



Sociotechnical Approaches and Tools for Leaders - Digitalisation compass

Digitalisation compass

- Module 1
 - State of digitisation
- Module 2
 - Project profile

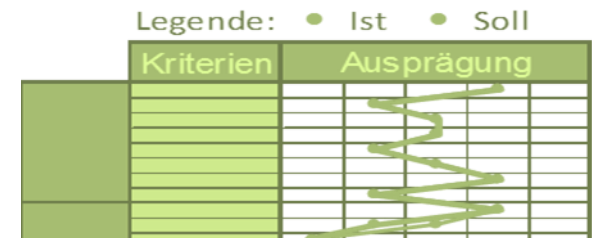


Requirements for the Digitalisation Compass

- Assessment of the current state of digitisation across operational and functional areas
- Recording of planned or ongoing implementation projects as well as technologies used
- The effects of the implementation projects on industrial work should be supported
- The status of digitalisation and implementation projects should be clearly presented in the form of a map and be dynamically updatable
- IT tool for support (Excel)

Purpose of the instrument

- The **state of digitisation** in areas of production can be transparently presented on the basis of defined socio-technical criteria and characteristics.
- In the **project profile**, Industrie 4.0 projects can be recorded with regard to their goals, technologies and details on project planning.
- The **work impact assessment** supports the evaluation of digitisation projects by means of a checklist and the dimensions of good, digital industrial work
- **Dynamic tracking** of Industry 4.0 implementation



Kompass Digitalisierung	Projektsteckbrief – Arbeitsfolgenabschätzung	Platzhalter Firmenlogo
Quantitative Beschäftigungseffekte		
		●
Strukturelle Beschäftigungseffekte		
		●
		●
		●
		●
Arbeitswissenschaftliche Kriterien		
Ergonomie		
		●
		●
		●



Module 1: State of digitisation

- Module 1 supports the evaluation of the degree of digitisation of operational or functional areas in the form of a morphology
- The criteria were defined including specific characteristics, based on
 - existing approaches
 - own experiences
- The morphology enables the assessment of the current state (actual) and planned scenarios (target)
 - Differences can be identified and visualized
- Starting from the current state, possible design alternatives are shown
 - No maturity level of digitisation is issued
 - The evaluation of design alternatives must be company-specific
 - No universally valid best practice state can be specified
 - Digitisation should support companies in achieving their goals and is not an end in itself

Module 1: State of digitisation

- Recording of company- and division-specific criteria
 - Typologisation
 - Digitisation strategy
 - Design process
- Evaluation of scenarios at the interfaces of the socio-technical system
 - Consideration of interdependencies
 - Identifying room for manoeuvre
- Criteria and characteristics
 - Defined characteristics
 - Arrangement of the characteristics

		Kriterien	Ausprägung				
Typologisierung des Unternehmens / Bereichs							
Strategie Digitalisierung							
Gestaltungsprozess							
Sozio-technische Schnittstellen	Mensch-Organisation						
	Technik-Organisation						
	Mensch-Technik						

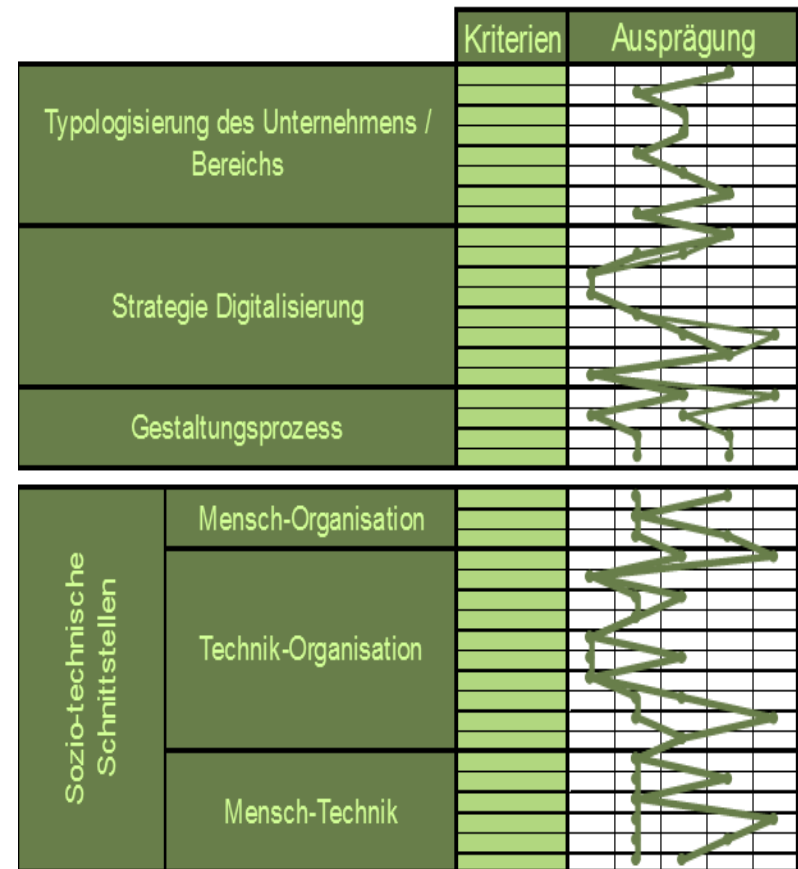
Mensch-Maschine-Interaktion	Kein Einsatz von Maschinen	Separate / abgetrennte Bereiche, Schutzeinrichtungen (z.B. Zäune, Lichtschranken)	Gemeinsame Arbeitsräume, keine Interaktion (z.B. Fahrerlose Transportsysteme)	Gemeinsame Arbeitsräume, Mensch-Maschine-Interaktion (z.B. Mensch-Roboter-Kollaboration)	Adaptive Arbeitsassistentz (z.B. belastungsoptimierte oder alter(n)sgerichte Kollaboration)
Digitale Kompetenz	Keine digitale Kompetenz vorhanden (z.B. keine Verwendung digitaler Technologien)	Anwendung digitaler Technologien (z.B. Verwendung digitaler Technologien, keine Reflektion der digitalen Prozesse)	Interpretation digitaler Technologien / Informationen (z.B. Interpretation von bereitgestellten Informationen)	Interdisziplinäre IT-Kompetenz (z.B. Verständnis über Anwendungen und Prozesse digitaler Systeme)	IT-Security (z.B. Wissen über und Vermeidung von Datendiebstahl usw.)

Module 1: State of digitisation

- An overview is automatically derived from the evaluation of the individual criteria
- The current state of digitisation is visualised for various areas
- Possible fields of action can be derived from this
- By evaluating a target state, necessary fields of action can be identified (difference between the characteristic curves).
- For the interpretation of the result it is important to consider the framework conditions

Preparation of a project profile (module 2) to assess a new project in more detail

Legende: ● Ist ● Soll



Module 2: Project profile

- The project profile supports the planning and evaluation of a digitisation project
- Overview of the project and work impact assessment
- Overview of the project
 - Identify the scope and objective of the project
 - Description of the use case and the technologies used
 - Project planning and realisation
- Work impact assessment
 - Quantitative employment effects
 - Occupational science criteria
 - Dimensions of good digital industrial work

Kompass Digitalisierung	Projektsteckbrief Übersicht	Platzhalter Firmenlogo
Betrachtungsbereich		
Standort / Bereich / Arbeitssystem	<i>Beispiel:</i> Werk Dortmund / Bereich Logistik / Arbeitssystem Kommissionierung	
Betroffene Mitarbeiter	<i>Beispiel:</i> Abteilung 7 / Staplerfahrer und Schichtleiter	
Zielsetzung		
Unternehmensziele / Bereichsziele / Kennzahlen	<i>Beispiel:</i> • Größen des Ziendreiecks: Kosten, Qualität oder Zeit • Zielgrößen auf Basis der Balanced Scorecard	
Personalmanagement-Strategie (HR-Strategie)	<i>Beispiel:</i> • Personalbedarf • Qualifizierung der Mitarbeiter • Arbeitsgestaltung / Arbeitsstrukturierung	
Anwendungsfall		
Titel	<i>Beispiel:</i> Staplerleit- und Werkerassistenzsystem	

Kompass Digitalisierung	Projektsteckbrief – Arbeitsfolgenabschätzung	Platzhalter Firmenlogo
Quantitative Beschäftigungseffekte		
Entstehung / Wegfall von AP nach UN-Bereichen	<i>Beispiel:</i> möglichst quantitativ	●
Entstehung / Wegfall von AP nach Q-Niveau	<i>Beispiel:</i> steigt / sinkt / Wegfall Einfacharbeit	●
Arbeitswissenschaftliche Kriterien		
Strukturelle Beschäftigungseffekte		
Qualifikationsentwicklung	<i>Beispiel:</i> Erhöhung / Absenkung nach Belegschaftsgruppen	●
Veränderung der Tätigkeitsstruktur / Anforderungsvielfalt	<i>Beispiel:</i> Arbeitsstrukturierungsmaßnahmen: Job Rotation, Job Enlargement, Job Enrichment, Teilaufnahme	●
Flexibilität (Differenzielle AG) funktional und zeitlich	<i>Beispiel:</i> Arbeitsplatzwechsel, Arbeitszeit	●

Overview of the project

- The project profile supports the targeted selection of digitisation solutions by defining goals for the area under consideration
 - For example, defined key figures or the pursuit of a human resources management strategy
- The use case is described in more detail and, among other things, classified into technology fields
 - Increasing transparency, also towards other areas
- Technologies used are recorded in the sense of a technology database
 - The technology overview enables the exchange of experiences with other areas
- The project planning and realisation is documented
 - Sensitisation regarding the procedure (drivers, works council participation)
 - Capturing drivers and barriers

Work impact assessment

- As part of the evaluation, a forecast of quantitative employment effects is carried out
 - Impacts are recorded on both the number of jobs and the skill level
- Work science criteria cover the classical aspects of work design
 - Structural employment effects, ergonomics and work environment design
 - The assessment is based on expert knowledge in the company
- The dimensions of good digital industrial work support the evaluation of digitisation projects with regard to human-oriented design goals
 - The criteria are defined in the brochure on the Digitisation Compass and form the basis of discussion for the evaluation
- The evaluation of the work sequences takes place in the form of a traffic light scheme
 - The own operational context has to be taken into account
 - The basis of the assessment is the discussion in the company

Thank you for your attention

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