups interact to develop knowledge of policies?

-Hence, **policy knowledge frame** is needed to benchmarking the **Security Standards and Knowledge Innovations** which ultimate plays role to assimilate these Standards/innovations into the organizations

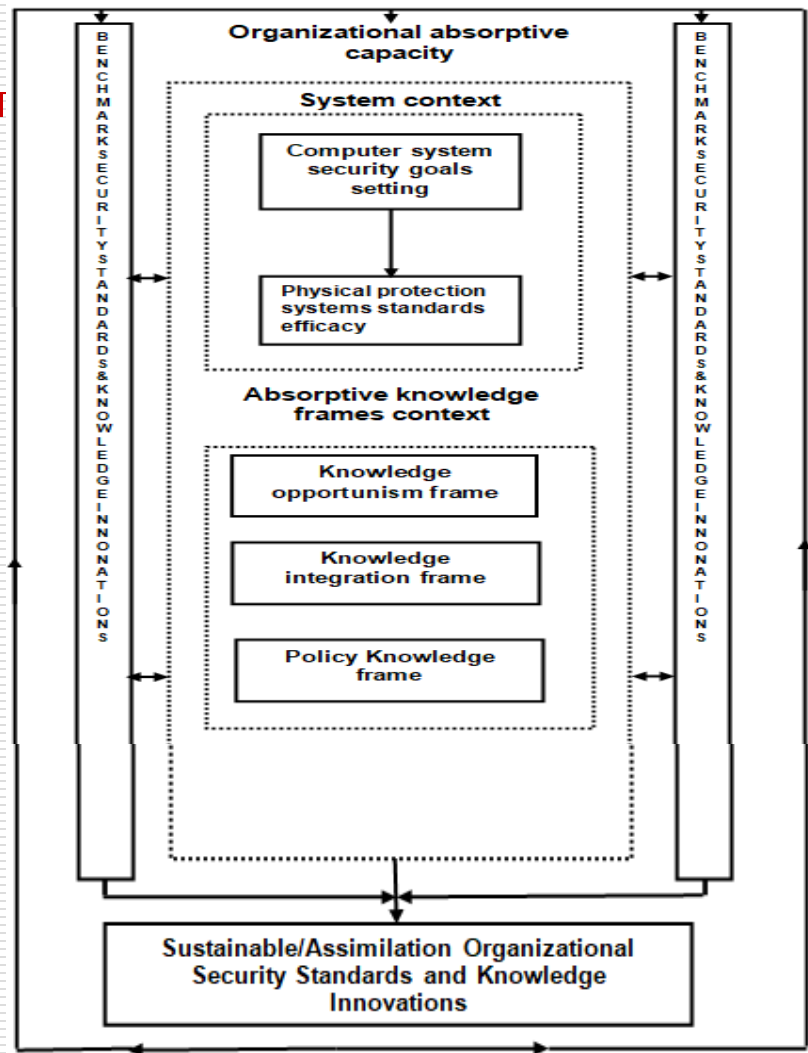
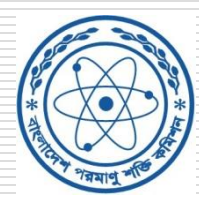


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RESEARCH METHODOLOGY



- ❖ **Refinement of the measurement items**

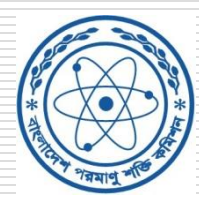
- ❖ **Adopt a survey method**

 - Survey/keywords search in the internet/Bibliometric data of publications /SCI/SSCI for analysis knowledge innovations indicators

- ❖ **Assessment of the research model/using PLS**

- ❖ **Formulate implications for both research & practices**





DISCUSSION AND IMPLICATIONS



➤ The findings shed new light on the idea of **continuous improvement** of innovations standards **of PPS**

-Both as an objective and philosophy within the organization and in terms of **harnessing improvement elsewhere** as a driving force for **internal improvement**

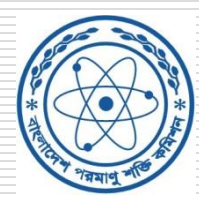
➤ Hence, these outcomes are then used as a stimulus for action:

-**Mitigate the consequences** of both inside and outside threats, vulnerabilities of PPS

-**Improve the organization's relative position** by **assimilating /sustaining** the PP standards and knowledge innovations within organization

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DISCUSSION AND IMPLICATIONS



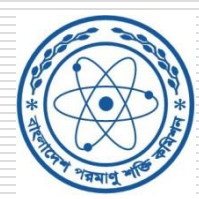
❖ **Expected to extend and enrich the extant literature on nuclear knowledge innovations assimilation** through the inclusion of **Benchmarking process of Organizational absorptive capacity**

-Thereby providing important new insights into **innovations assimilation within organization**

-**Significant implications for management**

-Offer a useful framework for managers **to assess the organizational nuclear knowledge frames**





DISCUSSION AND IMPLICATIONS



- ❖ The **expected impact of Organizational knowledge frames as organizational absorptive capacity of PPS points:**
- ❖ Develop a **mosaic of Security Standards , Knowledge Innovations of PPS and** related knowledge of the managers
 - Requires **an organizational culture that views knowledge innovations production through interactions of R&D activities, and creates incentives to support it**
 - ❖ In particular, the **dynamics of nuclear R&D knowledge innovations levers can be used to effectively manage** the organizational **nuclear knowledge frames**
 - ❖ Benchmarking/ Standardizing of **Security Standards , Knowledge Innovations** to find out **core institutional problems in improving the efficacy of PPS standards** and **knowledge based innovation systems**



DISCUSSION AND IMPLICATIONS



❖ Expected to have implications for policymakers:

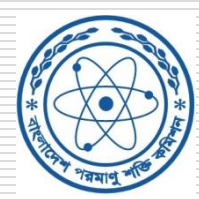
- ❖ Concrete recommendation of **Security Standards for Knowledge Innovations / R&D innovations** policy reformulation

 - Improve the PPS standards efficacy of nuclear organization **by establishing required sustainable PPS and laws, and relevant government decision making**

- ❖ Boost the **nuclear research capacity**

- ❖ Benchmarking/Building the nuclear knowledge base of **Security Standards and Knowledge Innovations / R&D innovations of Physical protection systems** and its **organizational assimilation for peaceful use of nuclear technology**

- ❖ **Future Plan: Conduct Final Study**



RESEARCH MODEL & HYPOTHESIS DEVELOPMENT



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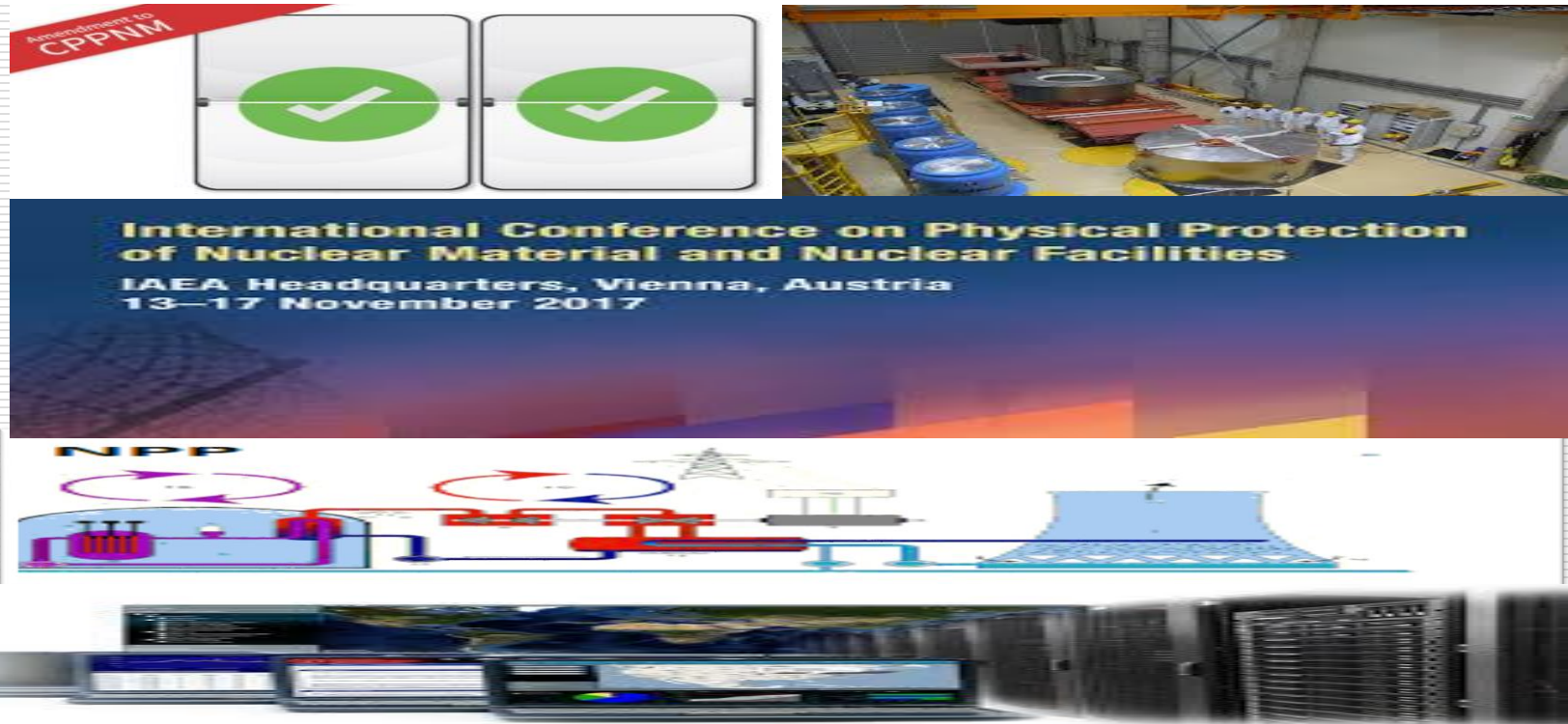
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Q&A



Thank You