



EUROPEAN ASSOCIATION
OF HOSPITAL MANAGERS

HOSPITAL OF THE FUTURE -

Prevention
as an
Hospital Activity



Design follows function- how promoting
resilience through environment
and by technical tools

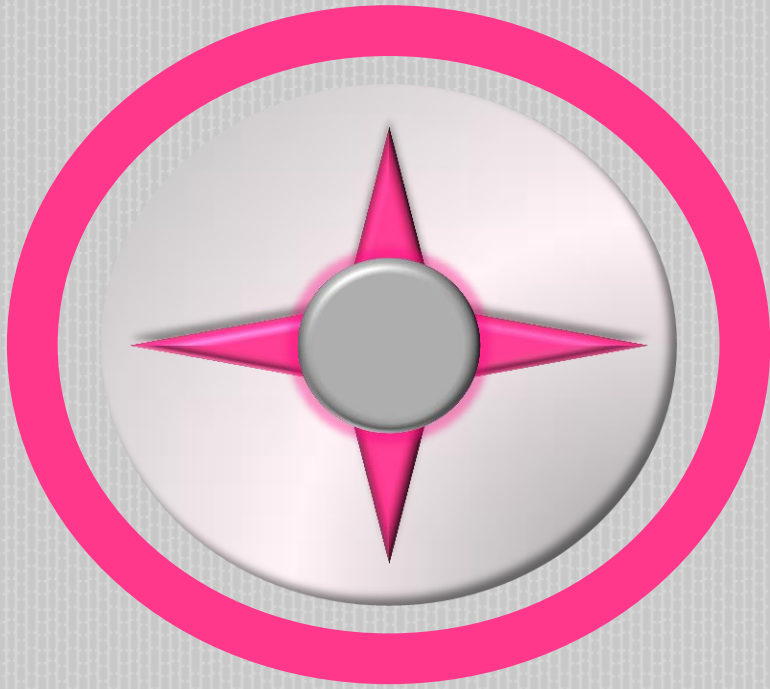
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HOW **MILIEU** AND **TECHNOLOGY**

CAN PROMOTE **RESILIENCE**



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TRENDS IN THE DEVELOPMENT

Smartphone, Tablet

Bedside Terminal

Digital Ward-Round Trolley

Robots (Nursing, OP, Service)

Location Technology

Exoskeleton

PC

Camera

Monitoring System

TRENDS ABROAD



Pepper (Belgium) Abb.1



Transport Robot (England, Denmark) Abb.2



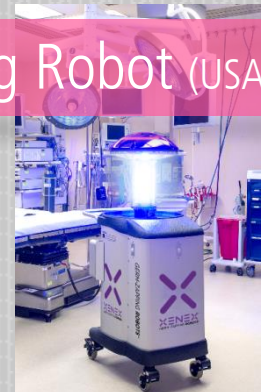
Sterisafe (Belgium) Abb.3



MEDI (USA / Canada) Abb.4



RIBA II (Japan) Abb.5



Germ-Zapping Robot (USA) Abb.6

HUMAN-TECHNOLOGY INTERACTION

Projects	Consortium	Duration	Promoted by
Witra Nursing: Making implicit knowledge of professional nurses visible	PLRI MHH Nursing Research MHH	3/2014 - 6/2015 (16 Months)	BMBF "IKT 2020 – Research into Innovation"
MoCaB: Mobile Care Backup - Support for relatives providing care with the aid of mobile devices	Johanniter Accident Help, MHH: Nursing Research, PLRI, Epidemiology , MHH, Fraunhofer IAO, Hannover University, Halle University, Oldntec, Neusta	3/2016 - 2/2019 (3 Years)	BMBF "Nursing Innovation 2020"
PPZ-Hannover: Nursing Practice Centre Hannover: Innovative Technologies and Competence for Care in the University Hospital (MHH)	Medical University Hannover (MHH): Managing Directorate Nursing, Nursing Education Academy Peter L. Reichertz Institute for Medical Computer Science Institute for Epidemiology, Social Medicine and Health Systems Research Hannover University, Faculty V, Social Computer Science. Social Computer Science (Department Social Work) Ergo-Tec GmbH, Wilhelmsdorf	1/2018-12/2022 (5 Years)	BMBF "The Future of Nursing: Human-Technology Interaction in Practice"

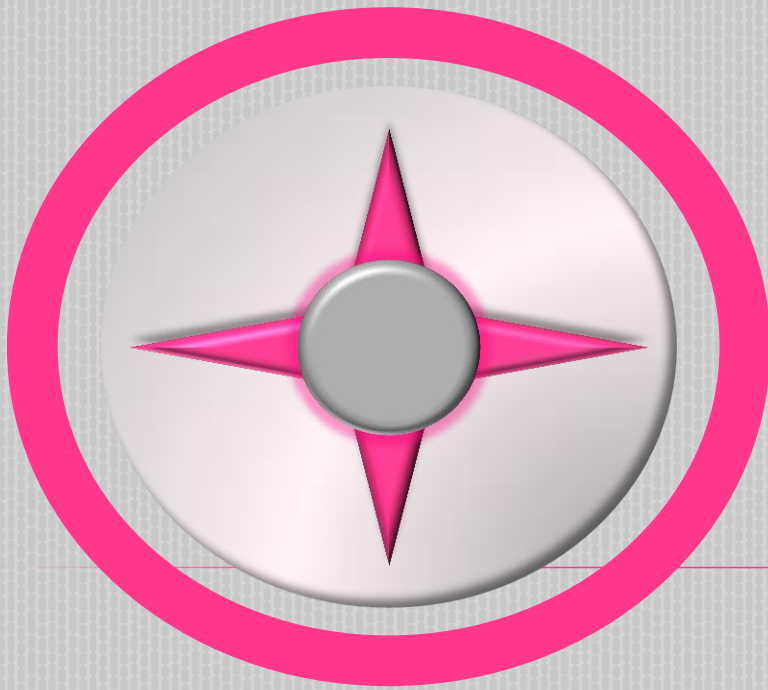
PPZ – OBJECTIVE

Innovations from research projects of
Making
Human-Technology Interaction
Visible
"under one roof"

→ Quality improvement where technology improves on
human effort

PPZ – EXPECTATIONS

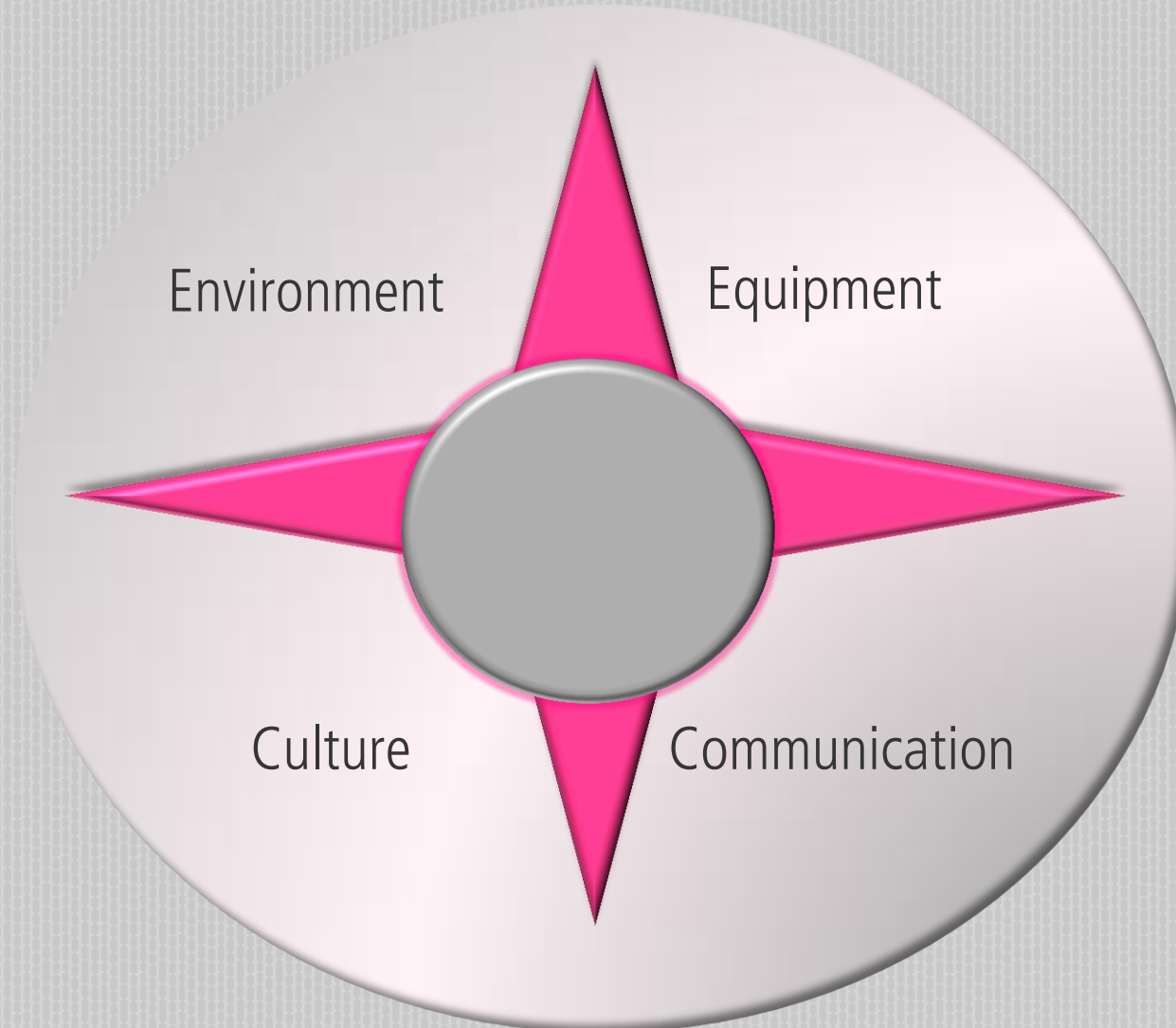
- ✓ Reduction of over compact tasking
- ✓ Easing the burden / Support
- ✓ Process Optimisation
- ✓ Reduction of Errors
- ✓ Quality Assurance
- ✓ Raising the appreciation of the Nursing Profession
- ✓ Empowerment



In the end, it is not sufficient if technology "only" works well.

**It must also fit into
"our own"
organisational world.**

RESILIENCE COMPASS



ENVIRONMENT

Patient



Care Giver

Suitable environment = "Comfortable atmosphere"

Colours

Size of Room

Flooring

Information Signs

Lighting

SAFETY THROUGH DESIGN



Abb. 3: Dimensionen von «Patientensicherheit und Design»

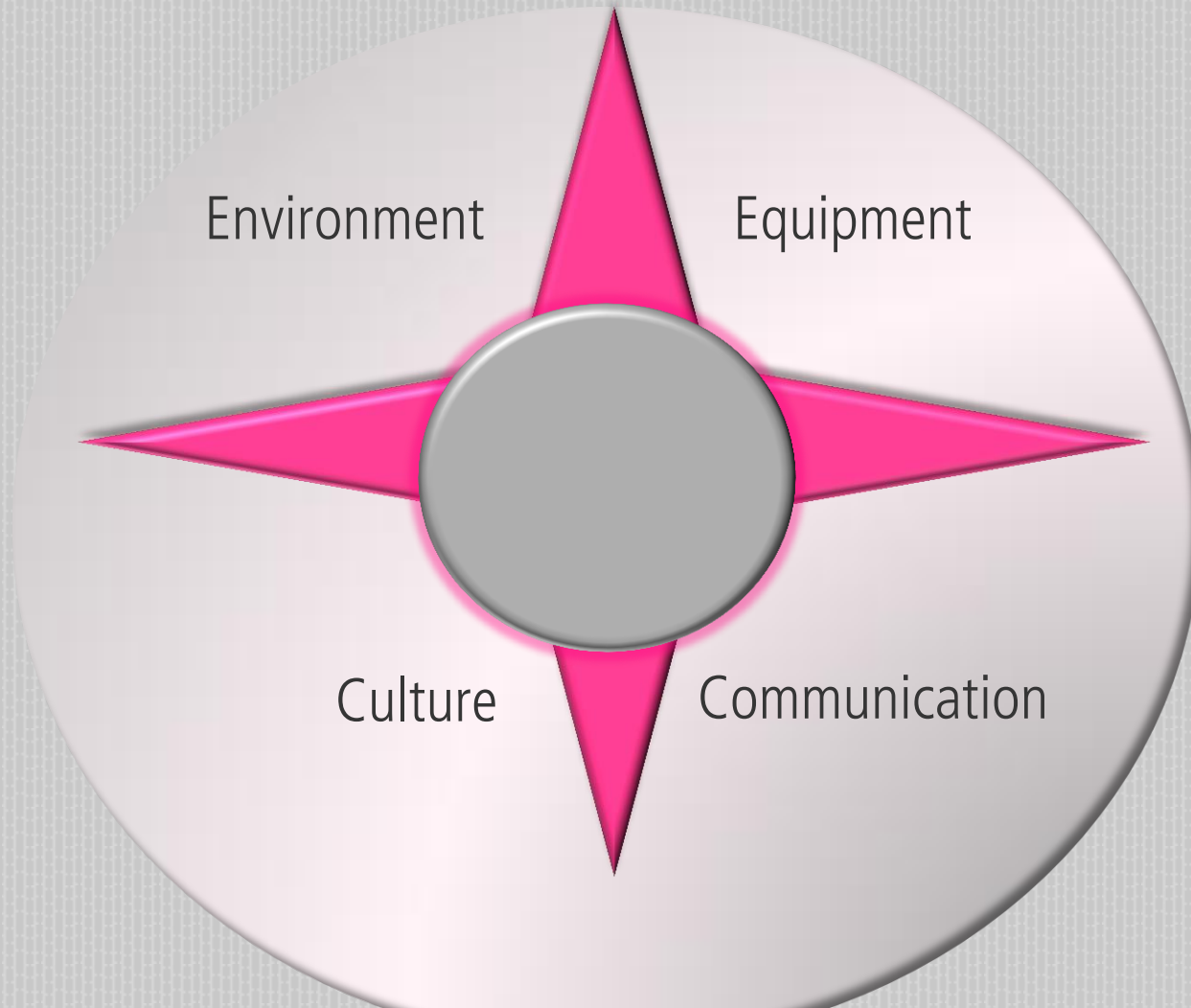
Light influences:

Tiredness / concentration
visual performance
a likelihood of confusion
(e.g., drug delivery)

Rest affected:

Stress
capacity
distraction, concentration
Communication flow

RESILIENCE COMPASS



EQUIPMENT

Patient



Care Giver

functionally, "easy to use"



Abb.8

bedside terminals



Abb.9

skeletal support models

EQUIPMENT

Patient



Care Giver

functionally, "easy to use"

**Reduction of sources of error
through automation**

EQUIPMENT – EXAMPLE

**Medikations-
anamnese**
Aufnahmemedikation /
Medikation Entlassung



**Elektronische
Verordnung**
mit Entscheidungs-
unterstützung



**Elektronische
Dokumentation**
in der elektronischen
Medikationsliste



**Apotheke /
Pflege**
Validierung und
Dispensierung



Automatisierte Unit-Dose



**Elektronisch
unterstützte Gabe
durch Pflege**

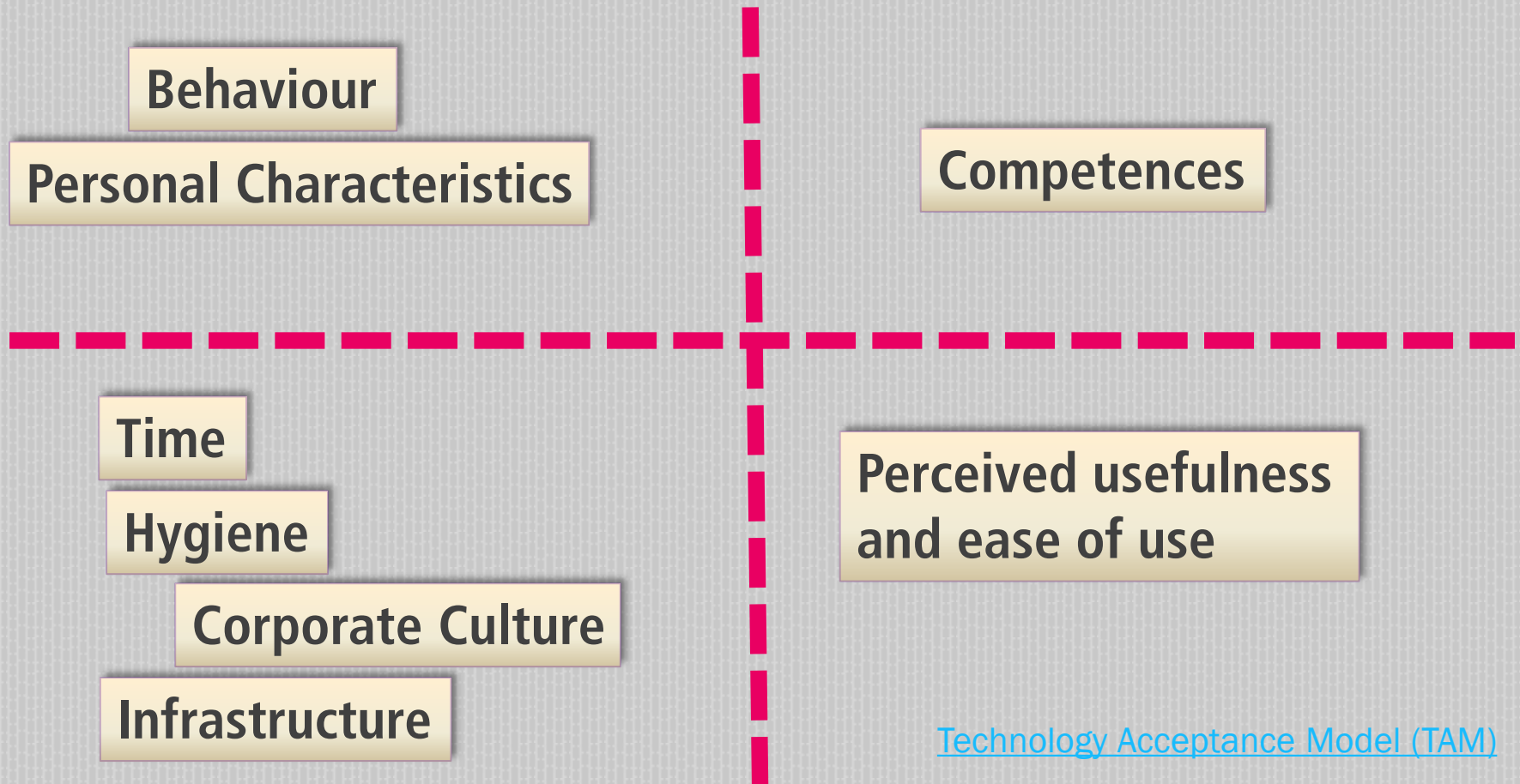
Sichere Identifikation von Pflege,
Patient und Medikation



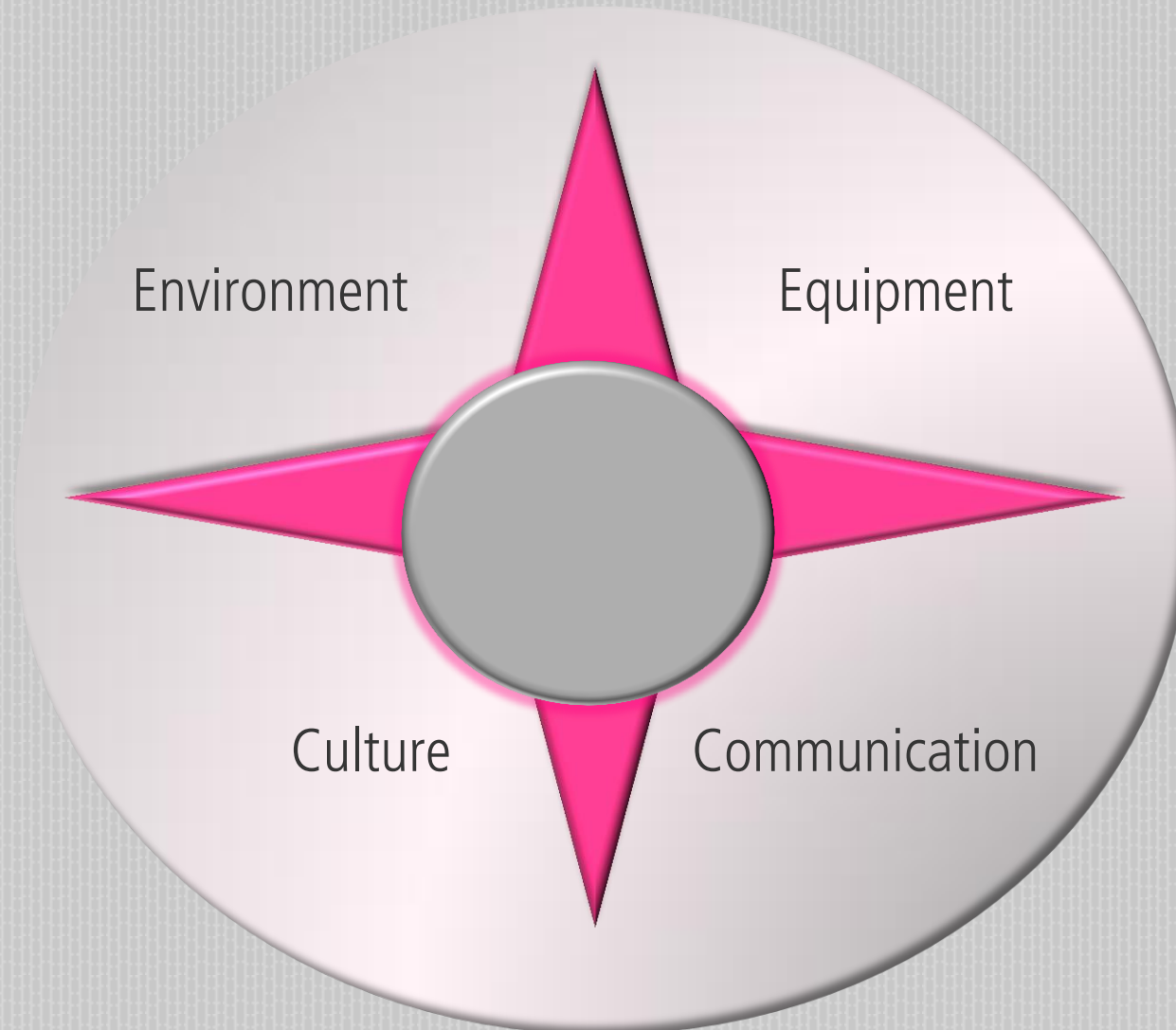
Closed loop medication

Abb.10

USE AND ACCEPTANCE



RESILIENCE COMPASS

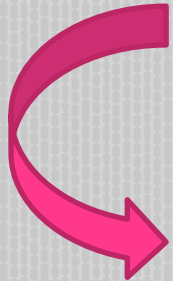


COMMUNICATION

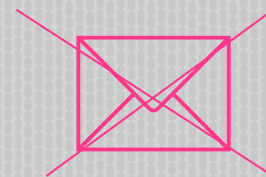
Other Professions

Patient

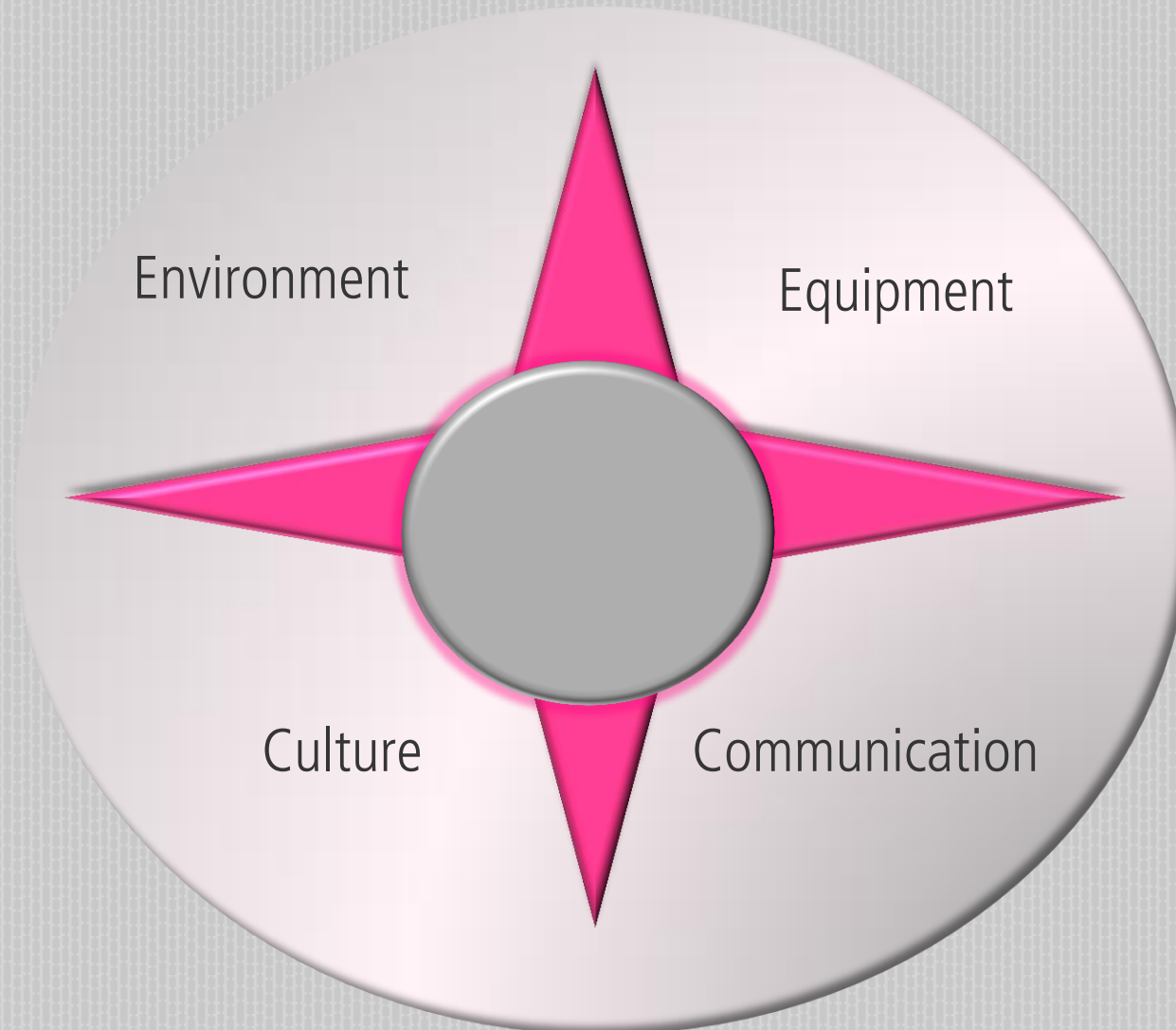
Care Giver



Technically adapted, attentive, appreciative



RESILIENCE COMPASS

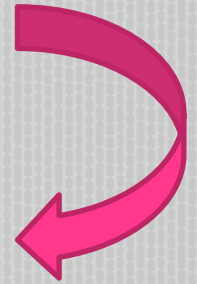
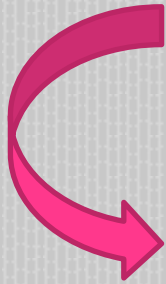


CULTURE

Other Professions

Patient

Care Giver

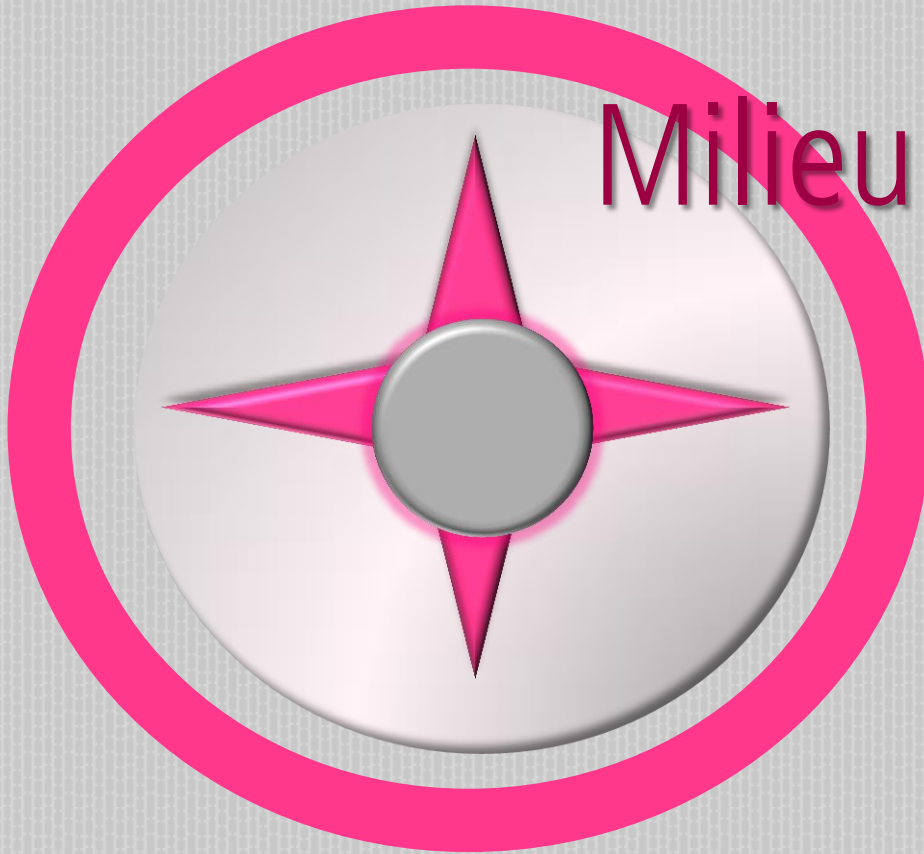


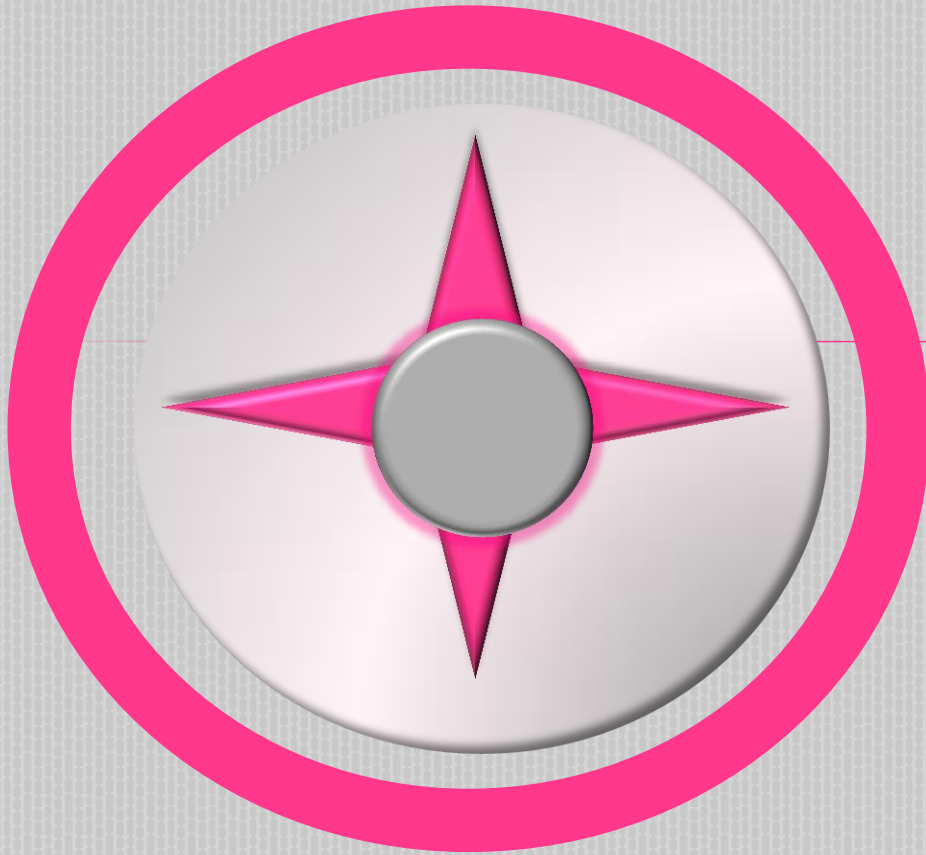
Information, Transparency, Leadership Behaviour,
Professionalism

Milieu and Technology

give rise to
load relief and
strengthen

Resilience





MANY THANKS

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Abb.1: derStandard.at (2016): Roboter „Pepper“ arbeitet in belgischen Krankenhäusern. Online abrufbar unter: <http://derstandard.at/2000038910970/Roboterin-zwei-belgischen-Krankenhaeusern> (abgerufen am 27.09.2017).

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Abb.5: Mental Floss: 10 robots with very specific tasks. Online abrufbar unter: <http://mentalfloss.com/article/30898/10-robots-very-specific-tasks> (abgerufen am 27.09.2017).

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Abb.9: Technik Neuheiten: Kawasaki Kraft Anzug – Exoskelett Roboteranzug bringt mehr Power beim Tragen und Heben. Online abrufbar unter: <http://www.technikneuheiten.com/kawasaki-kraft-anzug-exoskelett-roboteranzug-bringt-mehr-power-beim-tragen-und-heben/> (abgerufen am 27.09.2017).

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