

# SEIPS Guidance and Template

# Systems review using SEIPS

## 'Systems Engineering for Patient safety Framework

- ◆ Healthcare is complex:
  - highly variable,
  - uncertain,
  - dynamic.
- ◆ Characterised by **multiple** interactions between various components – **human** and **technological**.
- ◆ SEIPS helps us understand the **outcomes** within a complex system. It describes:
  - how a **WORK SYSTEM** can
  - influence **PROCESSES** (work done) which
  - in turn shapes **OUTCOMES**





# Systems review using SEIPS

- ◆ *WORK SYSTEM* has 6 broad elements:
  1. External environment
  2. Organisation
  3. Internal environment
  4. Tools and technology
  5. Persons
  6. Tasks
- ◆ People are at the centre **DELIBERATELY**
- ◆ Designing any system of work **MUST** ensure it supports people **NOT** replace or compensate for them.
- ◆ SEIPS:
  - is a GENERAL PROBLEM-SOLVING TOOL
  - prompts us to look for INTERACTIONS rather than linear cause and effect relationships
  - moves the focus from individuals to wider system issues

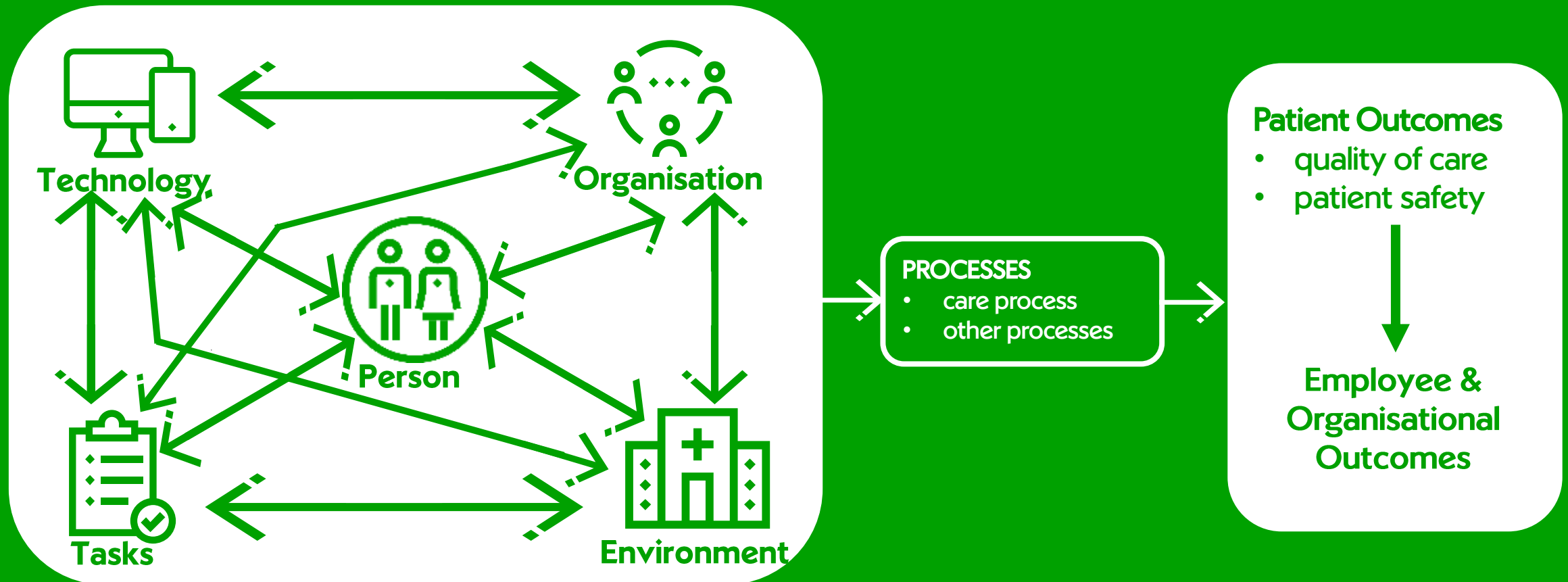


# Systems review using SEIPS

- ◆ Use the SEIPS model templates below to analyse each of the elements of your system.
- ◆ Slides 6 and 7 provide prompts to help you think what needs looked at within each element.
- ◆ Slides 8 – 13, consider each element separately.
- ◆ Slide 14, allows you to bring all the elements back to one page and then map any interactions using arrows.
- ◆ This helps you understand how the interactions may have led to your incident occurring.

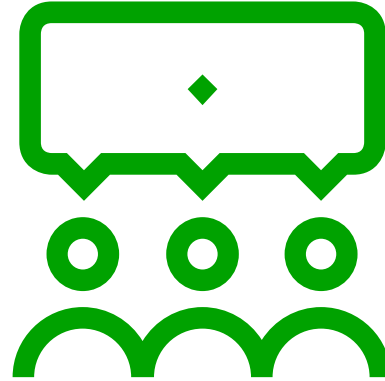


# Systems Engineering Initiative for Patient Safety (SEIPS)





# People factors

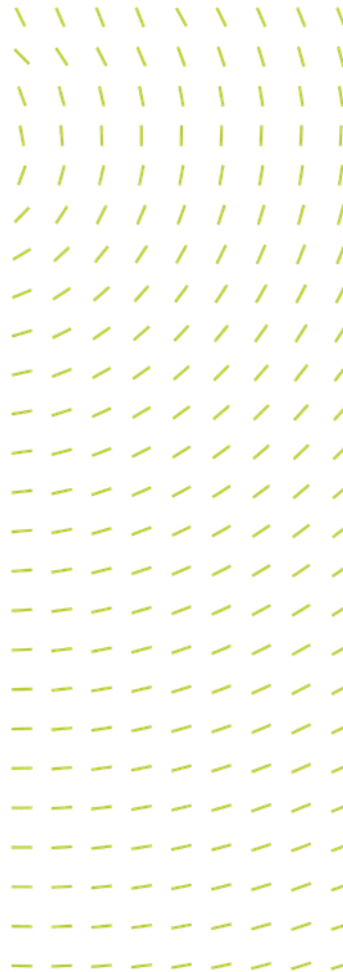


- Individual Characteristics:
  - ✓ Psychological impacts (e.g., frustration, stress, burnout)
  - ✓ Cognitive factors (attention, memory, confusion)
  - ✓ Preferences, personal goals
  - ✓ Knowledge, competence, skills
  - ✓ Psychological factors (illness, dehydration)
  - ✓ Physical strength & needs
- Collective characteristics: team cohesiveness

- Tell me about the patient mix
- Describe the team who deliver patient care.
- Who else is part of the team (e.g. admin/housekeeper)?
- How familiar are team members with care processes/ pathways?
- Are roles and responsibilities clearly defined?
- Describe how training is organised to support safe care?
- Describe the team dynamics.
- Describe the impact of personal factors (e.g. stress, morale, tiredness)

Think about:

- Literacy
- Expectations
- Bias
- Availability
- Workload
- Distractions
- Capabilities



# Task factors

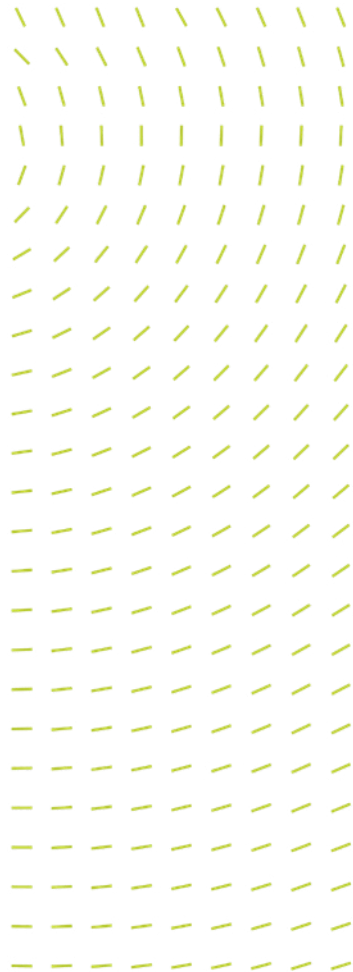
- Specific actions within larger work processes
- Includes task attributes such as:
  - ✓ Difficulty
  - ✓ Complexity
  - ✓ Variety
  - ✓ Ambiguity
  - ✓ Sequence



Think about:

- Design
- Number of tasks
- Frequency
- Required accuracy
- Importance
- Standardisation

- Tell me about the task demands you face
- Describe the tasks which are complex or challenging to carry out.
- Talk me through your experience of the workload.
- Are there time pressure? If yes please tell me more.
- Does task repetition/monotony occur in this work system?
- Do you have to reprioritise/reorganise?



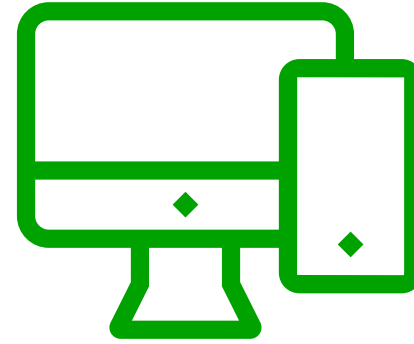
# Equipment factors – tools and technology

Characteristics such as:

- Usability
- Accessibility
- Familiarity
- Level of Automation
- Portability & Functionality
- Maintenance (outdated, malfunctioning)

Think about:

- Availability
- Accessibility
- Usability
- Reliability (validity)
- Cost
- Response to error
- Complexity
- Standardisation

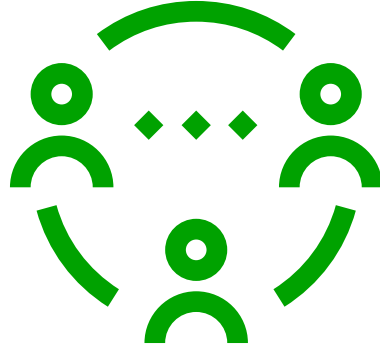


- Describe the equipment/tools you use
- Describe the equipment design
- Share your insights into equipment availability and appropriateness.
- Share your insights into equipment reliability
- Describe how information is presented (e.g. records/IT systems)
- Describe alarms and alerts.
- Are any tasks automated?
- Describe where equipment is positioned. Is this optimal?
- Are tools/technology maintained and updated?
- Are manuals, procedures and supports accessible?



# Organisational factors

- Structures external to a person (but often put in place by people) that organise time, space, resources, and activity.
- Within institutions:
  - ✓ Work schedules/staffing
  - ✓ Workload assignment
  - ✓ Management and incentive systems
  - ✓ Organisational culture (values, commitment, transparency)
  - ✓ Training
  - ✓ Policies/procedures
  - ✓ Resource availability and recruitment
- In other settings
  - ✓ Communication infrastructure
  - ✓ Living arrangements
  - ✓ Family roles and responsibilities
  - ✓ Work and life schedules
  - ✓ Financial and health-related resources



## Think about:

- Staffing not adequate
- Skills mix not adequate
- Does everyone leave?
- 'Poor' culture – what do we mean by this?
- Accuracy of workload matrices
- Organisational understanding of reality of frontline jobs
- Service level agreements not reflecting reality of practice
- Organisations merging

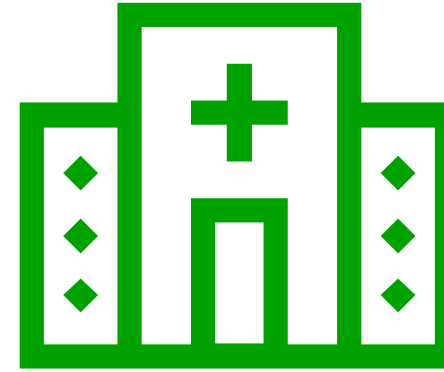
- Tell me about how the patient pathways work.
- Describe the information flow (how information is communicated)
- What is the communication workload like?
- Tell me how new information is flagged.
- Where is new information held?
- Describe the leadership and supervision arrangements.
- Describe how work is scheduled/ allocated.
- Describe safe staffing levels and resourcing.
- Describe the safety/organisational culture.
- Describe how change management work?

# Internal Environmental factors

Physical environment such as characteristics of

- Ambient environment: lighting, noise, vibration, temperature
- Physical layout and available space
- Housekeeping: cluttered, organisation, cleanliness

- Does the workspace support safe patient care/task performance?
- Share your thoughts on the layout of the environment.
- Is the workspace appropriate for the task?
- Where are tasks completed?
- Describe any distractions you experience regularly.
- Do interruptions impact patient care/tasks performance? If yes, how?
- Describe the impact of the ambient environment (e.g. lighting, noise, air quality).



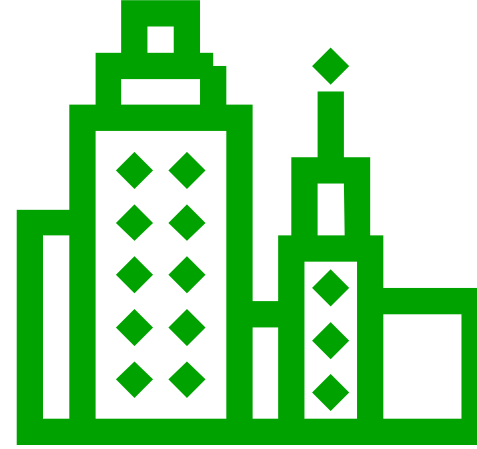
- Space to work
- Uninterrupted flow
- Bench heights correct for task requirements
- Availability of seating
- Adequate lighting (overall, for tasks etc)
- Too hot? Too cold?
- Adequately ventilated?



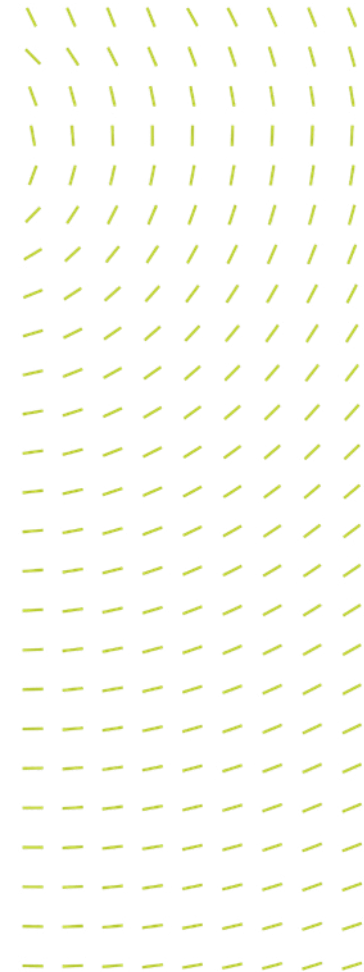
# External environment factors

Societal, economic, regulatory and policy factors outside an organisation

- Describe any relevant national targets.
- Tell me how the following impact (if at all):
  - Policy and regulatory demands
  - Accreditation Standards
  - Political decision-making
  - Global events



- Does your patient fit the guidelines?
- Are targets driving performance?
- Is there a problem with national strategy that affects outcomes?



## Tools and Technology





## Tasks

A large, empty, light gray rounded rectangle with a dark purple border, intended for task details.

Person



## Organisation



Internal (site) environment



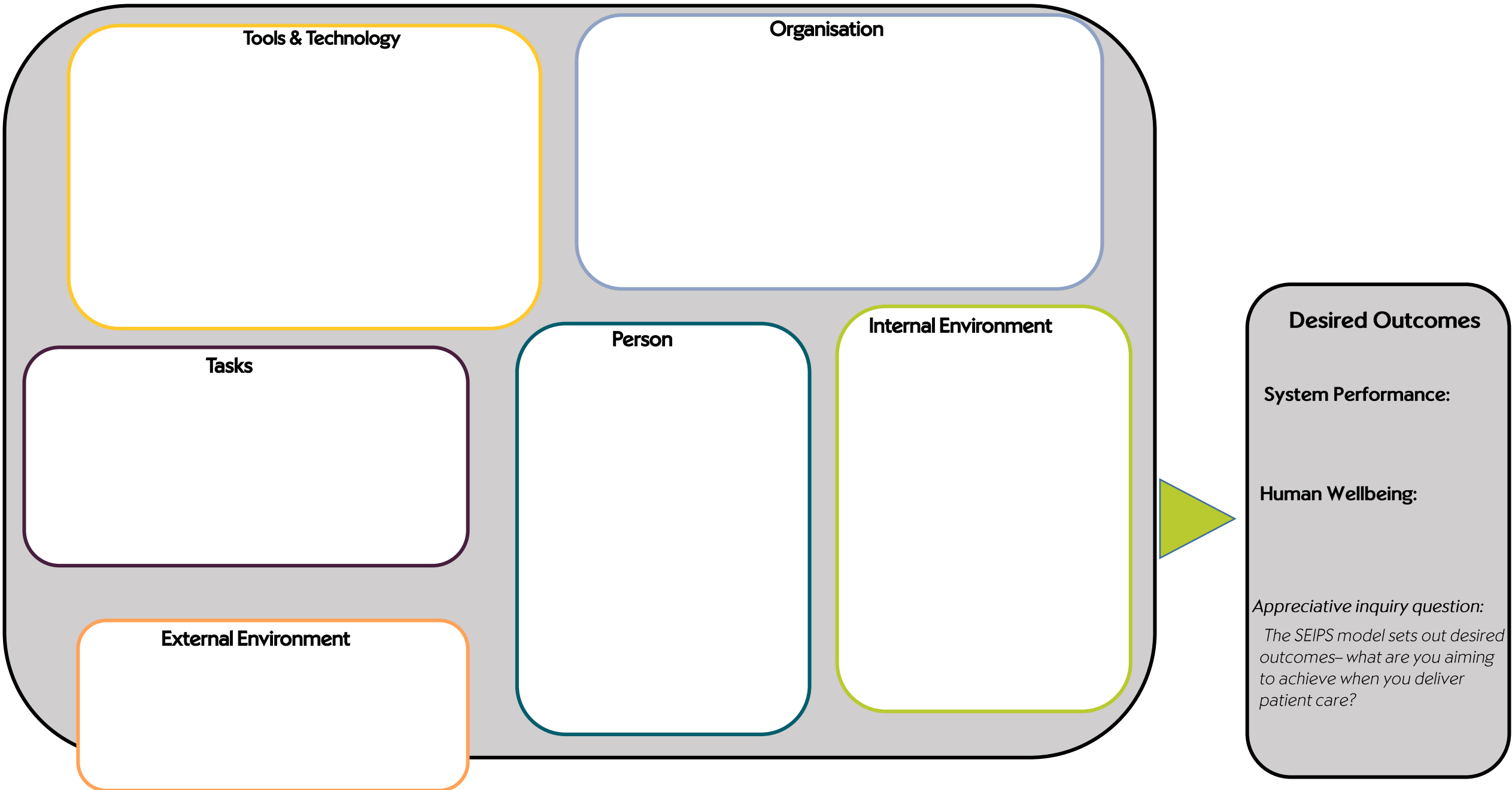


External environment



# Next Steps:

- Now amalgamate all your findings into the whole SEIPS model on the next slide.
- Insert arrows between the individual actions in one of the system elements (referred to in slide 3), which impact on how something works in another of the elements.
- In this way you will understand the interactions which led to the event(s) you are examining occurring.
- Once you have done this, you will be able to work as a Team to formulate the safety actions (changes to the system) you need to undertake to prevent an incident of the same nature happening again.
- You can then create your roll out plan on the final slide.



## Safety Actions

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## Roll out plan

