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Ideation Camp

Interreg
North Sea Region
GrowIn 4.0
European Regional Development Fund



GrowIn 4.0 : Ideation Camp

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Ideation Camp : Agenda



- Agenda:
 - Why Ideation Camp
 - Industry 4.0 questions
 - Company screening process
 - 10 Selected GrowIn 4.0 tools
 - Ideation camp 3 Phase model
 - Phase 1 tool examples (**hands on**)
 - GrowIn 4.0 Results
 - GrowIn Learnings
 - Questions



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Why Ideation camp ?



- The Ideation camp tool formalize the project process phases.
- Ideation encompasses all stages of a thought cycle, from innovation to development to actualization.



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Industri 4.0 questions



- How can we improve the Industry 4.0 development model in SME's?
- Is there a need for identification of completely new skills or an upgrade of the existing work force?
- How can the SME's convert knowledge into specific value creation: wp3, wp4, wp5.
- How can the company employees be included?



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Industrie 4.0 questions

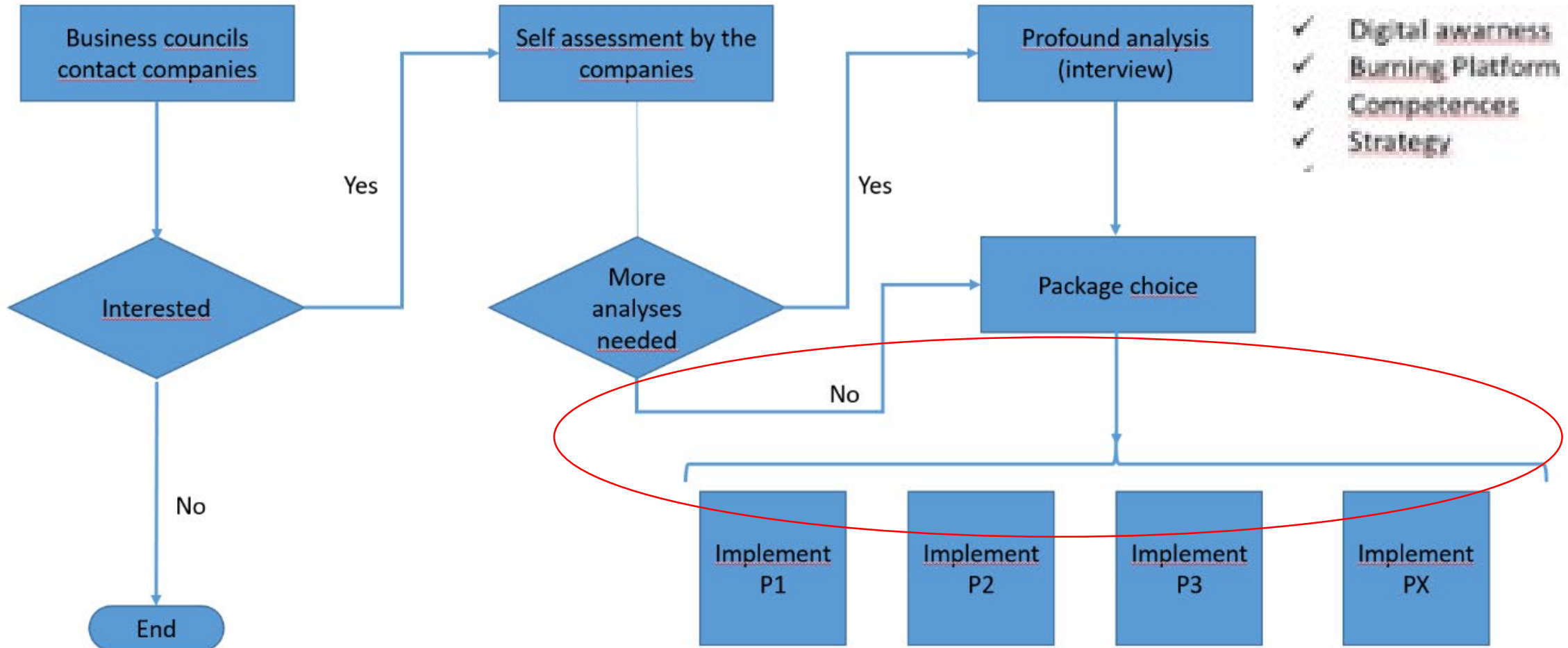


- How advanced is the SME regarding technological uptake?
- How does the SME manage technology use, adaption, optimisation, processes etc.?
- Are the key products of the SME competitive? Could they be strengthened, e.g. through implementation of new technology?
- Follow up's / Supervision is needed to identify the most suitable solutions for the enterprise



Screening proces

- ✓ Digital awarress
- ✓ Burning Platform
- ✓ Competences
- ✓ Strategy





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GrowIn : Digital tools



Work Package 3 (Business development):

- Awareness tool
- Benefit Identification tool
- Return Of Investment tool

Work Package 4 (Technology):

- MADE different tool
- Impuls tool
- Technology catalog tool
- Ideation camp tool

Work Package 5 (Integration):

- Big Data tool
- Transition workshop tool
- HRM tool



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GrowIn : Digital tools



Business (3 tools):

Awareness tool (PC Executable: Managers in an SME) Find out what the position of your organization is regarding to Industry 4.0.

Benefit Identification tool (Workshop: Staff across the firm) This tool is aimed at helping firms identify the benefits, the dis-benefits, and business challenges they might anticipate from adoption of new technology.

Return Of Investment tool (PC Executable: Company CEOs, technical directors, research directors etc.) The tool provides a good starting point for companies new to the concept of Industry 4.0 and support others in visualizing its significance.)



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GrowIn : Digital tools



Technology (4 tools):

MADE different tool (Workshop: CEOs and management in small and medium companies) This tool helps SMEs assess the possibility of adopting both advanced manufacturing solutions as well as social innovation strategies. Thereby transforming their organization through 7 transformation areas towards next-generation factories with more competitive, modern and sustainable production.

Impuls tool (PC Executable tool: CEOs and technical directors) This tool assesses companies in six 'dimensions' and shows their progress in comparison with competing enterprises. 1) Strategy and organization, 2) Smart factory, 3) Smart operations, 4) Smart products, 5) Data driven services and 6) Employees.



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GrowIn : Digital tools



Technology (4 tools):

Technology catalog tool (Paper: CEOs or technical directors in small and medium companies) This catalog is intended to illustrate the potential of digitization measures and also to encourage interested companies to have a look at the technologies in use and to talk about cooperation opportunities for their development.

Ideation camp tool (Workshop + Executables: Those responsible for project development at SMEs) VIA University College Ideation camp is a way to formalize project management in SMEs. It describes 14 steps in 3 phases (before - during - after) and has proven to be very successful in SMEs.



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GrowIn : Digital tools



Integration (3 tools) :

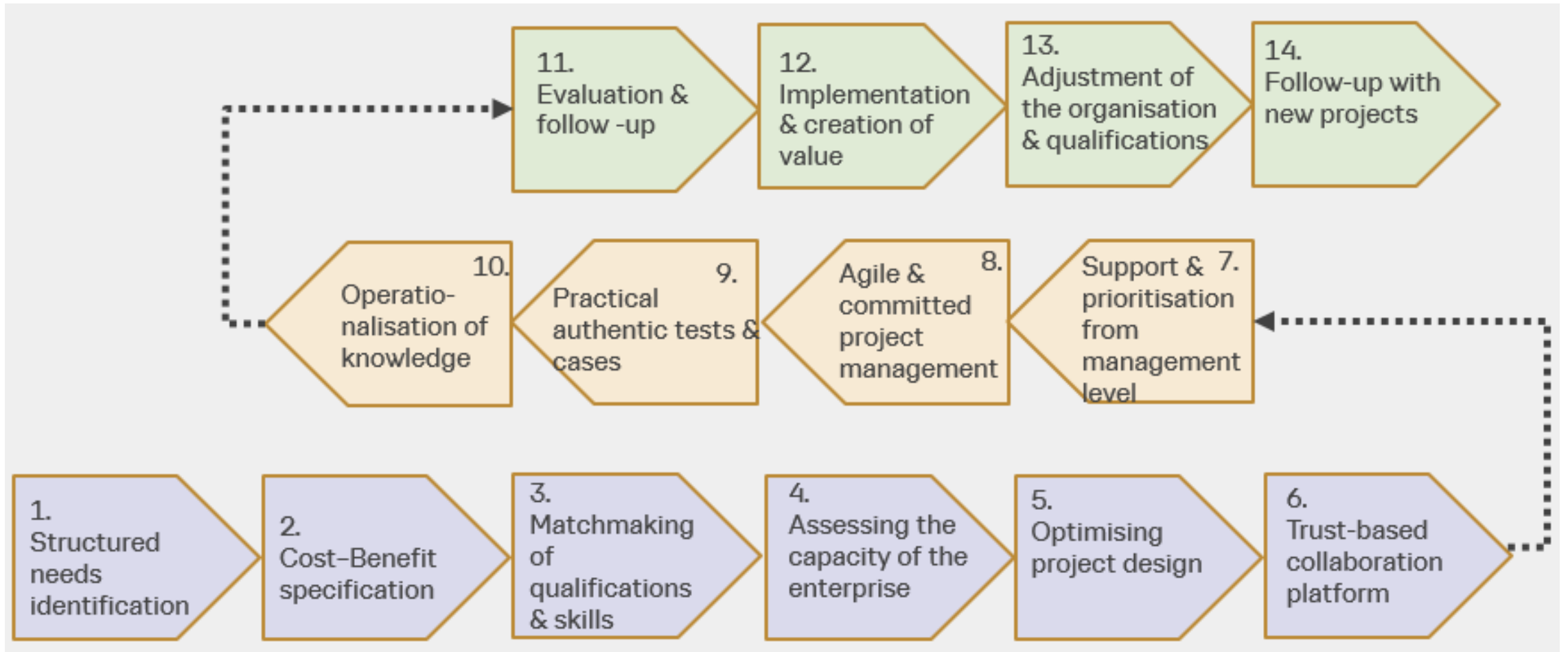
Big Data tool (Workshop: Companies and employees who are just starting) The objective of the Big Data Game is to give participants insight in data driven innovations through the experience of a game.

Transition workshop tool (Workshop: Managerial leaders from various firms) The Transition Industry 4.0 workshop is a two hours workshop developed to stimulate a mindset of change in firms, with focus on building strategies for the industry 4.0 business future.

HRM tool (PC Executable: SME's, Corporate Businesses) The online survey tool provides an automatically generated report with the results of your company and the various scores of your employees. With this report, you get a better understanding of how your employees perceive the future in terms of Industry 4.0 and how 'smart' your company already is.



Ideation Camp: 3 phases





1. phase : Before

1.
Structured needs
identification

Industry 4.0 Awareness/readiness tool
ADMA assessment tool
IMPULS Industry 4.0-Readiness Online Self-Check

2.
Cost-Benefit
specification

Benefit identification tool

3.
Matchmaking of
qualifications &
skills

The GrowIn 4.0 partner secures that the right technological skills are present



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1. phase : Before

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4.
Assessing the
capacity of the
enterprise

Responsibility of the company

5.
Optimising
project design

The GrowIn 4.0 partner makes sure that the project design is accepted by the company
Ostafalia | 4.0 Catalogue

6.
Trust-based
collaboration
platform

Not a part of this project model



Hands on example: Make GrowIn 4.0 login



Industry 4.0 Awareness/readiness tool:

- Business models and products
- Market & Customer Access
- Value Chain & Processes
- Legal considerations and Cyber/IT Security
- Strategy and Experience on Industry 4.0
- **Target Audience:**
Managers in an SME who want to take advantage of Industry 4.0 tools to realize the full digitization of a company's operation, the redesign of products or closer interaction with customers.
- Interreg North Sea Region web link:

<https://northsearegion.eu/growin4/tools-and-methods-for-you-to-use/industry-40-awarenessreadiness-tool/>

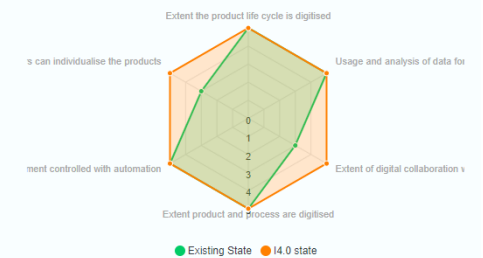
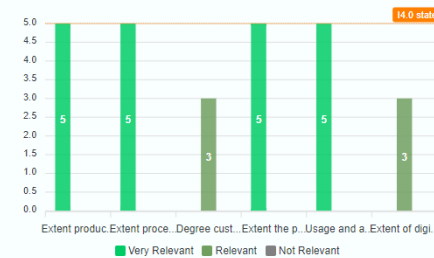
Summary Output for: VIA University College

The charts below give an indication of the gap between the existing state of the company and a state of Industry 4.0 (full digitisation) for each category.

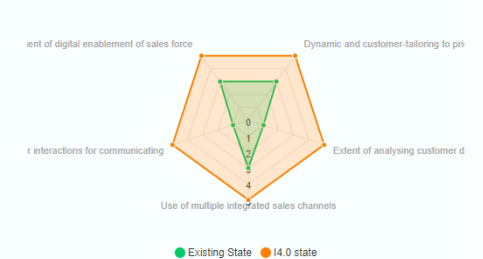
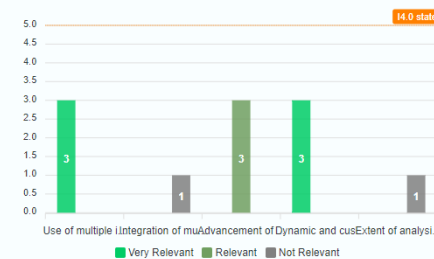
Amount of employees: > 250

Turnover (Euros): 30 mio. to 50 mio

Business models & products



Market & Customer Access





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Hand on example "Knowledge gap"



ADMA, Smart Factory Assessment

SMART FABRIKSVURDERING - Gør din fabrik til en SMARTERE fabrik.					
Industri 4.0, GrowIn 4.0 Digital Assessment, Northern Netherlands Region of SMART factories, version 2.0, Overført til Dansk af VIA University College, rd@via.dk, ping@via.dk, Dato: 13.11.2018					
-----Firma----- -----Kompetencer-----	Traditionel firma som er delvist digitaliseret/automatiseret uden integreret kontrol	Avanceret firma som er digital/automatiseret uden integreret kontrol	Avanceret firma som er digital/automatiseret med formaliseret integreret kontrol (EDI)	SMART (Intelligent) firma som er digital/automatiseret hvor leverandør og produkt vil blive digitalt forbundet	SMART (Intelligent) firma som er digitalt forbundet
Føringningsmodel Hvad er din føringningsmodel?	Kanvare salg. Kunden køber dit produkt. Eventuelle ekstra ydelser (såsom vedligeholdelse eller ændringer) faktureres separat.	Salg og opfølgning. Kunden køber dit produkt, med en servicelevelaefte (SLA), hvorefter der sikres tilgængelighed.	Salg og det. Kunden køber dit produkt og med sig servicelevelaefte baseret på brugedata.	Produkt som en ydelse. Kunden betaler for at bruge dit produkt, som administreres af dig på baggrund af brugers data (reelle brug).	Funktion som en ydelse. Kunden betaler en licensafgift for den funktionalitet, som du leverer baseret på den bedste tilgængelige teknologi.
Produkt intelligens Hvor smart er dine produkter og/eller tjenester?	Modificerbart produkt: Produktet kan kun ændres af en specialist inden for den definerede funktionalitet.	Konfigurerbart produkt: Produktet kan ændres eller omkonfigureres lokalt af brugeren til de specifikke funktionalitetskrav som brugeren har.	Tilsluttet produkt: Produktet kan overvåges og ændres online via IoT (fjernsupport), men den proces er ikke automatiseret.	Intelligent produkt: Produktet registrerer selvbrændende data og intelligens via IoT. Indgreb er stadig manuelt.	Autonomt produkt: Produktet tilpasser sig selvbrændende data og intelligens via IoT.
Produktudviklings-proces Hvordan organiseres udviklingen af produkter og fremstillingsprocesser?	Ad hoc, udførelse af handelser (klager, gode ideer) og standardiseret udførelse på forslag og fejl.	Planlagt, men professionelt udført. Standardiseret, dokumenteret, udnyttede produktmoduler mv.	Planlagt, baseret på systematisk eksperimentering og forskning og udvikling på strukturerede data. Underordnet, avancerede værktøjer, f.eks. Design af eksperimenter.	Kontinuerlig og digitaliseret proces, baseret på modelbaseret systemteknik. Validering ved prototyper.	Kontinuerlig og automatiseret omringning af selvudviklingsmoduler, standardiserede produkter og digitale tvillinger. Fælles produkter og processer.
Relationer Hvor godt er forskellige funktioner forbundet/ og afstemt internt/ eksternt?	Interne processer er kun delvist (digitalt) forbundet. Så der er ingen integreret kontrol.	Eksterne processer er kun delvist (digitalt) forbundet. Så der er ingen integreret kontrol.	På virksomhedsniveau, er alle aktiviteter (såsom leverandør og produkt) er digitalt forbundet, med det ledende anskab.	Tilsluttet forsyningskæde. Alle aktører (såsom leverandør og produkt) er digitalt forbundet, med det ledende anskab.	Hole forsyningskæden er optimalt integreret i cyber (Internettet) fysisk system, som er decentraliseret.
Flexibilitet Hvor fleksibel er din organisation.	Proceser er fastlagt. Ændringer er ikke realistiske på grund af høje omkostninger.	Litiskibel. Ændringer er komplekse og skal håndteres manuelt af ekstern specialt.	Flexibel og automatiseret. Ændringer er nemme at tilføje og fjernes.	Flexibel automatiseret. Ændringer anvendes autonomt.	Ingen begrænsninger. Selvlærende struktureret produktionssystem.
Produktionsmekanik Hvor smarte er de produktionsværktøjer, der bruges?	Produktionsværktøjer er manuelt opstillet og programmeret. Optimeringer foretages ad hoc. Kanvare ekspert hjælp.	Programmerne indlæses manuelt, hvorefter maskinen overtager konfigurationen. Processoptimering er planbaseret, men analyser indlæg fra eksperter er styrende.	Produktionsværktøjer konfigureres selv. Programmeringen er fuldt automatiseret baseret på tilgængelige digitale produktionsinformation. Processoptimering udføres af eksperter baseret på tilgængelige processdata.	Produktionsværktøjer konfigureres og selvprogrammeres i fuld automatiseret baseret på den tilgængelige digitale produktionsinformation. Processoptimering og fremkaldelse af reaktioner som er selvregulerende via standardiserede værktøjer.	Færdiløse (Autonome) maskiner og transportmidler er i stand til at genkende produktet selv. Konfigureres og selv baseret på den tilgængelige digitale produktionsinformation og optimerer sig kontinuerligt og i realtid.
Produktion Hvordan produktionen styres og kontrolleres?	Planlægningen opdateres regelmæssigt. Store afvigelser er en daglig begivenhed. Processen er ulorudsigelig.	Operationer baseret på feedback, men ikke i realtid. Uacceptabelt store afvigelser forhindrer manuelt, så vidt det er muligt.	Realtids operationsmanagement. Hurtig, pålidelig og fleksibel. Men analyse og justering skal udføres manuelt af specialister.	Realtids operationer via menneskelig indgribelse. Afvigelser opdages og behandles automatisk.	Realtids, autonome og selvlærende operationer i hele forsyningskæden.
Datahåndtering Hvordan styres data og hvilken rolle spiller data i din virksomhed.	Transaktionsdata. Basale, processdata samles lokalt ad hoc, og bruges kun til justering af processer. Arbejde for specialister.	Databaserede. Basale processdata hentes lokalt på projektskærm (ad hoc) baseret på analyse for at løse specifikke problemer. Primært for at understøtte indsigt fra specialister.	Data-drevne. Data optages og struktureret pr. proces. Data er centraliserede. Data analyser finder sted på projektskærm (ad hoc) (triggersystem) basalt eller processer, med det formål at løse organisationens problemer. Specialister tager beslutninger baseret på tilgængelige data.	Intelligentbaseret. Fuldt automatiseret. Behandling og analyse af høj kvalitet af data. Central intelligence (AI) rapporterer om væsentlige afvigelser og tager dem. Korrektioner er automatisk og anvendt af specialister på grundlag af maskine tilgængelige data. Specialister tager beslutninger baseret på tilgængelige data.	Intelligentdrevet. Færdiløse (Autonome) og tilsluttede data besidder (acquisition), analyse og feedback (afvigelser fra normen) udføres autonomt for alle forretningsprocesser, og forbundet med andre lag i forsyningskæden (AI @ Cyber Physical System er næste fase).
Kvalitet Hvordan kontrolleres og garanteres kvalitet?	Efterfølgende offtne kontrol eller kvalitetskontrol i slutningen af produktionen.	Prøvebaseret, kvalitetskontrol på produktionslinjen.	100% inline kontrol. Korrektioner anvendes til efterfølgende produkt/ batch.	Fullt inline kontrol. Korrektioner anvendes til hele produkt/ batch.	Kontrol af forventninger til at en given begivenhed vil ske (Feedforward kontrol), modelbaseret og online. Så "nul fejl" opnås.
Vedligehold Hvordan udføres service og vedligehold?	Reparationer i stedet for vedligeholdelse. Forebyggende service ved faste intervaller for kritiske processer/komponenter.	Forebyggende vedligeholdelse på alle delprocesser baseret på faktiske brug- og tilgængelighedsdata.	Tilstandsbaseret vedligeholdelse på de mest kritiske processer/komponenter.	Realtidsindtaget baseret vedligeholdelse. Baseret på overvågning i realtid over alle delprocesser.	Forebyggende vedligeholdelse. Baseret på fuld data realtid, tilstand, overvågning og central intelligens.

IMPULS

Industrie 4.0-Readiness-Check
15.11.2019 11:38

Evaluation of Industry 4.0 Readiness Check

Thank you for taking the time to complete the VDMA Industry 4.0 Readiness Check. Your results and your comparison group are outlined below. We also highlight specific measures you can take to improve and expand your Industry 4.0 readiness.

Overall evaluation

Your company is ranked at level 1 in the overall evaluation.

Your readiness scores in the six dimensions of Industry 4.0 are as follows:

- Strategy and organization: Level 2
- Smart factory: Level 0
- Smart operations: Level 0
- Smart products: Level 0
- Datadriven services: Level 0
- Employees: Level 2



Overall (weighted): 0.866 in keeping with level 1

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<https://northsearegion.eu/growin4/tools-and-methods-for-you-to-use/industry-40-awarenessreadiness-tool/>



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1. phase : Before



2: Cost-Benefit specification: Benefit Identification tool

- This tool is aimed at helping firms identify the benefits, the dis-benefits, and business challenges they might anticipate from adoption of new technology.
- Once the benefits are identified they should be quantified as far as possible and then plans put in place to measure and track them over time.
- **Target audience of the Benefit Identification tool:**
- A workshop format is used to implement this tool requires representation from staff across the firm. Suitable for small, medium and large firms at any stage of industry 4.0



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1. phase : Before



3: Matchmaking of qualifications & skills

The Growin 4.0 Partners ensures the right technological skills are present. Before starting the project it is important to set the best possible team. This is made by an assessment and ensures that the project targets is aligned to the SME's knowledge level/gaps (digital maturity) and company's expectations to the project.

Depending of team mates individual knowledge level different tests can be used:

- Belbin profile check
- Technology check
- Business check
- Team SWOT

Target audience

The project managers of the project need a group of competent people with social, business and technological skills/competences. If needed team members can be send to training courses.



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1. phase : Before



4: Assessing the capacity of the enterprise

- First, you can do this qualitatively by interviewing individuals at various levels of the organization and using anecdotes and stories to illustrate where the organization stands.
- Second, you can do this quantitatively by administering an anonymous survey to the entire organization and aggregating the numerical results.
- **Target Audience:**
- It is best if you administer the survey to your entire organization since a census provides the clearest picture of where the overall organization stands.



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1. phase : Before



5: Optimizing project design:

The GrowIn partners makes sure that the project design is accepted by the company.

In order to show various technical possibilities how companies can take time-, resource- and cost-saving steps towards digitization, Ostfalia's GrowIn 4.0 project team has compiled a catalog of demonstrators of several Industry 4.0 technologies, which is being continuously expanded.

Target audience of the catalog:

CEOs or technical directors in small and medium size companies. This tool can be useful for both starting and growing companies that are not yet automated or beginning their automation.



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1. phase : Before



6: Trust- based collaboration platform:

This element is not part of the GrowIn 4.0 project model but all confidential information will be handled with care and NDA will be signed if company ask for that. **General Data Protection Regulation (GDPR) rules are followed**

This framework can opens up significant scope for applications and collaboration opportunities among heterogeneous devices mimicking human interaction.

In computer networking, a heterogeneous network is a network connecting computers and other devices where the operating systems and protocols have significant differences.

Target audience

Company managers

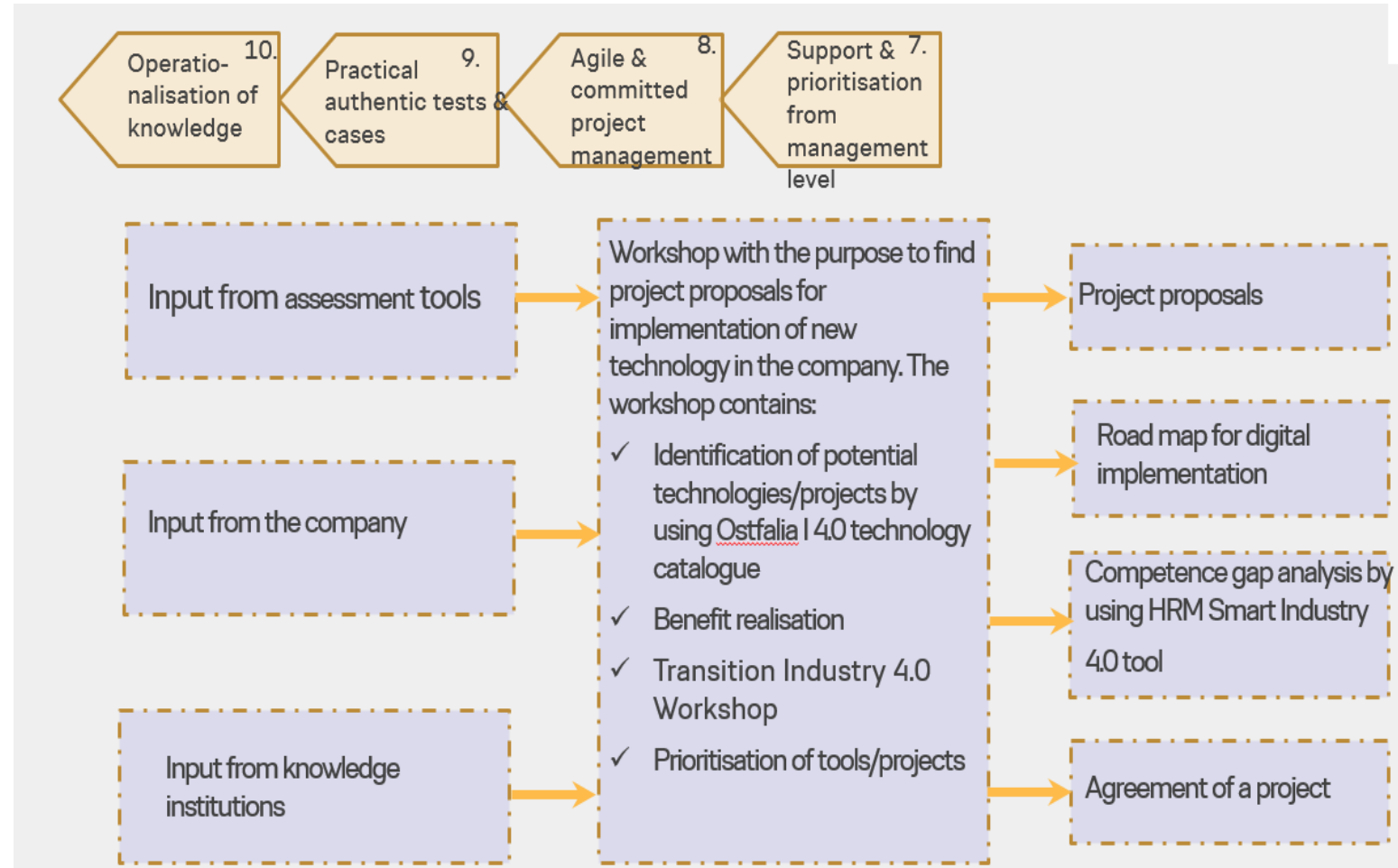


2. phase: During

In a facilitated workshop with the purpose to find project proposals for implementation of new technology in the company.

Project method: V-model, AUP, SCRUM or Kanban.

Project output: analyze, design and implementation and test cases are created.



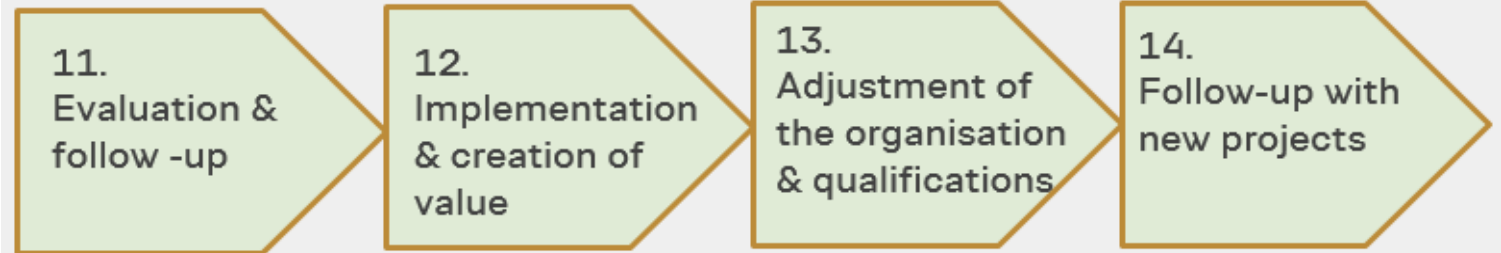


3. phase: After

In the retrospective project analyse the following documents must be created and accepted:

Project description
Requirement spec.
Project report
Process report
Test report.

Future work proposals.



The post phase of the project contains

- ✓ Idea description
- ✓ Project description
- ✓ Requirement specification
- ✓ Project specification for implementation
- ✓ Proof of concept
- ✓ Rate of Investment tool



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Ideation camp: Results

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- ✓ *We have developed/tested 14 tools. 10 have survived*
- ✓ *We have made 256 tests in 118 companies*
- ✓ *We have been testing until the very end of the project.
Testing is the same as learning*
- ✓ *We still work with how we can anchor our knowledge and
the tools, so these can continue to make a difference for
SMEs.*

Due to covid, we havn't quite reached the finishing line for the project. We have applied for a ½ year continuation.



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Ideation camp: Learning



The digital readiness and maturity by the individual company is essential for the choice of tools and methods

The tools have to be in the native language

Digitalisation is good and necessary but in the learning phase it is the personal contact and hands on which is important. Improving people skills through specific trainings;

Results are important but the process towards the results gives the learning (change of the mindset/change culture/change way of working)

Interest and choice of methods/tools depend on In which region the company is situated



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Time for Questions.

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