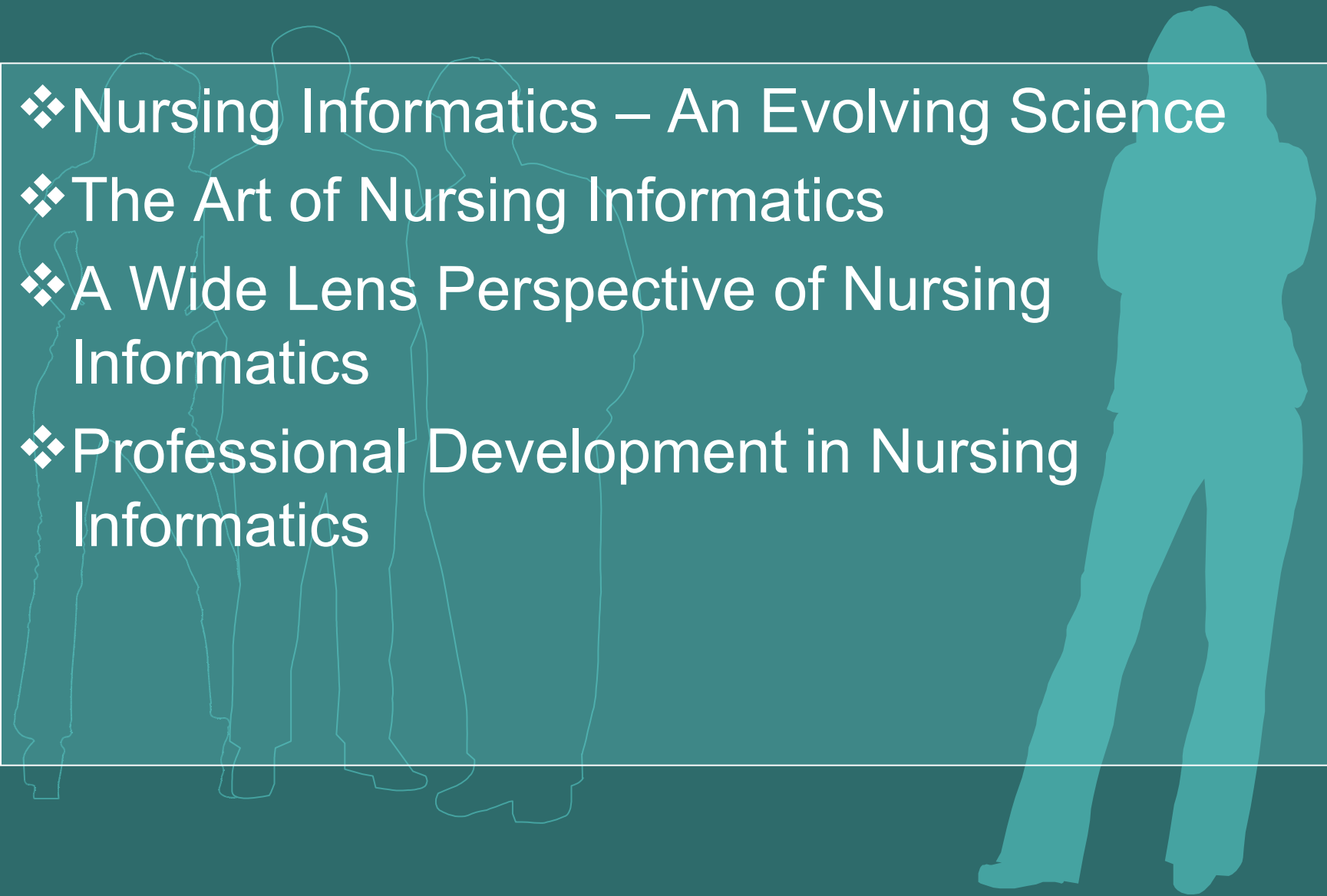# Nursing Informatics 101

## Atlantic Nursing Informatics Conference
## Pre-Conference Workshop

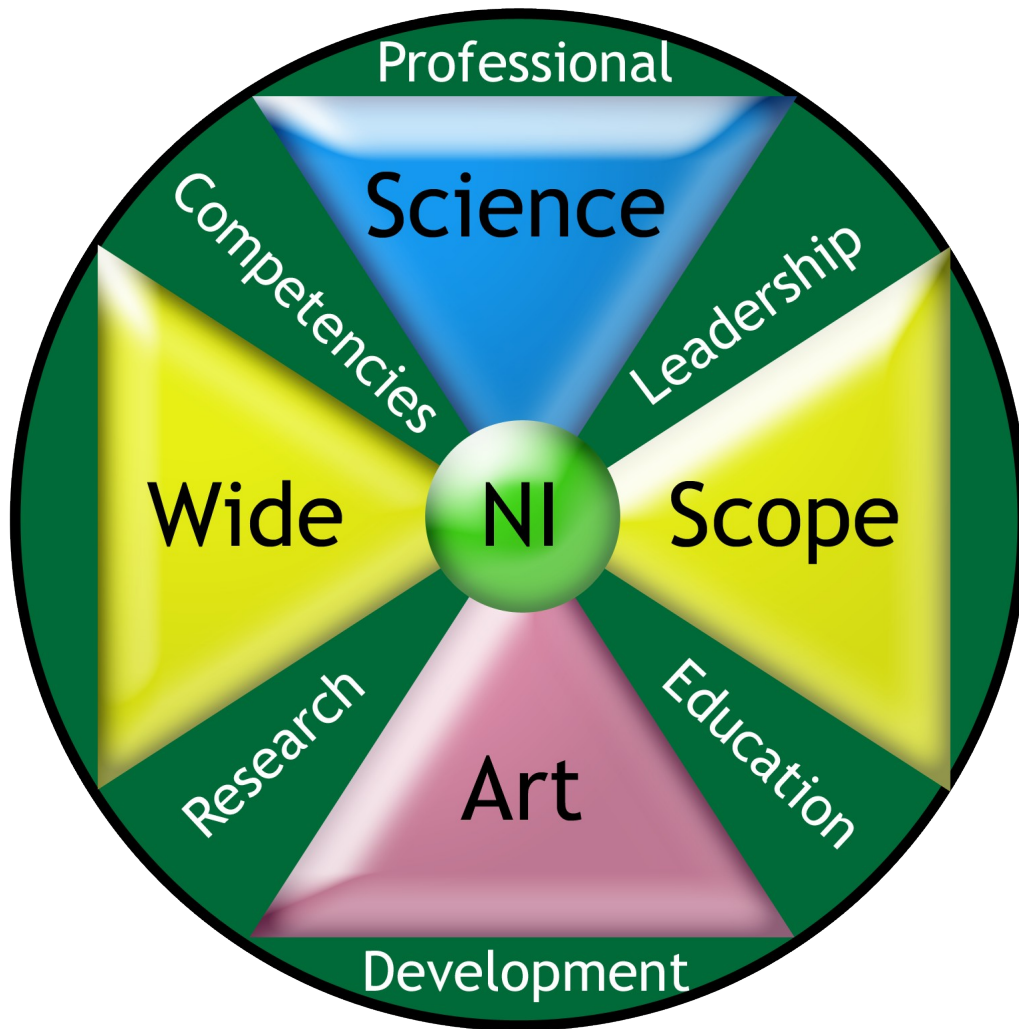June Kaminski – October 2nd, 2008     08:30 – 12:00

# Workshop Overview

- ❖ Nursing Informatics – An Evolving Science
- ❖ The Art of Nursing Informatics
- ❖ A Wide Lens Perspective of Nursing Informatics
- ❖ Professional Development in Nursing Informatics

# Workshop Objectives

- Explore the development and principles of the science and art of nursing informatics.

- Recognize the evolving scope and arenas within the field of nursing informatics, including systems use within practice, e-health, tele-nursing, client education, social and professional networking, research and education, and professional development

- Explore how nurses can/do uniquely contribute to the emerging fields of telehealth, e-health, electronic health records, hospital and community health systems, educational and networking initiatives

- Examine technological, utility, and leadership competencies in nursing informatics

- Explore user, modifier, and innovator levels of competencies within nursing informatics

- Engage in personal professional development activity planning

Evolving the Field

Nursing Informatics 101 Model

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# Nursing Informatics – an Evolving Science

❖ **Nursing, Information and Computer Science**

❖ **Data – Information – Knowledge Paradigm**

❖ **Privacy, Security, Confidentiality**
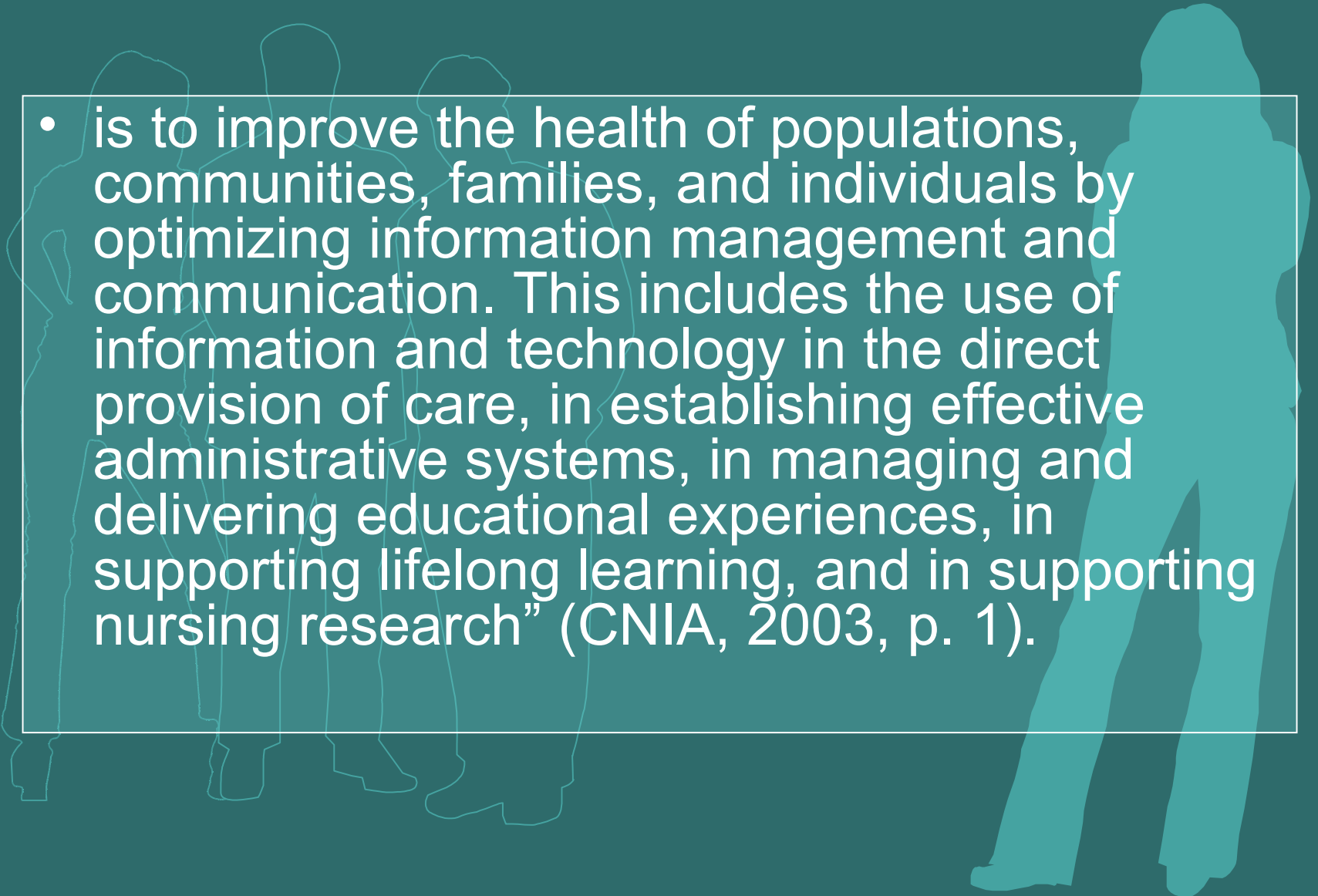
❖ **Ergonomics and Asepsis**

**SECTION ONE**
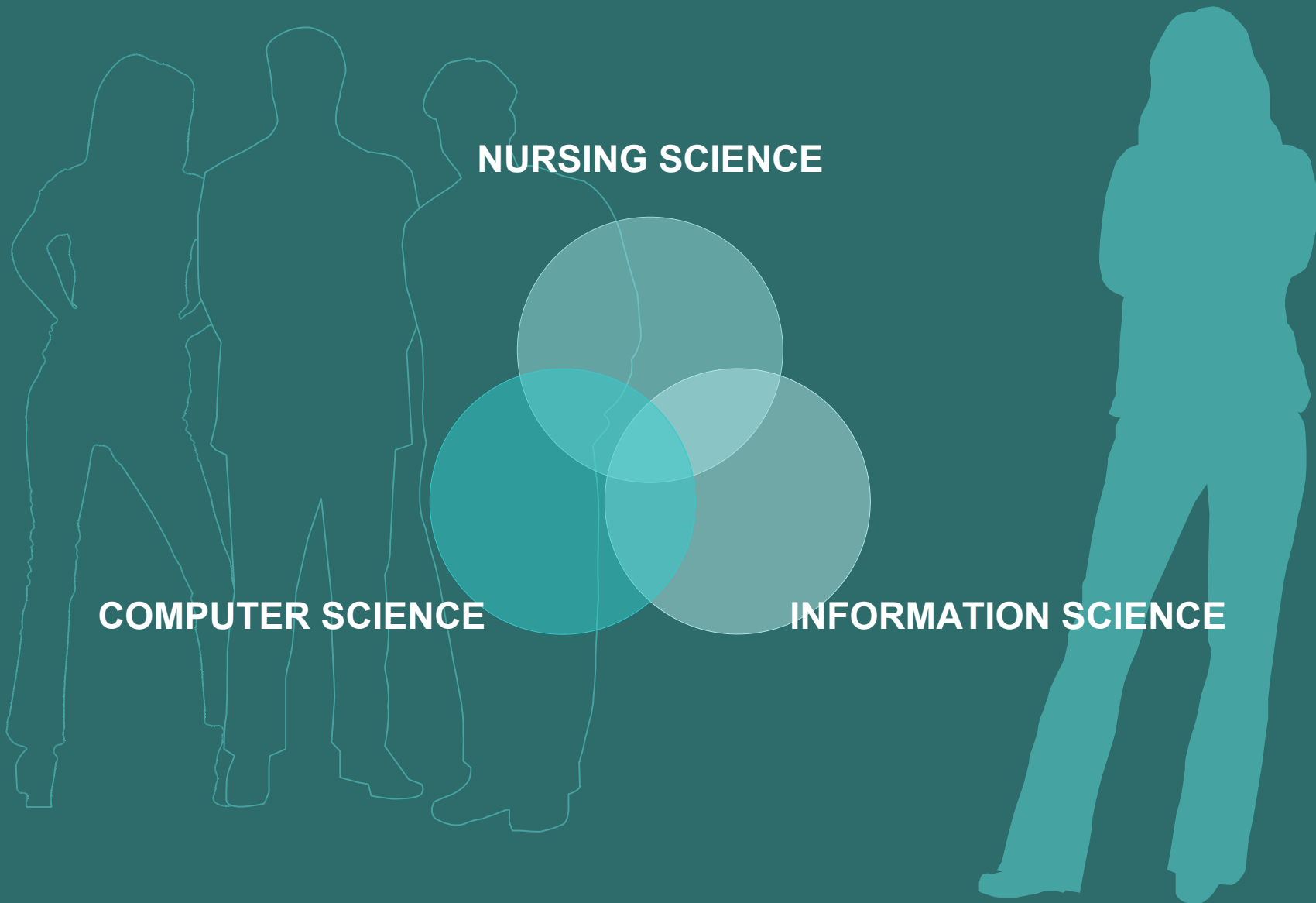
# Nursing informatics is….

- "a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, and knowledge in nursing practice. Nursing informatics facilitates the integration of data, information and knowledge to support patients, nurses and other providers in their decision-making in all roles and settings. This support is accomplished through the use of information structures, information processes, and information technology" (Staggers & Bagley-Thompson, 2002, p. 262).

# The goal of nursing informatics….

- is to improve the health of populations, communities, families, and individuals by optimizing information management and communication. This includes the use of information and technology in the direct provision of care, in establishing effective administrative systems, in managing and delivering educational experiences, in supporting lifelong learning, and in supporting nursing research" (CNIA, 2003, p. 1).

# NURSING INFORMATICS TRIAD

**NURSING SCIENCE**

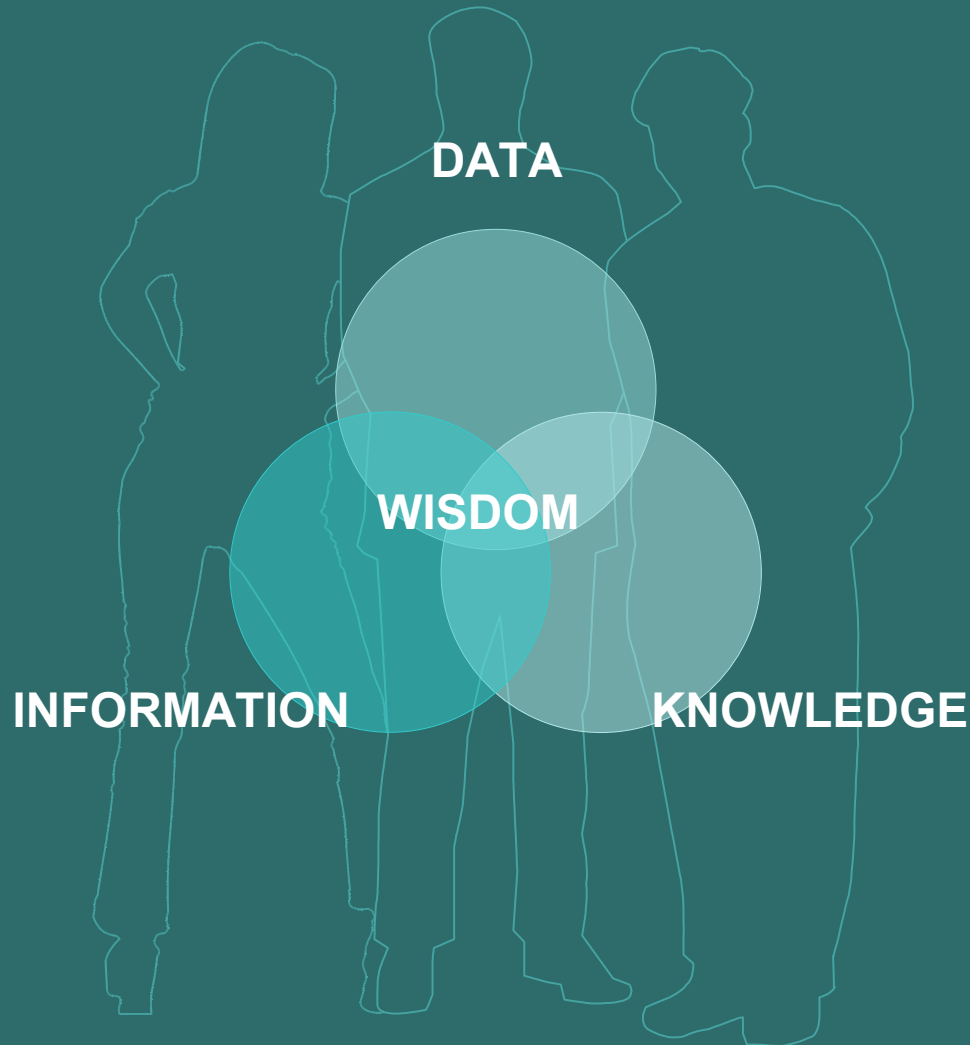**COMPUTER SCIENCE**

**INFORMATION SCIENCE**

# Nursing Informatics is critical to Health Care

- Nurses comprise the largest group of health providers
- Nurses spend the most time in direct care of clients = a critical position to influence Health Informatics

# DATA – INFORMATION - KNOWLEDGE

DATA

WISDOM

INFORMATION

KNOWLEDGE

- Health and nursing information science is the study of how health care data is acquired, communicated, stored, and managed, and how it is processed into information and knowledge.
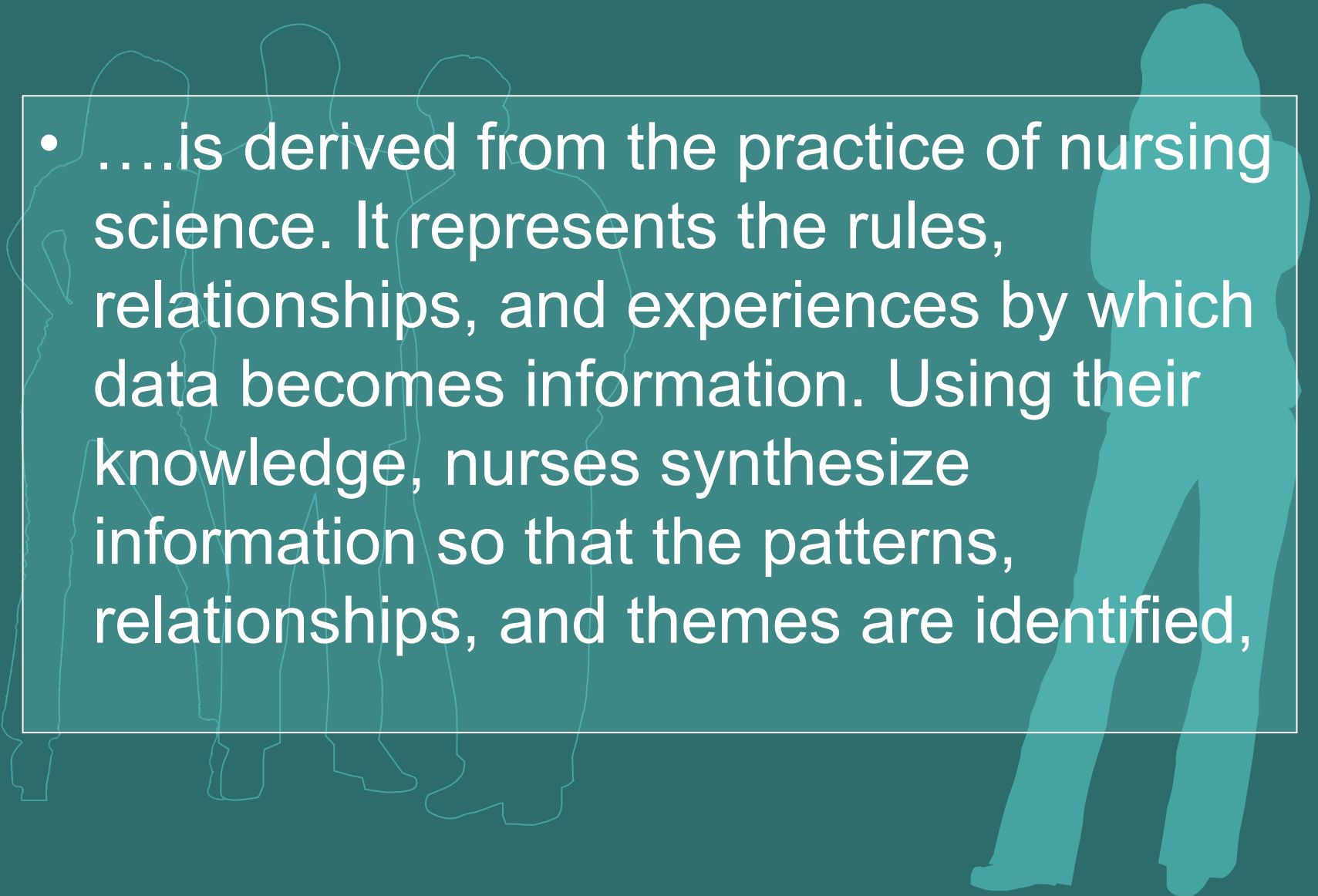
# Information systems….

- ….used in health care include the people, structures, processes, and manual as well as automated tools that collect, store, interpret, transform, and report practice and management information.
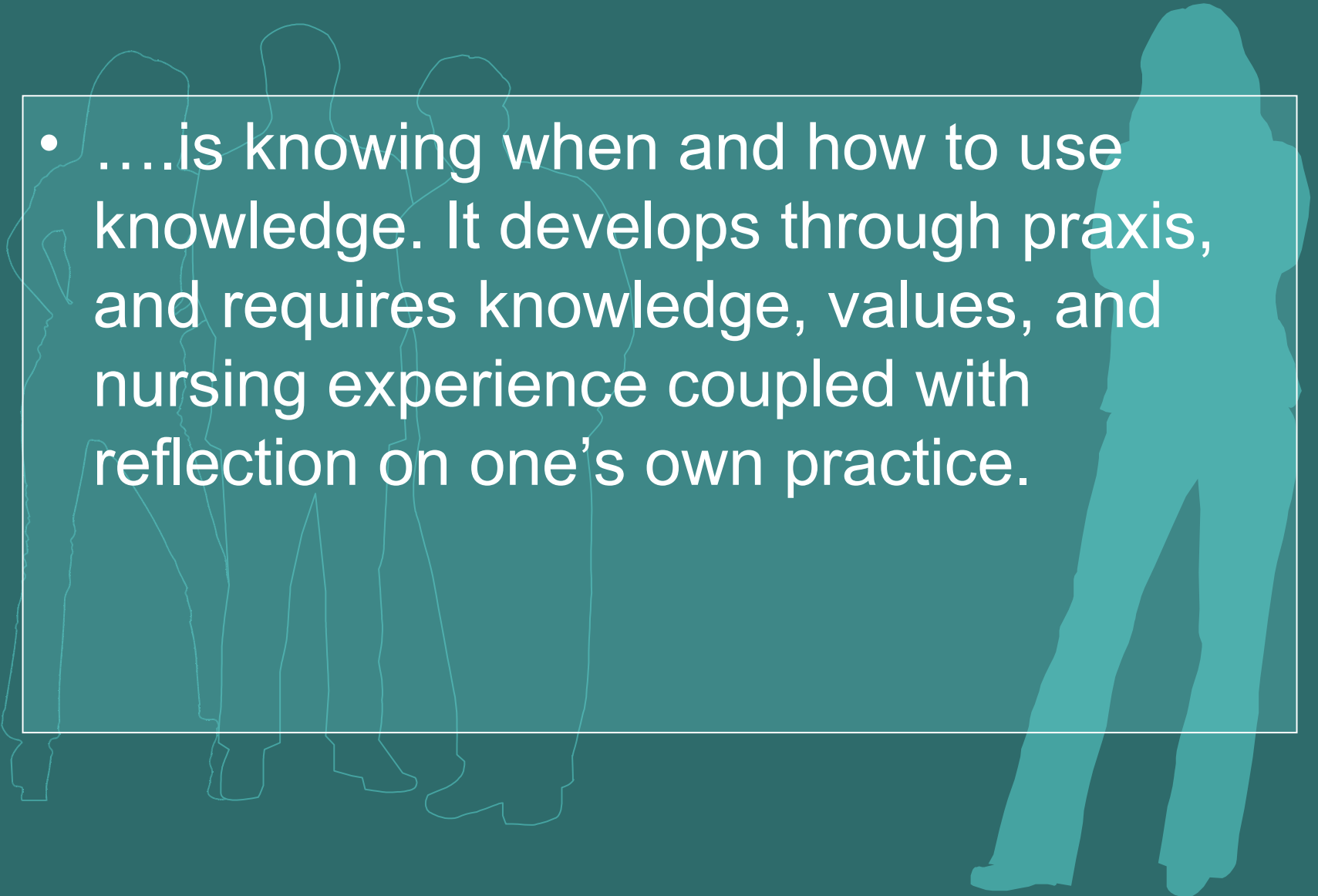
# Nursing knowledge….

- ….is derived from the practice of nursing science. It represents the rules, relationships, and experiences by which data becomes information. Using their knowledge, nurses synthesize information so that the patterns, relationships, and themes are identified,
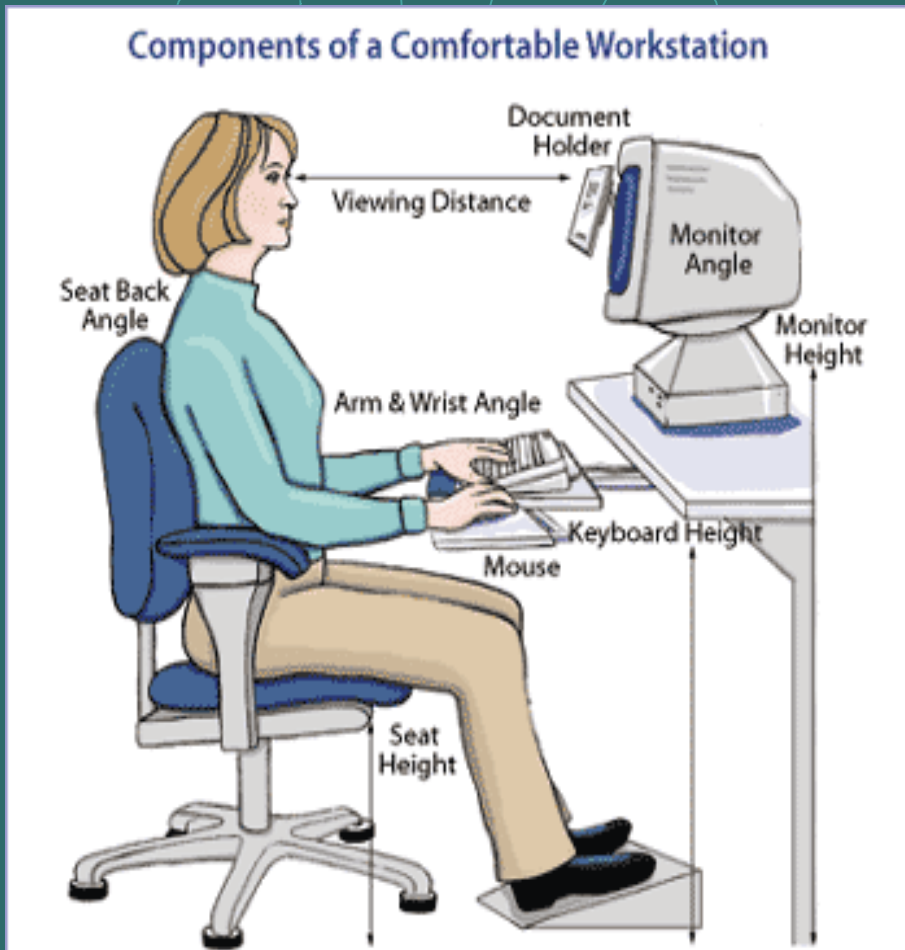
# Nursing wisdom….

- ….is knowing when and how to use knowledge. It develops through praxis, and requires knowledge, values, and nursing experience coupled with reflection on one's own practice.

# Privacy, Security, Confidentiality

- Protected by Policies & Procedures
- Security refers to technological, organizational, or administrative processes designed to protect data systems from unwarranted access, disclosures, modification, or destruction.

# Ergonomics….



**Components of a Comfortable Workstation**

- Document Holder
- Viewing Distance
- Monitor Angle
- Seat Back Angle
- Monitor Height
- Arm & Wrist Angle
- Keyboard Height
- Mouse
- Seat Height

- comes from the Latin ergos (to work) and nomos (knowledge).

- the science of using knowledge of work activities and the human body's limitations to structuring work environments, or "fitting the work to the worker".

# Complete the Ergonomic Assessment

- Is your computer workstation safe and ergonomically situated?
- If not, what do you need to change to work in an ergonomically supported environment?
- What about using PDAs?
- Or Laptops?
- Or Cell Phones?

# ASEPSIS AND COMPUTERS EXERCISE

Research studies suggest that computers in the hospital workplace can be prime habitats for various fungi, bacteria, and other microorganisms including "superbugs" like MSRA.

- a. What activities do you think are the biggest culprits for promoting the growth of these harmful micro-organisms?

- b. What can nurses do to protect their clients from computer-transmitted infections?

- c. Who is responsible for cleaning computer and mobile equipment in your employing agency or workplace?

# The Art of Nursing Informatics

❖ **Caring and Use of Technology**

❖ **Holistic assessment and planning**

❖ **Aesthetics and a Phenomenological Approach**

SECTION TWO

# CARING AND USE OF TECHNOLOGY

- The relationship between computer literacy, technological competence and a nurse's ability to care is congruent for quality nursing practice.

- Computer literacy represents a proactive response to technology which enhances caring in nursing

# Holistic assessment and planning

- The world of the screen is fast becoming a constant reality within health care – how do nurses counteract the potential distancing and rupturing of relations with clients that can occur?

- How can nurses use technologies in ways that actually allow more embodied time and presence with clients?

# Aesthetics & a Phenomenological Approach

- What do we need to do differently when nurses must transpose their presence, empathy and professionalism through the circuitry and visual displays of a ICT machine?

- The nurse is still "present" and perceived as situated within the health care interaction by the client, albeit through electronic means.

# How are Presence & Caring Conveyed?

# A Wide Lens Perspective of Nursing Informatics

❖ **Nursing Informatics in Clinical Practice**

❖ **Telehealth and Telenursing**

❖ **Nurse's Role in E-health**

❖ **Client Education**

❖ **Networking and ICTs**

❖ **Research and Education**

**SECTION THREE**

# Nursing Information Systems

- When time and energy are at a premium, using a Nursing Information System (NIS) in acute care settings can assist in applying nursing knowledge and wisdom to everyday care

- Documentation can be more timely, more complete, and more accurate when captured at the "point of origin", usually the client's bedside in acute care settings.

# Engaging with a "Virtual" client

- While engaging with the virtual representation of a client, the nurse must strive to envision and experience the client's three dimensional body and being in order to accurately advise, assess, diagnose, and interact fully and dynamically.

- This perceiving must occur within a virtual network environment, where both body-sense and body-awareness are combined with digital information.
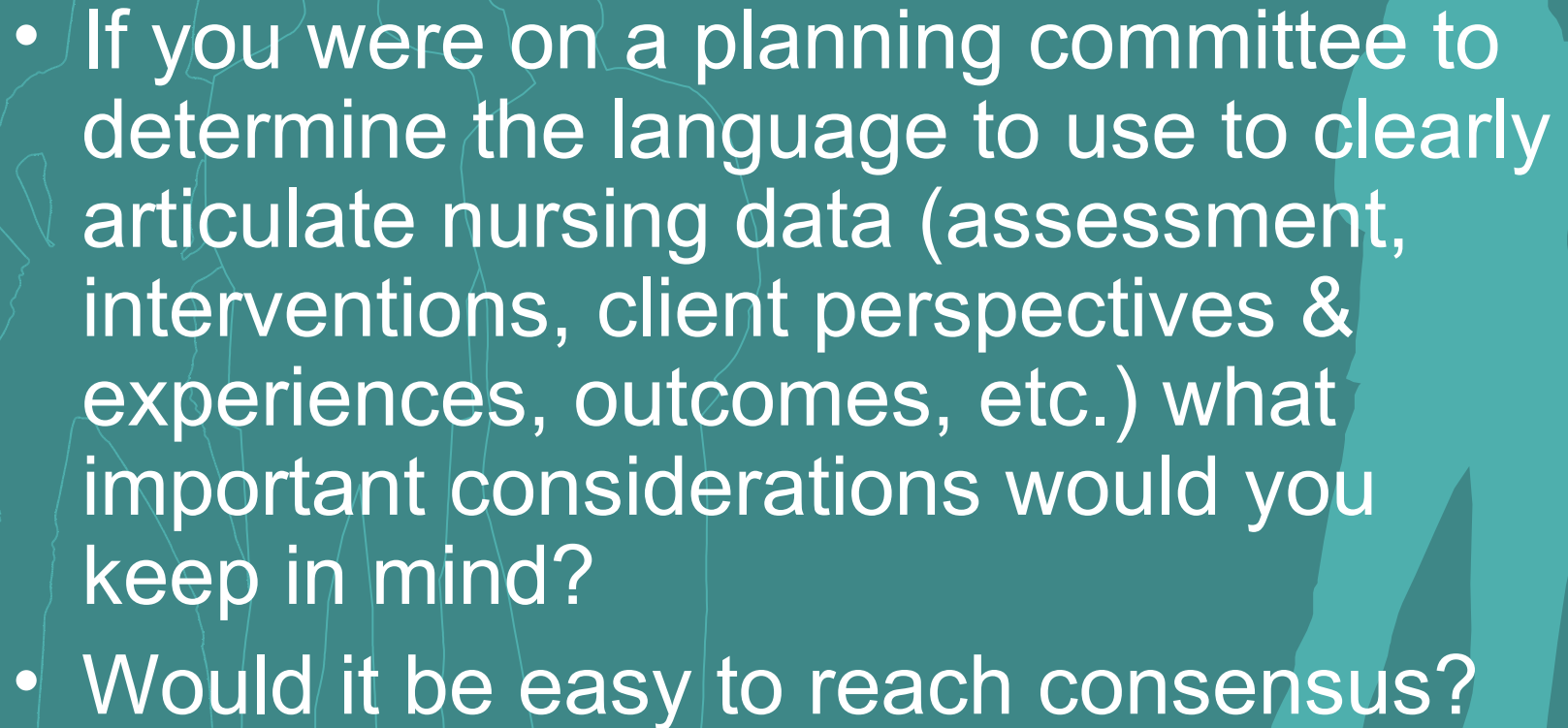
# Electronic Health Record (EHR)…

- a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports.

# EHRs….

- The EHR has the ability to generate a complete record of a clinical patient encounter, as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting.

# STANDARDIZED NURSING LANGUAGE EXERCISE

- If you were on a planning committee to determine the language to use to clearly articulate nursing data (assessment, interventions, client perspectives & experiences, outcomes, etc.) what important considerations would you keep in mind?

- Would it be easy to reach consensus?

# Telehealth and Telenursing Exercise

- Tele-health practices not only call for nurses to reconceptualize presence, place, and bodies in nursing, but also to explore how these practices threaten to displace nursing. It is imperative for any nurse who engages in telenursing to be aware of this, and to ensure that network exchanges with their clients reflect dynamic, personable caring and attentiveness, even when the interactions occur via ICT mediums.

- **WHAT CAN NURSES DO TO ENSURE THIS?**

# Nursing Roles in E-health

- E-health is a client-centered World Wide Web-based network where clients and health care providers collaborate through ICT mediums to research, seek, manage, deliver, refer, arrange, and consult with others about health related information and concerns

# E-health Case Scenario

- Janet, a 43 year old mother and business owner was diagnosed with rhematoid arthritis six months ago. She sought medical treatment for her condition but has experienced little relief with conventional treatment. She begins to seek further information from other sources beyond her family doctor, including internet resources. Recently she decided to initiate an online support and information group to explore treatments and experiences with other people with arthritis.
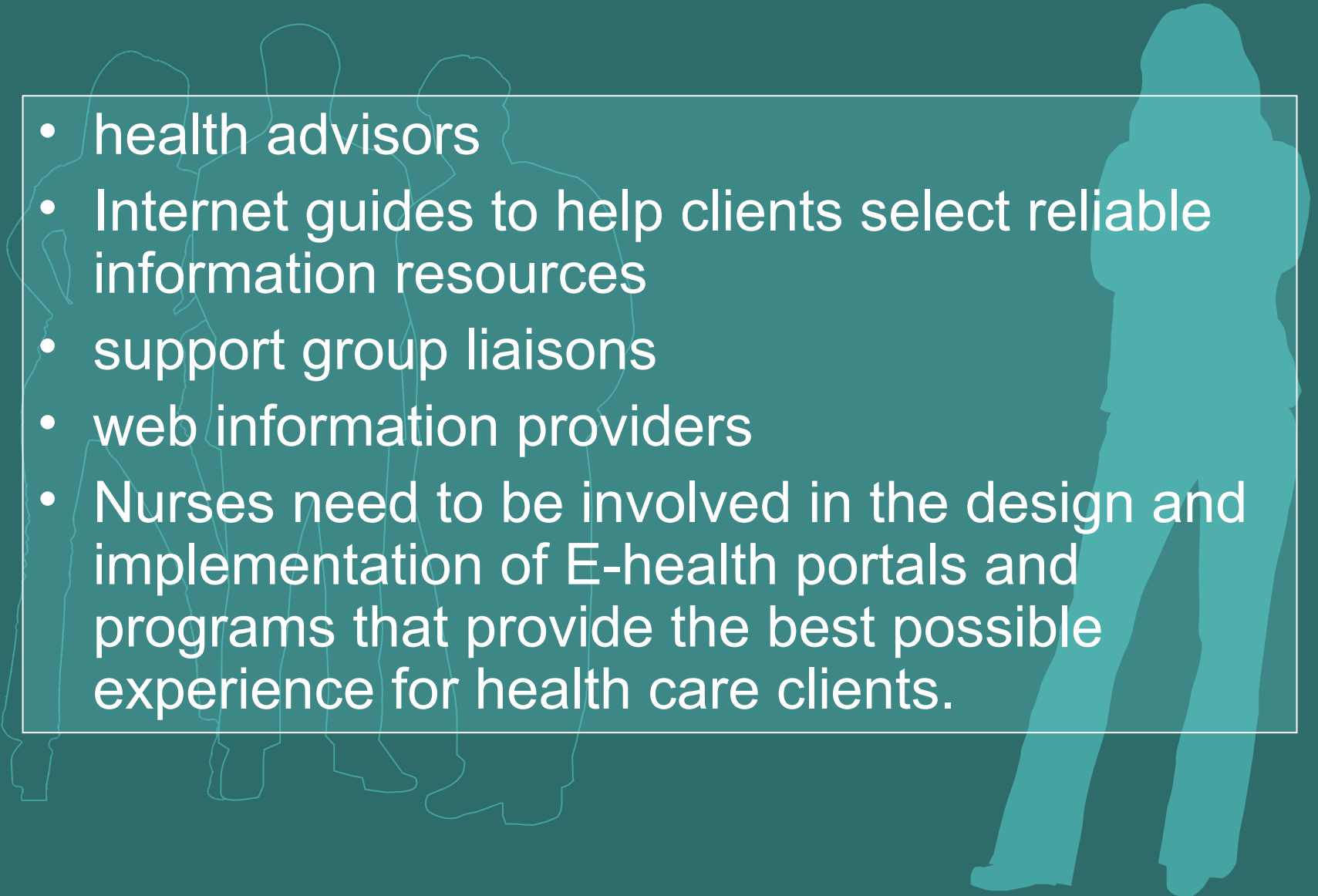
# Questions to Ask…

❖ What roles could nurses adopt to support Janet in her endeavor?

❖ What could nurses offer this new community of clients that they could not organize themselves?

❖ What ethical considerations come to mind when reviewing this scenario?

# Nursing Roles in E-health

- health advisors
- Internet guides to help clients select reliable information resources
- support group liaisons
- web information providers
- Nurses need to be involved in the design and implementation of E-health portals and programs that provide the best possible experience for health care clients.
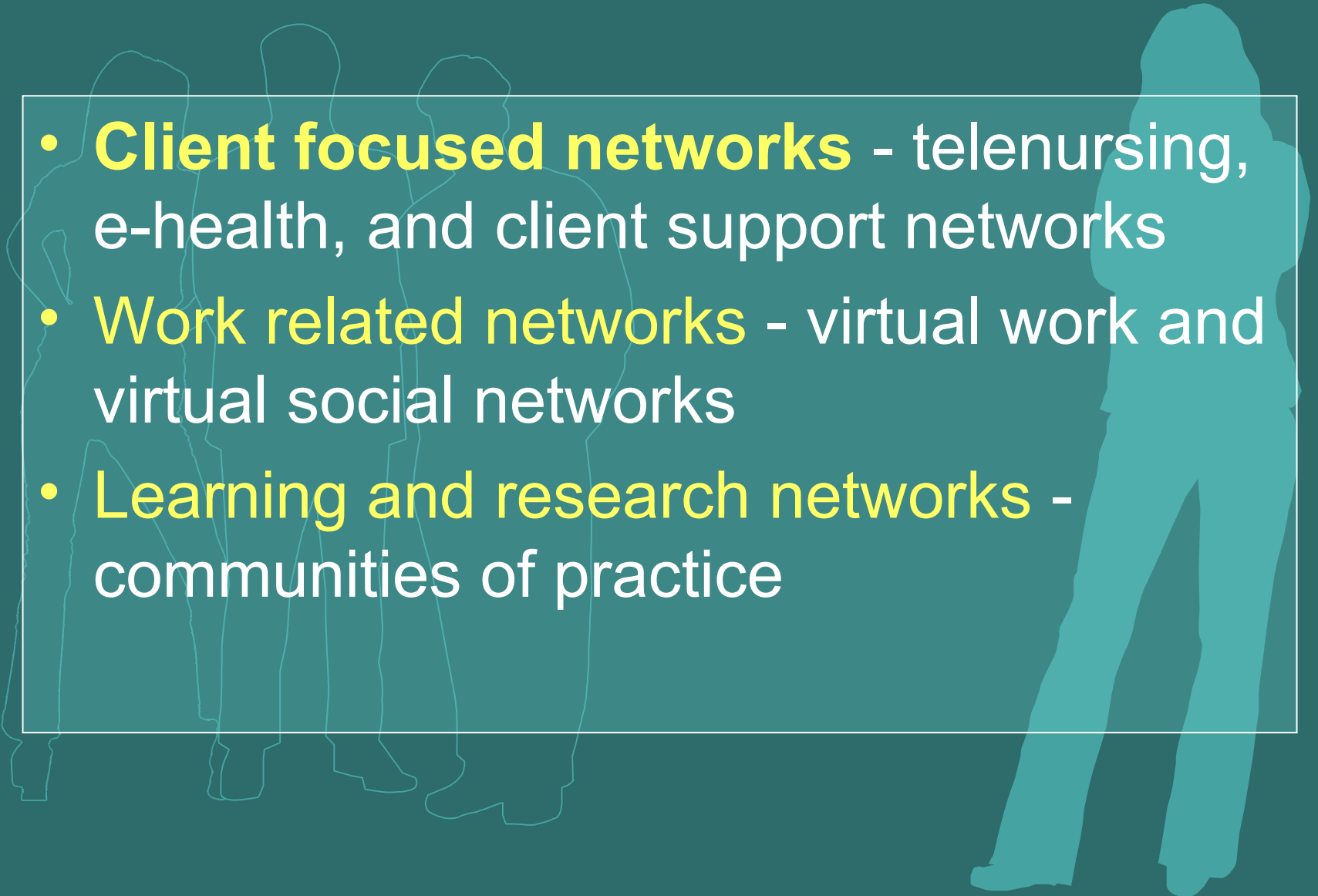
# Client Education Roles for Nurses

- Facilitative partnership with client
- Enablers, supporting self care and autonomy
- Coaching, informing and explaining
- Helping clients to generate alternatives
- Guiding clients to think issues through
- Validating the client's reality.
- Nursing Informatics can help to personalize and customize client teaching
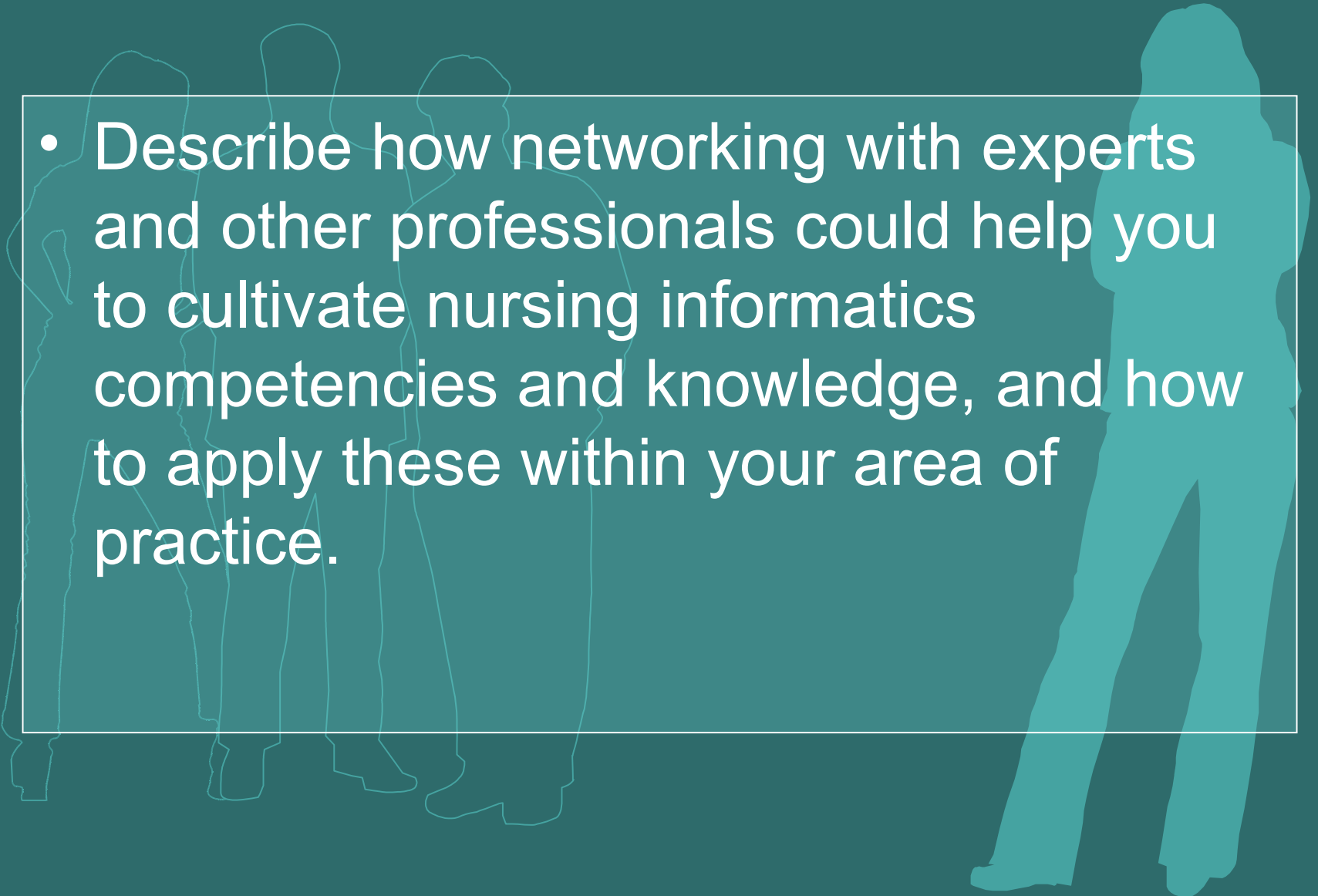
# Networking and ICTs

- **Client focused networks** - telenursing, e-health, and client support networks

- Work related networks - virtual work and virtual social networks

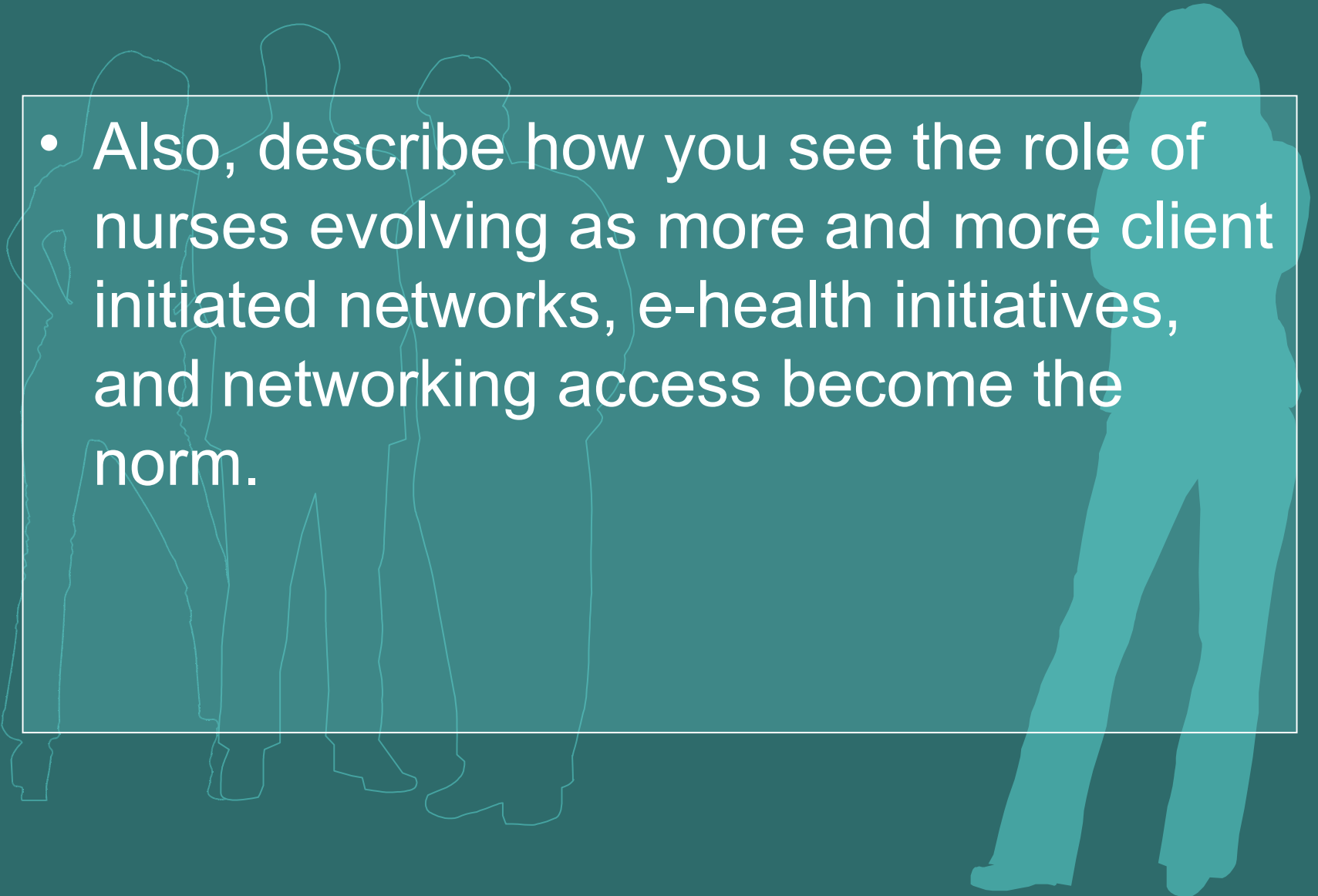- Learning and research networks - communities of practice

# Networking Exercise

- Describe how networking with experts and other professionals could help you to cultivate nursing informatics competencies and knowledge, and how to apply these within your area of practice.

# Future of Networking

- Also, describe how you see the role of nurses evolving as more and more client initiated networks, e-health initiatives, and networking access become the norm.
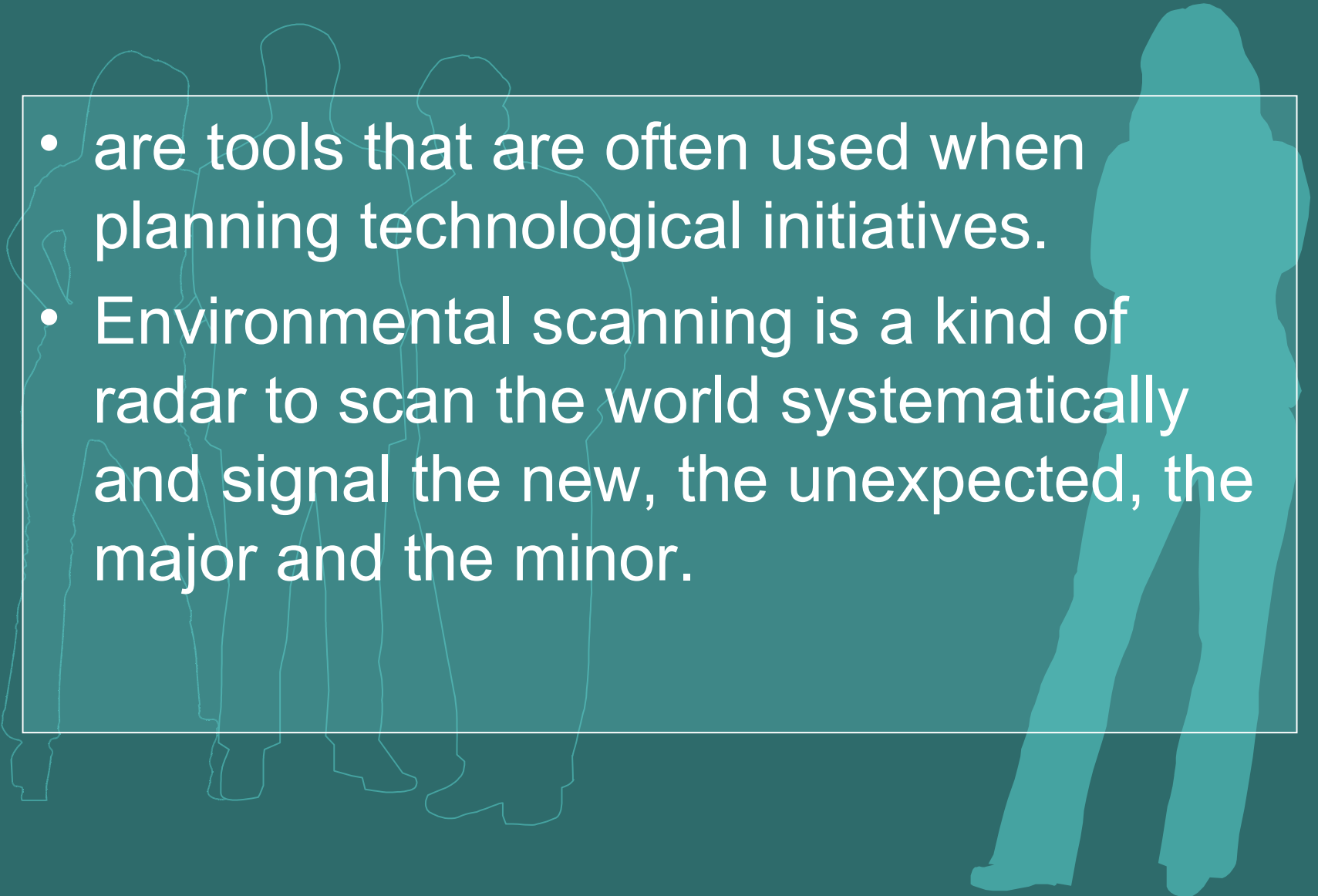
# Research and Education

- Planning informatics education content takes a substantial amount of research, decision-making, and competency-based choices. This is true whether planning for one course or an entire program.
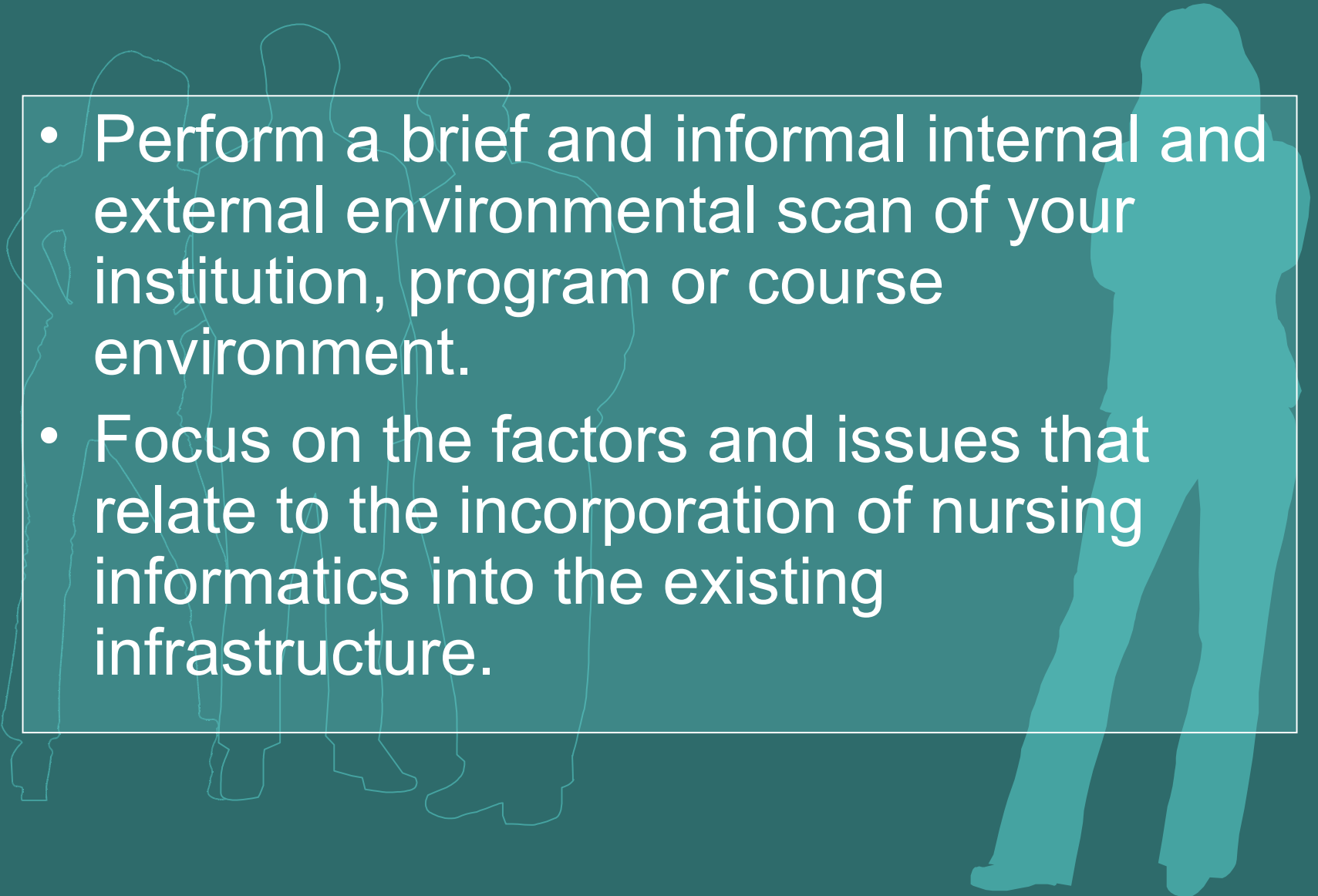
# Environmental Scans

- are tools that are often used when planning technological initiatives.
- Environmental scanning is a kind of radar to scan the world systematically and signal the new, the unexpected, the major and the minor.

# Environmental Scan Exercise

- Perform a brief and informal internal and external environmental scan of your institution, program or course environment.

- Focus on the factors and issues that relate to the incorporation of nursing informatics into the existing infrastructure.

# Examine and Describe:

- Target environment
- Current Situation
- Projected Situation
- New & Emerging Technologies and Resources
- Key Information Sources
- Emerging Issues

# Professional Development in Nursing Informatics

❖ **Technological, Utility and Leadership Competencies**

❖ **User, Modifier and Innovator Competency Levels**
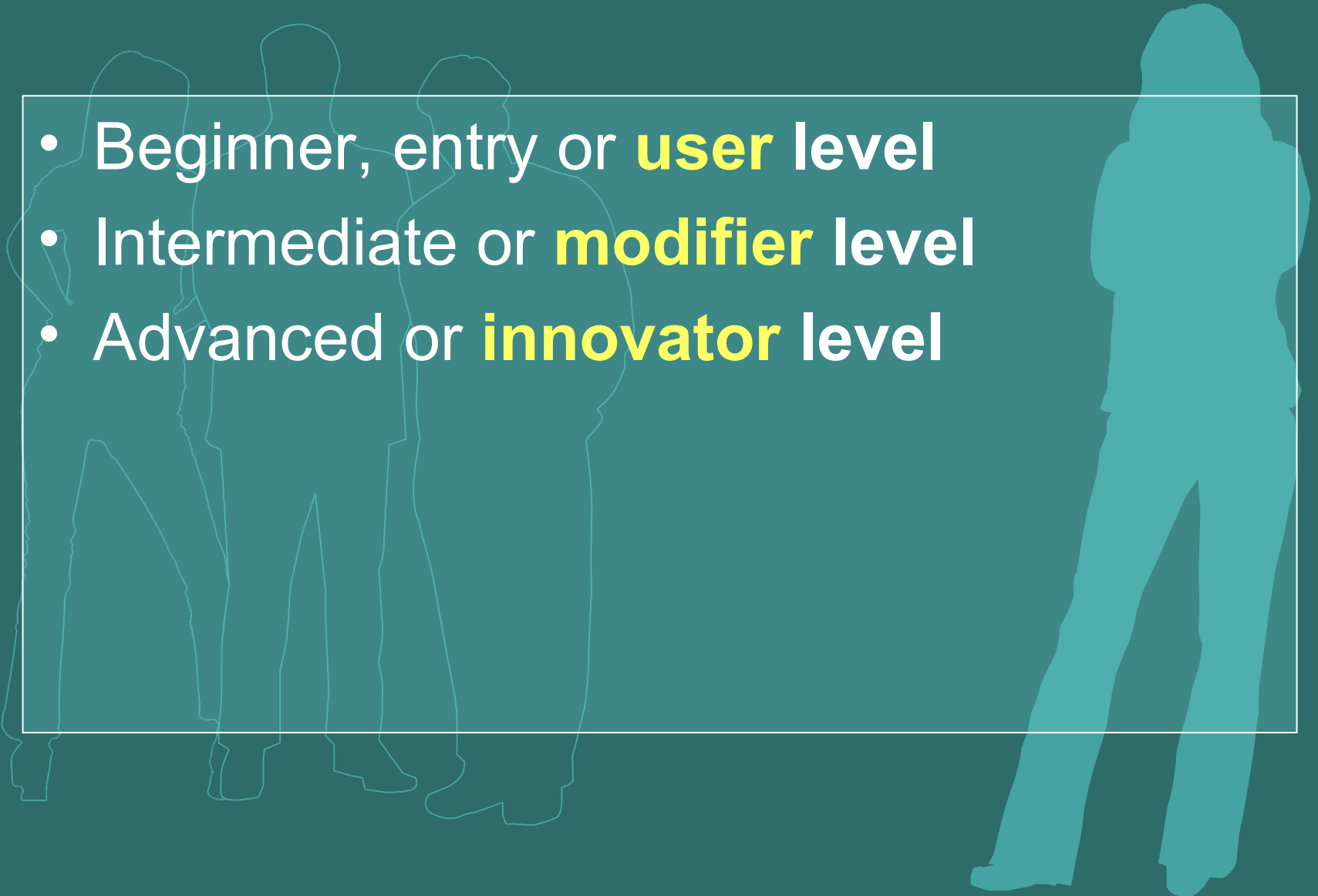
❖ **Personal Professional Development Planning**

**SECTION FOUR**

# Nursing Informatics Competencies

❖ **Strategies:** in-service training, intranet ready modules, access to online resources, and opportunities for continuing education.

❖ **"Barriers** to achieving NI competencies in the workplace include restricted access to training and training systems for nurses and nursing students, few leaders and educators with NI skills, and limited empirical support for the contributions ICT can or will realistically make to nursing and patient outcomes" (p. 6).

# Competency Levels

- Beginner, entry or **user** level
- Intermediate or **modifier** level
- Advanced or **innovator** level

All three levels demonstrate Competencies:

- ❖ the use of information and communication technology (*technical competencies*)

- ❖ the use of automated information in a professional context (*utility competencies*)

- ❖ decision-making with respect to planning for and using both the technology and information (*leadership competencies*).

# User Level Competencies

- "User" level of competency indicates nurses who demonstrate core nursing informatics competencies. This level includes practicing nurses, nursing administration, nurse researchers and educators. In most taxonomy, this is the basic level that **ALL** nurses should minimally demonstrate, no matter what area of practice he or she works in.

# Modifier Level Competencies

- A "Modifier" level of competency indicates nurses who demonstrate intermediate nursing informatics competencies. This level includes practicing nurses, nursing administration, nurse researchers and educators who have mastered basic skills and use technology in inventive ways in their practice.

# Innovator Level of Competencies

- An "Innovator" level of competency indicates nurses who demonstrate advanced and specialized nursing informatics competencies. This level includes practicing nurses, nursing administration, nurse researchers and educators who have mastered expert skills and use technology in design, plan and coordinate the use of technologies and informatics theory in nursing.

# Nursing Informatics Experts

- Some examples include: Nursing informatics Specialist, Chief of Nursing informatics, Director of Nursing Informatics, Clinical Information System Coordinator, Director of Clinical Systems, CIO or Chief Information Officer, and so on.

# NURSING INFORMATICS COMPETENCIES GOALS

- Write five goals for yourself, related to learning Nursing Informatics theory and application. Try to make these fairly short-term, i.e. within the next five years.