

CHAPTER 2

DIGITALISATION AND INCLUSIVE ECONOMIC GROWTH: A THEORY OF CHANGE

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ABSTRACT

This chapter describes two inter-related pathways to realise digital transformation while supporting inclusive economic growth. It proposes a route at the regional level - 'collaborative ecosystem approach'; and at the company level - 'workplace innovation'. We claim that citizen engagement and employee engagement are necessary conditions to develop acceptable pathways with limited resistance to change. Theory of Change (ToC) is used as methodology to explain the 'content' of the entrepreneurial ecosystems model at the regional level, and the concept of sociotechnical systems design and workplace innovation at the company level. Both are useful to pursue the needed digital transformation that supports inclusive growth. Subsequently, the ToC presents a 'process' of practical steps, a checklist, and a dialogue approach to assist practitioners in designing their own approaches at both levels. At various points throughout this tool book, the others chapters attune with this overarching ToC.

Keywords: *theory of change, sociotechnical systems design, workplace innovation, coalition approach*

1. A THEORY OF CHANGE TO ACHIEVE DIGITAL TRANSFORMATION AND INCLUSIVE GROWTH

The purpose of BEYOND4.0

BEYOND 4.0 aims to help deliver an inclusive European future by examining the impact of the new technologies on the future of jobs, business models and welfare. This has been operationalised into a study about how regions (more specific: ecosystems) and companies succeed in digital transformation and how this affects inclusive economic growth (Dhondt et al., January 2022; Oeij et al., August 2022).

During the BEYOND4.0 project, it has been observed that ecosystems can follow different routes or strategies towards digital transformation, and that digitalisation in regions and companies vary with respect to whether a digitalisation strategy is pursued simultaneously to improve inclusiveness or not. Inclusiveness differs in terms of the engagement of employees with technological change, or what strategies companies follow to enhance the skills and employability of employees. Companies also differ in whether, and if so, how they employ people from traditionally vulnerable groups in the labour market, such as immigrants, people with disabilities, women, youth, older workers and the long-term unemployed.

In this chapter we propose a general route to enhance the opportunity of digital transformation and to improve the conditions for inclusive economic growth. BEYOND4.0 defines digitisation in connection with 'Industrie4.0', namely the digitisation of production through AI and automation/robotics. This is based on AI combined with the emergence of big data, the internet of things and ever-increasing computer power enabling robots to undertake both physical (manual) tasks and, increasingly, some cognitive (mental) tasks currently performed by humans (Warhurst et al., 2020). BEYOND4.0 thus regards digital transformation as the adoption of digital technology by an organisation to digitise non-digital products, services, or operations. The goal for its implementation is to increase value through innovation, invention, customer experience or efficiency (see also Vial, 2019). Inclusive growth is economic growth that raises standard of living for broad swaths of a population. It combines economic activity with well-being of people (Cerra, 2021). This implies conditions for entrance into the labour market in ecosystems and for employee engagement in companies. In the meantime it can be observed that Industrie4.0 is being criticised for a too strong focus on economic goals, omitting the need to put human values first. The rising substitutive concept is called Industry5.0, which aims at human-centric goals, in which similar technologies innovation should be applied in support of human needs, instead of neglecting them too much (Breque et al., 2021).

Based on our research, expertise and insights, we propose an argumentation of how to achieve digital transformation coupled with inclusive growth. Our logic is that a 'collaborative ecosystem approach' is required at the ecosystem level. In the field of the economics of entrepreneurship, an ecosystem is a set of interdependent actors and factors that are coordinated in such a way that they enable productive entrepreneurship (Stam, 2015). The BEYOND4.0 research findings stress the importance of collaboration between actors in such a regional network to support economic growth and digital transformation. Such collaboration is a condition for inclusiveness and social cohesion as well. A condition at the company level for inclusive economic growth is the engagement of employees in the process of change, renewal and innovation. Making use of the expertise and experience of employees and providing them with a certain level of decision-making power is a strategy aimed at enhancing the long-term sustainability of the firm, including the employability of the workforce. The concept of 'workplace innovation' is a condition to

support such a goal. Workplace innovation understands innovation, such as digital innovation, as a balanced interplay of technological renewal on the one hand, and human and organisational change on the other. Where, as a process, employees are engaged and involved. Workplace innovation addresses both the design of the production process and job, and organisational and leadership behaviour that enables employee engagement (Oeij & Dhondt, 2017). The logic assumes that the collaborative ecosystem approach at ecosystem (regional) level and workplace innovation at company level contribute to inclusiveness because it encourages citizen and employee engagement.

Readers should be aware that ecosystems and regions differ. A region may encompass several ecosystems. And ecosystems may be an entity beyond regional borders. The point is that regional level policy making is already well in place, but policy-making at ecosystem level is not yet well-established (Oeij et al., October 2022). We, however, keep using the terms of region and ecosystem interchangeably throughout this chapter, because an ecosystem needs support from stakeholders who often operate at the regional (or even higher) level. Who the stakeholders are, is explained further on.

Using a Theory of Change

The essence of a Theory of Change (ToC) is to offer a comprehensive description and illustration of how and why a desired change is expected to happen given a particular context. A ToC informs the mapping out or “filling in” of the “missing middle” between implemented activities or interventions, and how these lead to the desired goals. A ToC first identifies the desired long-term goals and then works back from these to identify all the conditions (outcomes) that must be in place for the goals to occur (Taplin & Clark, 2012). These are mapped out in relation to the logic explained above in a causal framework, as follows:

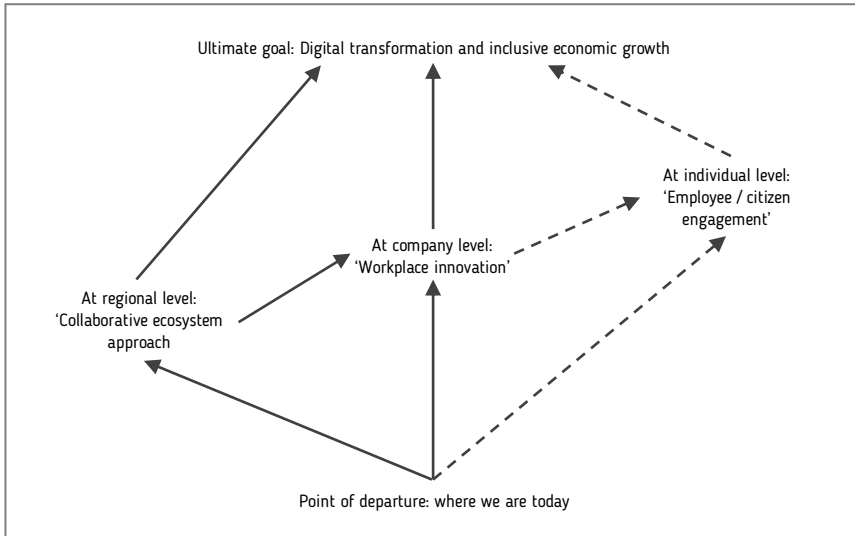


Figure 1: Causal framework: towards digital transformation by inclusive economic growth

The aim of BEYOND4.0 is to contribute insights into how to achieve digital transformation that enables inclusive economic growth (Warhurst et al., 2020). Three routes can be distinguished (see Figure 1) to achieve this ultimate goal, but this chapter will not pay attention to the ‘individual level’ route. First, from the analysis of ecosystems at the regional level, we learned that digital transformation requires the collaboration among many stakeholders (Dhondt et al., January 2022). Such collaboration creates fertile ground for companies to innovate and grow, and for start-ups to take off and sustain. A collaborative ecosystem approach seems advisable, at the level of the ‘system’, in this case the region. In the second route, it was observed that companies who apply workplace innovation practices seem more likely to be successful in digitalisation and creating involved employees, based on the 30 cases studied at the company level (Oeij et al., August 2022). This is the company level. The third route is to improve and support employee and citizen engagement via socialisation and education at the individual level. The focus of BEYOND4.0 is on the regional and company level (the individual level route, while relevant, is out of scope of the BEYOND4.0 project; that is why it is indicated with dashed arrows).

Target groups

This chapter targets different groups. Stakeholders at the level of regions and ecosystems are invited to focus on the route of the ‘collaborative ecosystem approach’ and stakeholders at company level on the route of ‘workplace innovation’. Of course, both

routes are interconnected. But there is no required sequential order, in the sense that one route is a necessary condition for the other. However, collaborative ecosystem approaches and workplace innovation practices can strongly benefit from the presence of the other. Conversely, ecosystems that are characterised by dominant core companies with fierce competition for financial and human resources, and companies that prefer centralised management models over more decentralised ones, may pay little attention to inclusiveness and social cohesion. In such instances without collaboration, digital transformation may imply more unnecessary risks than opportunities for citizens and employees.

In the next section we offer a regional and a company route. The regional route is connected to the ecosystem model, and is a generic approach. The company route is via the workplace innovation concept. This approach is highly specific per company, and therefore requires more (theoretical) explanation.

2. TWO ROUTES: REGIONAL AND COMPANY

To achieve the ultimate goal, namely improve inclusive growth while implementing digital transformations, certain values are vital in relation to the objectives of Industry5.0 (Breque et al., 2021). New technology should be compatible with working towards a sustainable, human-centric and resilient European industry, which implies that technology should support workers instead of controlling and managing their behaviour. Contrasting ‘low road’ perspectives that are driven by cost-efficiency and the flexible replacement of human assets with technology, a normative argument to bring the Industry5.0 context closer to hand, is one that embraces the ‘high road’ perspective. A high-road company or ecosystem provides a supportive environment where employees can successfully balance work, family, and personal responsibilities. It is, for example, based on humanistic values, fair pay, and training and development opportunities (Kochan & Dyer, 2021; Oeij et al., 2019; Osterman, 2018; Totterdill et al., 2002; Warhurst et al., 2020).

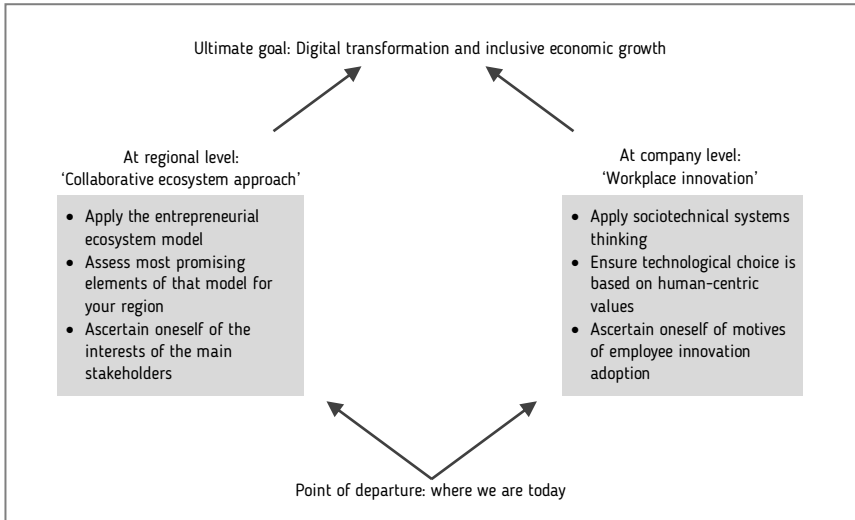


Figure 2: The regional and company route towards digital transformation by inclusive economic growth

The regional and company routes towards the digital future are depicted in Figure 2. The regional route applies the entrepreneurial ecosystem model (Stam, 2015) in a practical sense, while the company road uses a practical application of sociotechnical interventions, based on the concept of workplace innovation (Oeij et al, 2017; Oeij et al., forthcoming 2023). As said before, one route does not necessarily imply the other, but the assumption is that they can mutually reinforce one another.

Each of these routes have a content side ('what') and a process side ('how and when'). We shall outline the content of these routes first. In the section following the explanation of the content of these routes, the management of the process will be discussed.

2.1. The regional route

The entrepreneurial ecosystem model (EEM) in Figure 3 is a basic framework of the BEYOND4.0 project (through the tasks carried out in WP4 and WP8).

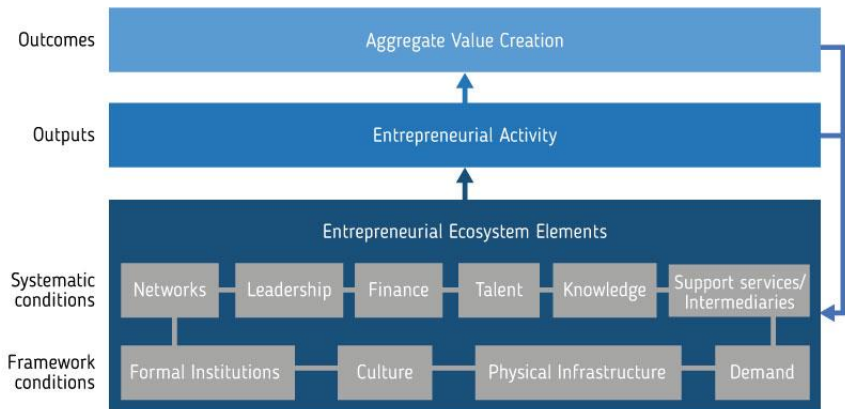


Figure 3: The entrepreneurial ecosystem and its elements, based on Stam (2015)

The EEM identifies ten elements, divided into framework conditions and systemic conditions, that together constitute outputs (entrepreneurial activities) and outcomes (inclusive economic growth). In our research of twelve ecosystems across six European countries (Dhondt et al., January 2022), we looked at two types of results: successful digital transformation and inclusiveness of economic growth. The successful ecosystems reflected a variety of combinations of the elements that were functioning satisfactorily. There are different combinations of elements that can lead to success. The implication is that for different regional ecosystems different combinations may be the most promising, which require practitioners to scrutinize the working of those elements in their own regions, and assess which of those ten elements require attention. Table 4 provides a description of the elements and the desired outputs and outcomes.

Table 4: Description of the elements of the entrepreneurial ecosystem model for the ecosystem and company (based on Dhondt et al., January 2022; Stam, 2015)

Elements	
Formal institutions	Rules and regulations; enable voice for entrepreneurs; tax regime. Regional-specific elements
Entrepreneurship culture	Entrepreneurial activities, start-ups, accelerators, risk-taking culture
Physical infrastructure	Transport/mobility, digital infra, accessibility, educational institutions
Demand	Regional demand and purchasing power
Finance	Investors, banks, venture capital/angel investors, governmental support for innovation

Talent	Labour market, enough labour supply, (interregional) labour mobility, skill development
New Knowledge	Innovative sector; investments in R&D and new knowledge
Intermediaries	Institutions, supporting and business services for the sector
Networks	Partnerships, co-innovation / co-creation / open innovation in the sector
Leadership	Vision, technological entrepreneurs present, ecosystem strength compared to other competing ecosystems
Productive entrepreneurship (output)	Economic growth generated by the ecosystem; income and wealth, employment and their growth; 'high road strategy'
Inclusiveness (outcome)	Inclusive economic growth: social cohesion, support for vulnerable labour market groups, generating jobs; 'high road strategy'

Based on the regional ecosystem studies and the interviews and workshops held with the stakeholders of the twelve ecosystems (Dhondt et al, January 2022; Oeij et al, October 2022), a need for more collaboration and cooperation was recommended in all regions in order to support digital transformation and inclusive growth. For this reason, we named the route at regional level a 'collaborative ecosystem approach'. The implication is that elements such as creating 'formal institutions', 'networks' and 'leadership' may require attention in every region.

Crucial for the design of any regional approach is the need to become familiar with the principal interests of the main stakeholders in a region. These stakeholders are representatives of government, administration and politics, of businesses and industries, and of a variety of institutions in fields such as education, research, banking, business services, labour supply, unions and employee representatives and employment agencies. The outputs and outcomes are productive entrepreneurship and economic growth on the one hand, and inclusiveness on the other (see the last two rows in Table 4). The corresponding values that combine both goals are human-centric and socio-centric, which is a combination of economic welfare and human well-being. Thus, the results should be beneficial to the businesses and the regional population.

2.2. The company route

The company route towards digital transformation and inclusive economic growth is also grounded in similar human-centric and socio-centric values as in the regional route. This requires a fit between the company's economic goals, technological (digital) applications and social goals.

Box: Sociotechnical approaches

The sociotechnical systems (STS) design approach strives for joint optimisation of the technological and social 'system', which facilitates pursuit of a 'high-road perspective'. Over time, the state of the art in sociotechnical systems research has developed at least three branches. On one hand, scholars of human relations focus on deployment of technological systems in firms and markets with a focus on questions of integration with human and social factors, in service of enhanced productivity, efficiency, and working conditions (Pasmore et al., 1982; Guest et al., 2022). Secondly, science and technology studies critically reflect on the social and ethical implications of the way our society, more generally, chooses to configure and deploy technological systems in bodies, homes, communities, regions, and beyond (Bijker and Law, 1994; Bojic, 2022). Yet another, third branch of sociotechnical systems science is the Lowland variant, called 'modern sociotechnics' (Kuipers et al., 2020; De Sitter et al., 1997). This variant developed design rules for organisations and functions which enable joint optimisation of organisational goals (that is, quality, efficiency, effectiveness, innovativeness) and human empowerment goals (that is, high quality job standards, e.g. job autonomy). Applying STS implies that human empowerment criteria can be integrated as functional criteria into organisational interventions, such as implementing new technology, the design of AI, and any other type of organisational innovations.

A crucial characteristic of STS approach is that employees retain significant autonomy in the execution of tasks in their jobs, and in solving problems that occur at workplace level. If, for instance, an Artificial Intelligence (AI) algorithm suggests a specific task command, then the operator can assess whether or not to follow this suggestion, or whether it makes better sense to choose a different work around.

An offshoot of STS approach is workplace innovation (WPI). In the Lowlands (i.e. the Netherlands and the Flemish part of Belgium), STS was elaborated with a strong focus on the quality of jobs. An approach was developed that interlinked designs of production processes, required information streams (IT structure) and management responsibilities (limiting hierarchical level). Its aim is to minimise interactions at all levels that create bureaucracy (minimise interdependencies), by keeping the organisation design 'simple' and by making the jobs (within teams) rich and 'complex'. Consequently, the division of labour is limited, but the required skills and competencies of employees became broad: jobs in which people can learn and develop themselves according to human-centric principles. The implication for digitalisation, as a technological choice, is that its design, application and implementation must remain consistent with keeping the jobs complex. Thus, simplification of work through automatisisation and hidden algorithms is in conflict with human values.

Workplace innovation goes a step further beyond the structural design of the production process, the organisation, and jobs (and teams), by paying attention how structural design

choices may enable or disable certain organisational behaviours (i.e. the corporate culture), including the style of leadership. Organisations that are designed to be less bureaucratic have been found to be more conducive to corporate cultures that promote transparent collaboration and cooperation at all levels. Such organisations stimulate more mature employment relations and better support employees to adopt innovation, renewal, and new digital technologies (Oeij et al., 2022). Therefore, STS and workplace innovation nurture employee engagement, which implies that the interests of employees are recognised by management, and that employees are given a say in the decision-making process of companies¹.

3. DIGITALISATION IN ECOSYSTEMS AND COMPANIES AS A CHANGE PROCESS

A main point of departure from any major process of change is to involve those who are going to be affected significantly, if you want to avoid resistance to change and maximise the adoption of change. Therefore, a major step is to identify the main stakeholders and their interests. Together, stakeholders should choose the measures to be taken at the level of ecosystems or companies to realise digital transformation with inclusive growth. We first turn to the change process at the level of regional ecosystems.

3.1. The regional route: collaboratively strengthen the ecosystem

When it comes to identifying stakeholders of the ecosystem, it is essential to realise that an ecosystem is not the same as a region or an industrial sector. In fact, the borders of an ecosystem are often not easily demarcated. For reasons of practicality, it is easier to identify regions with problems in terms of limited economic growth, digital technology uptake and social cohesion issues. Subsequently, it is helpful to define the main issue(s) and then to determine who has a stake in the issue(s). Often, you will be able to identify the main policy actors, the main entrepreneurs, the main economic and social issues, the main people at risk (possible 'victims' of technology), and the regional population.

The process to develop policy recommendations to improve digital transformation with inclusive economic growth that was followed in the BEYOND4.0 project can serve as a guide (Oeij et al., October 2022). The problem statement was the elaboration of the Horizon 2020 call into a 'Research and innovation action' (RIA), i.e. a plan of actions 'primarily

¹ While employee engagement is less far-reaching than employee-involvement – the first is passive and the second is active (Boxall & Macky, 2014) – we apply the terms as similar here, to emphasize the role of voice for workers.

consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.’ In the case of BEYOND4.0 it concerns the simultaneous goals of realising digital transformation in conjunction with inclusive growth.

The entrepreneurial ecosystem model was applied as a lens and a framework. The following five steps that were undertaken:

1. Investigate the mechanisms of the ecosystem to improve digital transformation, while at the same time taking into account how to ensure inclusive growth;
2. Make use of representatives of relevant organisations and institutions in the region / ecosystem by interviewing them to gather their opinions, insights and suggestions; among these representative organisations and institutions are those who play a role in / have expertise in regional policy making, government and administration, education and research, business services, regional businesses and industries, business services and financial services / investments, labour market and social security issues, EU-policies, employer organisations, labour unions;
3. Report on the state of the art of the ecosystem using the entrepreneurial ecosystem model (EEM) as a framework; differentiate and weight the essence of each of the ten elements of the EEM in terms of ‘well developed drivers for success’ or ‘factors that require strengthening’ (see actions in the next box);
4. Organise workshops with stakeholders to assess policy recommendations with respect to elements that require attention; regional, national and EU level actors who should address specific tasks; define desirable outputs and outcomes at the ecosystem level (i.e. digital transformation and inclusiveness should be made tangible and operational for the region);
5. Report on the results of the former steps as the basis for developing further action plans.

Once you can identify a group of actors who have a stake in the issues that require change, it is then possible to move on to consider the following actions for step 3:

- A. Define and pin down the issue, in relation to the ultimate goals with regard to digital transformation and inclusive growth;
- B. Assess the knowledge gap and a possible agenda for research and investigation of the issue;
- C. Design a preliminary set of goals to be achieved in order to reduce or solve the issue; and how these goals can be achieved;

D. Formulate a problem statement for the region / ecosystem (e.g. in a white paper). This could include the following: formulate the activities needed to achieve the subgoals, the involved stakeholders, who is responsible for what, when what needs to be done, what risks and potential setbacks will be and how to overcome them, how effects will be monitored and evaluated.

As a follow up to these steps the action plan(s) should be brought into practice, and their effects should be regularly evaluated to adapt the action plan(s).

3.2. The company route: an engaged way to apply workplace innovation

Identifying stakeholders at the company level seems less complicated. These are, in the first instance, management (the entrepreneur), employees, employee representatives or works council; in second instance, customers, clients or students (and their parents) of the organisation; and in third instance, key business relationships of the company, such as suppliers, sector organisations, employer organisations, and labour unions. With regard to digitalisation and inclusiveness, we focus on the first group of stakeholders for reasons of convenience. Of course, users of this method can broaden the range of stakeholders if needed.

Workplace innovation (WPI) enables companies to better appreciate and empower their employees. While it fosters the company's innovation capacities, it also helps to adapt to the changes and challenges that the new digital era brings. Dhondt et al. (2017) offer a practical approach on how to implement workplace innovation. Because developing WPI practices for companies are less straight forward than applying the ecosystem framework (for regions), we use extra lines to provide more explanation about the WPI-concept. That makes this section longer.

Starting with developing an understanding about why workplace innovation is important for your company and how it can be harnessed to transform your organisation, getting ideas about where to begin, analysing the building blocks of WPI, and realising how to achieve commitment from the people in your organisation, this guide supports the implementation of successful WPI at the company level.

The WPI Guide is built around five challenges:

1. Why workplace innovation is important for your company?
2. How workplace innovation will transform your organisation?
3. Where to begin?

4. What are the building blocks of workplace innovation?

5. How to achieve commitment from everyone in your organisation?

Why workplace innovation?

Workplace innovation practices or interventions aim to improve both organisational performance and the quality of jobs. Many interventions are imaginable, but they should emphasise an empowering job design to support employee engagement. Moreover, interventions must improve digital transformation with inclusive growth in our case.

Two main directions for such interventions are identified. Firstly, to design a production process (of products made or services delivered) that fosters job autonomy, delegated decision-making, and employee representation in strategic decision-making (e.g. implementation of digitalisation), based on sociotechnical systems design (Kuipers et al., 2020). Secondly, to perform organisational behaviour that fosters reciprocal results, via equality, diversity and inclusiveness, based on the notion of mature employment relationships and psychological contracts (Herriot, 2001). The first direction reflects structural interventions (such as innovations in the work organisation) and the second is concerned with cultural interventions (Oeij & Dhondt, 2017).

How workplace innovation can be used to transform your organisation?

Change processes often fail due to partial change approaches instead of integral approaches – a failure to recognise that organisations consist of interdependent parts that together affect new ways of working. Successful change requires an integrative view on change, a ‘system’s view’, as in the STS approach. That is why structural and cultural interventions are interdependent. A leadership development programme, a stress management intervention, or a mindfulness course, for instance, are cultural interventions that as stand-alone initiatives will not affect the design of a production process, teams and jobs, which determines the autonomy of employees. The integrated combination of structural and cultural interventions can transform the organisation, so that better business performance and good quality jobs can be achieved simultaneously.

Where to begin?

The ToC of BEYOND4.0 adopts the approach that, in order for companies to achieve the ultimate goal of improving digital transformation with inclusive growth, the route towards this needs to involve employee engagement.

The question ‘where to begin?’ might be a bit odd. Hardly anyone is motivated to bring about changes in the organisation as long as things are going very well, let alone, look

for problems and issues. On the other hand, companies must remain competitive and innovative. Employee engagement is crucial in this regard, but many managers tend to overlook its importance. Hence, WPI is often mistakenly considered as 'being nice to the workers', whereas engagement can critically strengthen the innovative capability of the firm, and overcome resistance to change.

To help the reader to get an idea about what employee engagement could look like in their company, it may be helpful to provide an indication of how digitalisation that is poorly managed can threaten employee engagement and inclusive economic growth, as it could, unintentionally:

- Reduce autonomy of employees;
- Reduce the number of jobs, simplification of tasks within jobs, and/or limit learning opportunities;
- Increase work-related stress and workloads by not adequately compensating workers for their effort, or allowing them sufficient time to rest;
- Make certain types of skills obsolete
- Exclude workers from playing a role in the process of selecting and/or implementing new digital technologies;
- Reducing the quality of jobs and income security, and increasing the flexibilisation (precarity) of labour contracts.

Whilst this list is not exhaustive, it should be clear that by reversing or mitigating some or all of these threats it is more likely to foster or improve employee engagement, which, ultimately should be one of the main aims of digitalisation.

The questions to address is: what are the most pressing issues in the company that are blocking the goal of improving digital transformation with inclusive growth? And relating to this, what are the most pressing issues in the company that are stifling employee engagement? Obviously, many answers are possible. Dhondt et al. (2017) offer a short checklist to start a journey of dialogue among the main stakeholders in the company. When looking at the topics in the checklist (Table 5), an assessment can be undertaken about how each of these topics might act as a barrier to achieve the ultimate goal:

Table 5: An inventory for the identification of barriers (adapted from Dhondt et al., 2017).

Starting the Journey: what are the company's most pressing issues?		
Score each issue: 1 = No Problem; 10 = Severe Problem		Score
STRUCTURAL ELEMENT 1: STRUCTURES, MANAGEMENT AND PROCEDURES	Line managers lack team leadership skills	
	Ineffective performance management / appraisal system	
	KPIs/targets drive out opportunities for learning and improvement	
	Departmental/organisational boundaries delay decisions and inhibit innovation	
	Work gets held up by poor co-ordination between departments	
	TOTAL SCORE FOR ELEMENT AND DIVIDE BY 5:	
STRUCTURAL ELEMENT 2: JOBS AND TEAMS	Frequent delays caused by breakdowns and bottlenecks	
	High levels of employee turnover and/or absenteeism	
	Malfunctioning technology, ICT	
	Poor team cohesion, lack of collaboration	
	Persistent quality problems	
	TOTAL SCORE FOR ELEMENT AND DIVIDE BY 5:	
CULTURAL ELEMENT 3: EMPLOYEE-DRIVEN IMPROVEMENT AND INNOVATION	Lack of an innovation and learning culture	
	Opportunities to improve or innovate exist but rarely get around to pursuing these opportunities	
	Employees feel frustrated because they have no outlet/s for their ideas	
	More effective ways of engaging employees in innovation and improvement needed	
	Employees may be afraid or unwilling to challenge established practices	
	TOTAL SCORE FOR ELEMENT AND DIVIDE BY 5:	
CULTURAL ELEMENT 4: CO-CREATED LEADERSHIP AND EMPLOYEE VOICE	Gap exists between senior management and frontline staff	
	Management fails to share relevant information with employees unless it is absolutely necessary	
	Senior managers micro-manage the work of others rather than empowering them to take decisions	
	Decisions affecting the work of employees are taken without involving the workers who are impacted by these decisions	
	The corporate culture inhibits change	
	TOTAL SCORE FOR ELEMENT AND DIVIDE BY 5:	

What are the building blocks of workplace innovation?

This section looks at the building blocks from a positive viewpoint. The former step looked at problematic issues (a negative viewpoint). The reason for this sequence is that there are more solutions than problems, because one can develop different kind of interventions, at the level of the organisation as a whole, at the level of departments, teams and jobs, and at the level of people. Moreover, the WPI-concept stresses that interventions should change the root cause of problems, and that requires a careful assessment of the 'problems' first. That is why we first presented a checklist on issues, and turn now to the building blocks for possible solutions.

Structural element 1: Organisational Structures, Management and Procedures

A main issue in bureaucratic organisations is that they are hierarchical, have a high degree of division of labour, with many interdependencies between departments, work stations and people. This requires managers to have many interactions. Unless it is a simple production process with much standardisation (for which Taylorism is still highly functional), it often results in breakdowns, waiting times, and loss of quality.

The STS approach advocates for the design of solutions that involve structuring the production process in such a way that the interdependencies are reduced by grouping the work into teams with decision latitude to execute the tasks from beginning to end (so-called 'complete tasks' as in autonomous team work), and to allow these work teams to solve the problems at the level where these occur, whenever possible. This results in 'simple' organisations with 'complex' (teams)jobs (De Sitter et al., 1997; Kuipers et al., 2020; Van Amelsvoort & Van Hoogtem, 2017).

The limited division of labour in sociotechnical solutions creates a reduced need to manage the production process from the top-down. In sociotechnical thinking, the argument is that technology should support employees in doing their work more effectively and efficiently at the same time as meeting the required quality standards. This is also the case for the implementation of digital technologies, Artificial Intelligence (AI) and machine learning (ML). Sociotechnical design rules follow the sequence to first address the structure of the production process from the perspective that job autonomy must not be reduced; then the next step is to look where information and communication technology (ICT) and automation is needed. Not the other way around. The result of this design sequence is less hierarchy, less bureaucracy, more decision-making autonomy at lower levels, richer jobs, and more meaningful work.

Structural element 2: Jobs and teams

From the design of organisational structures, follows the design of jobs, and how this enables employee engagement. Allowing employees discretion in scheduling their own work and in controlling its pace has a number of advantages to both the employee and the organisation (Dhondt et al., 2017). They are better able to perform their jobs because they are empowered to make decisions based on their tacit knowledge and previous experience of 'what works'. They may be able to avoid delays caused by having to unnecessarily escalate problems to their managers or by having to refer to procedural manuals. In the best cases, they are able to make time to learn and to reflect on what is working well and what could be changed. This generates steady flows of improvement and innovation. Such employees are truly engaged.

What supports employee innovation adoption? That is, situation where workers are prepared to work with a renewal? When it comes to selecting and implementing digital technologies, it is crucial that affected employees are given a voice in the process. Not only will this mean that employees are given the chance to provide valuable input into the proposed change based on their expertise. They will also be better placed to evaluate their own work, such as whether a new technology or way of working is easy to apply, whether it works ('demonstrability'), improves their work execution and if other persons in the company deem it important to use the renewal ('subjective norm'). If the answers are all positive, the chances are higher that employees will adopt, or perhaps even embrace, the innovation (Oeij et al., 2022).

Based on Karasek's model (Karasek & Theorell, 1990) depicted in Figure 6, the STS design method designs jobs that combines a high level of job demands with a high level of job control. A job design that enhances employee engagement ensures active work. High job demands can lead to high quality output, stimulating tasks, and tasks that require learning new knowledge and skills. Among the aims is also minimisation of physical strain and psychological stress. Strain and stress can be caused by high workloads and difficult problems and disturbances. A condition for good, active work, is sufficient job control to deal with such issues, and create a balance between the job demands and control.

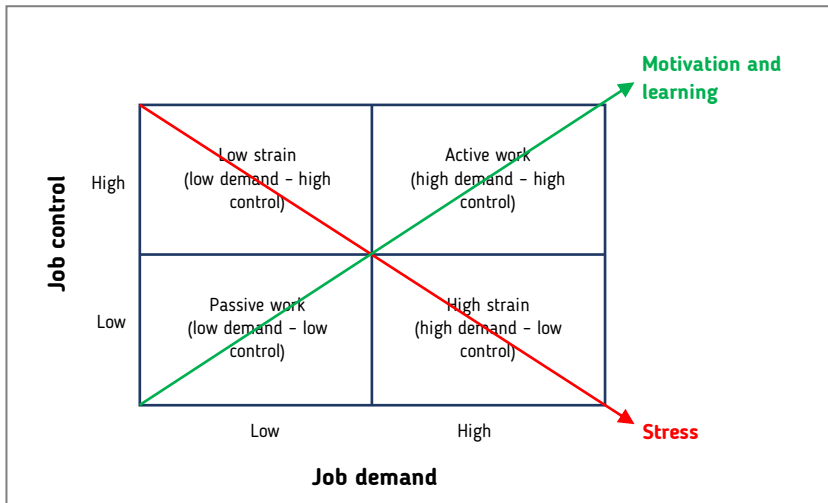


Figure 4: Karasek's Demand-Control Model of Occupational Stress

Jobs designed on the basis of the ideas of Karasek can also be applied to the level of teams. Teams can be made responsible for 'whole team tasks', that is, they can make products or services with limited dependency of other departments or teams, and with a limited division of labour among the team members. Teams can largely decide how to execute their tasks and, for instance, carry out their own personnel policies. To a significant extent such teams are self-managing.

Cultural element 3: Employee-drive improvement and innovation

A human-centric or socio-centric approach (Breque et al., 2021) is based on a management philosophy that nurtures a certain extent of decentralisation of decision-making and bottom-up voice. Managers and entrepreneurs with such visions create organisational structures that allow a say for employees about the type of jobs that they offer and via the type of human resources management (HRM) practices they develop (Oeij et al., 2019). Systematic opportunities for shared learning and reflection are well embedded in these types of workplaces. They allow employees at every level to reflect on what has gone well and what can be improved in the future, to share knowledge and skills gained in the course of recent work experience, and to anticipate and reflect on the impacts of future challenges and change. This can be reflected in times and spaces where people at work can discuss ideas with their co-workers or in their team meetings (Dhondt et al., 2017).

Such cultural elements support employee-driven innovation. Employee-driven innovation and improvement emphasises the importance of aligning the knowledge and expertise in

the organisation with the tacit knowledge and experience of workers while valuing learning. It must be driven from the top and reinforced by consistent messages from leaders so that it enables employee-driven improvement and innovation. Inherent in these organisational cultures is strong engagement with the employees.

Cultural element 4: Co-created leadership and employee voice

Employee-engagement presupposes a less of a prescriptive, directive role of leaders, instead more of a more coaching and stimulating role. The progressive view of leadership is regarded as a creative and collective process where leadership is co-created through dialogue with and between employees, and where employees are empowered to take initiative and contribute to decision making. “Shared and distributed leadership” focuses on releasing the full range of employee knowledge, skills, experience and creativity. It means that workplace culture and practice provide all workers with the opportunity to take the lead in areas which reflect their own expertise or initiative, whether strategic, innovative or operational, while understanding and aligning their actions with those of others. This collaborative or co-created process of leadership creates shared direction and purpose through shared reflection and learning, and employee voice in decision-making (Dhondt et al., 2017), which is viewed as necessary for any type of successful transformation, including digital transformation.

How to achieve commitment from everyone in your organisation?

Change is rarely a linear exercise. It usually involves experimentation, failure and a willingness to see failure as an opportunity for learning and development. The change journey means making change happen with people, not to people. They have the knowledge, experience and potential for engagement that can make digitalisation happen and make it endure. Below there is a short checklist for change (Dhondt et al., 2017).

- Do the board and senior team understand that change will involve asking difficult questions and challenging established practices? Do you have their full support?
- Have you involved all the relevant stakeholders from the beginning? Does everyone understand how they can contribute to the journey?
- Have any potential sources of resistance been identified? What is the best way of dealing with resistance?
- What are the mechanisms for ensuring effective two-way communication throughout the journey? How will progress be evaluated? How will stakeholders be involved in shared learning and adjustments to change processes and goals during the journey?

- What does success look like? ? And how will success be celebrated?
- How will change be embedded and sustained?

Digital transformation, inclusiveness, and engagement of employees require an ongoing dialogue between stakeholders as an essential ingredient of the innovation process, both at the company level and the regional level. The coalition approach below is suitable for this purpose.

3.3 The coalition approach

One of the decisive factors for the successful implementation of interventions, renewal and change seems to be a broad social basis in regions and companies. This can be arrived at with the application of the 'coalition approach', a participatory method to guide the process from diagnosis to implementation of measures (De Lange, 1989; Oeij et al., 2006; see also Gustavsen, 1992).

The coalition approach can be integrated into the abovementioned mentioned steps. Once an analysis has been made about the state-of-the-art of the ecosystem, and the stakeholders with opposite interests are clear, it is possible to apply the coalition approach. One can imagine that a leading group of regional stakeholders want to strengthen collaboration and networks, and applies the approach to prevent the escalation of opposing interests. Something similar can be done at company level. Most likely management will take the initiative to discuss opposing views about the future direction of the company, preferably based on the type of 'problem' analysis we discussed earlier.

This approach will first be applied this to the regional level, and subsequently, to the company level.

Dialogue at regional level

The regional level is comprised of a variety of stakeholders, each with different interests. For reasons of clarity, we distinguish between two types of stakeholders. One group of stakeholders is that of business and industry with economic goals; the other group of stakeholders are the citizens and employees, where the focus of interest is on inclusiveness.

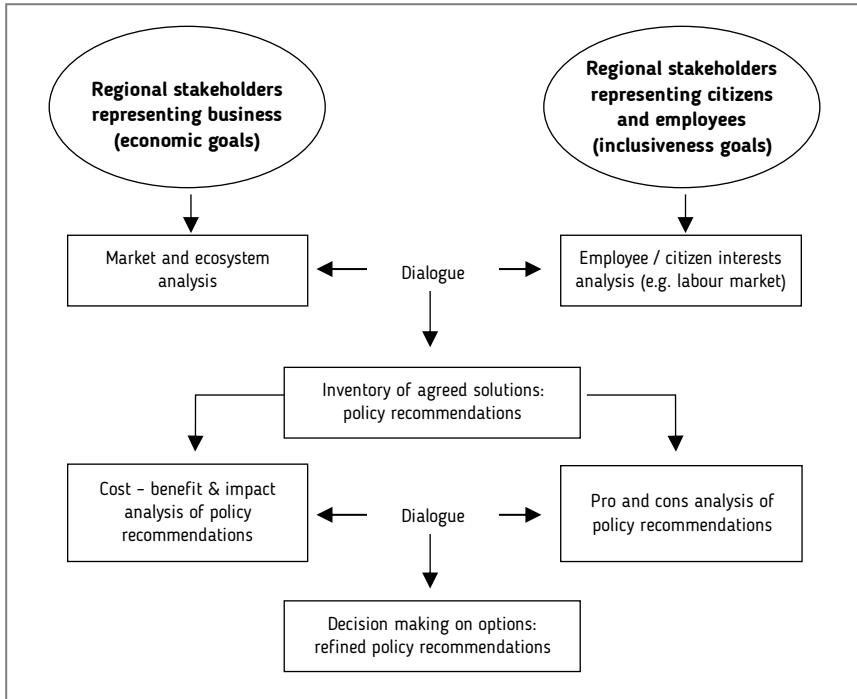


Figure 5: Coalition approach and dialogue at regional level

The interests of the business stakeholders are in how the ecosystem strengthens, for example, their market opportunities, and for the employees/citizen stakeholders how the ecosystem ensures inclusive goals like labour market opportunities.

Step 1: Identify strengths and weaknesses of the ecosystem

With the ten elements of the entrepreneurial ecosystem in mind, and their strengths and weaknesses in the respective region, each stakeholder group analyses which elements should be supported, with regard to digitalisation and the future.

Step 2: Assess recommendations per stakeholder

Each group develops recommendations at the level of the regional ecosystem. In the first instance, each group focuses on their own interests. (Possible overlap or shared interests of business and citizens and employees at the beginning of the process, are put on hold in this first step).

Step 3: Share recommendation with the other stakeholders

In a next step, these recommendations are shared and discussed (first dialogue), upon which each stakeholder group analyses the consequences of all of the recommendations for the future. At this stage, it is important for stakeholders try to take into consideration interests other than their own. After that, each party redefines the desired policy recommendations. This time the recommendations should better address the issues raised in the first dialogue.

Step 4: Select shared policy recommendations

A second dialogue takes place to share and discuss the redefined policy recommendations, with the objective being to select a set of common policy recommendations that should be brought into practice. This is a joint decision. It is likely that the selected recommendations still need to be elaborated and redefined, before implementation will be effective.

Apart from the desired goals to support digital transformation with inclusive growth, another result of applying the coalition approach is a manner to exert democratic rights of all stakeholders – namely their engagement in the dialogue – within an ecosystem, which in itself is an indicator of social cohesion. A warning to be made is that in the case of conflicting relations between stakeholders, it is very difficult (and perhaps too optimistic) to arrive at agreement, let alone create a coalition (Fisher et al., 1991).

Dialogue at company level

At company level, there are two main groups of stakeholders: management and employees. The method follows a similar approach. Current wisdom no longer views good employment relations practices that are purely hierarchical, or where there is an absence of channels for employee voice. Knowledge-intensive production is becoming increasingly more dependent on human factors as a critical resource. This, in turn, requires a voice for employees. The relational aspect of the employment relationship requires a ‘mature’ interaction and one way of doing so is to use a genuine process of dialogue (Herriot, 2001). Dialogue implies that parties have a respectful attitude towards the interests of the other party by seeking win-win options. Stakeholders have a shared interest in the digital transformation with inclusive growth. They can facilitate dialogue by applying the coalition approach as in Figure 8.

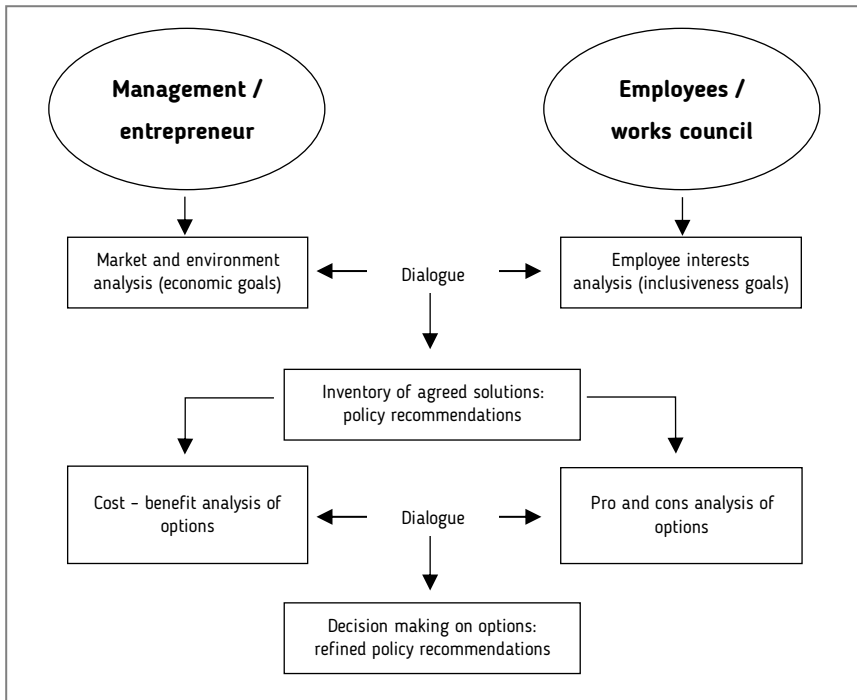


Figure 6: Coalition approach and dialogue at company level

Suppose that the former analyses about workplace innovation practices resulted in the identification of a number of potential solutions for a specific problem. Let us assume the company is a producer of parts for a specific market segment of electronic motors.

The company makes a large number of parts for a multitude of motor vehicles and supplies these parts to customers across a European supply chain. The issue is a logistical one, namely that too often parts arrive too late at destinations or are dispatched via inefficient routings. After management has analysed the situation, they found a software supplier who can deliver an off-the-shelf warehouse management system (WMS). This IT system can improve the efficiency of planning with a lower rate of 'mistakes' because it is driven by producing algorithms based on machine learning of the system itself. In terms of the staffing implications, a significant number of planning jobs will become obsolete. The management goal of to implement this WMS system is at odds with the goal of preventing job loss. The interest of the employees is partly their job and income security, but also in preventing the WMS system from eradicating human tasks that require a high level of planning skills.

The proposed four-step coalition approach is the similar step-by-step model as at regional level.

Step 1: Management and employee(-representative)e separately define criteria

The first step is that management and employees, each for themselves, define criteria that should be met by any intervention to combat the planning issues. Thus, they should not immediately embrace the WMS solution, but take a step back from the problem. Management could, for example, place an emphasis on productivity issues and employees on job certainty. But, as an example, apart from technological solutions, such the selection of the WMS system, there may be other potential solutions to the problem, such as the redesign the work processes so as to unlock organisational solutions and upskill the planners. This may generate new points of view that had not otherwise have been considered.

Step 2: Management and employee (-representative)e jointly exchange viewpoints

In the second step, parties enter the dialogue by exchanging viewpoints. A crucial competency here is that both parties can emphatically place oneself into the other parties' shoes. A number of options for interventions are short-listed that preferably fit within a win-win approach.

Step 3: Management and employee (-representative)e separately prioritise the options

The third step consists of studying the short list of options within one's own party. Stakeholders, however, also keep the interests of the other party in mind. Management will likely be performing cost-benefit analyses of the various options, for they are responsible for the continuation of the firm. Whereas employees are likely to focus on aspects like job security, employability, healthy work, fair workloads, etcetera.

Step 4: Management and employee (-representative)e jointly select agreed options

The final step is to re-enter the dialogue together with the aim of reaching an agreement in advance of making decisions. Formally, the chief executive officer of the company will make the final decision, but wise as they might be, letting the other party have a stake in the decisions as well.

Obviously, as said, the coalition approach can only be used in organisations where the employment relations are not polarized. But in such organisations true employee engagement will be absent. Otherwise, the deployment of a mediator is advisable.

Suppose that in the end a WMS-system is selected that allows planners to overrule the AI decisions of the system, provided that they can develop solutions that are as good as, or better, than the system. Further, that the WMS-system is used for 'batch logistics' and the skills of planners are dedicated to 'special cases'. The expected result is an efficient system that promotes the learning of new skills by planners; some jobs may be lost but the planners in these jobs are retrained for other work within the company. Let us assume that this intervention contributes to the digitalisation of the company and the inclusiveness of its workers, and that the followed method (i.e. engaging the employees in the process) provide to be helpful in guiding this process, then this can be regarded as a workplace innovation practice.

4. A FINAL REMARK

A Theory of Change (ToC) is a useful instrument to support practitioners to create a pathway towards digital transformation and inclusive economic growth. The purpose of this tool book is to support the regional (ecosystem) level and the company level. For the ecosystem level, it is suggested that a collaborative ecosystem approach is applied, and for the company level, the workplace innovation (WPI) approach, based of sociotechnical systems (STS) design is followed. Ethically, it is important to engage those who will be affected by digital transformation, at the regional and company level.

The ToC gives an account for applying the 'content' of the collaborative ecosystem approach by proposing to use the entrepreneurial ecosystem model, and at the company level the 'guide to workplace innovation'. The ToC offers a 'process' approach by explaining the basic steps of both methods and adds a coalition approach to facilitate a dialogue between stakeholders at both the ecosystem and company levels. Of course, the ToC is not a blueprint for every situation but a guide for practitioners, policy makers, consultants and other interested parties.

REFERENCES

- Bijker, W. E., & Law, J. (Eds.). (1994). *Shaping technology/building society: Studies in sociotechnical change*. Boston, MA: MIT press.
- Bojic, L. (2022) Metaverse through the prism of power and addiction: what will happen when the virtual world becomes more attractive than reality? *European Journal of Futures Research*, 10(22): <https://doi.org/10.1186/s40309-022-00208-4>
- Boxall, P. & Macky, K. (2014). High-involvement work processes, work intensification and employee well-being. *Work, Employment & Society*, 28(6), 963-984.

- Breque, M., De Nul, L., & Petridis, A. (2021). *Industry 5.0 - Towards a sustainable, human-centric and resilient European industry*. Brussels: DG Research & Innovation, European Commission, <https://doi.org/10.2777/308407>
- Cerra, V. (2021), An Inclusive Growth Framework. In V. Cerra, B. Eichengreen, A. El-Ganainy and M. Schindler (eds), *How to Achieve Inclusive Growth*. Oxford: Oxford Academic; <https://doi.org/10.1093/oso/9780192846938.003.0001>, accessed 18 Nov. 2022.
- De Lange, W.A.M. (1989). *Configuration of work. Configuring working hours, operating hours, and working time patterns* (PhD. thesis). Zutphen (Netherlands): Thieme, 1989 (in Dutch).
- De Sitter, L. U., Den Hertog, J. F. & Dankbaar, B. (1997). From complex organizations with simple jobs to simple organisations with complex jobs. *Human Relations*, 50(5), 497-534.
- Dhondt, S., Dekker, R., Van Bree, T., Hulsege, G., Oeij, P., Barnes, S.-A., Götting, A., Kangas, O., Karonen, E., Pomares, E., Unceta, A., Kirov, V., Kohlgrüber, M., Wright, S., Yordanova, G. and Schrijvers, M. (January 2022). *Regional report: entrepreneurial ecosystems in six European countries*. (Report D4.1 Analysis of incumbent and emerging ecosystems in Finland, Bulgaria, Spain, Germany, United Kingdom, and The Netherlands). Sine Loco: BEYOND4.0. (Retrieved from: <https://beyond4-0.eu/publications>).
- Dhondt, S., Totterdill, P., Boermans, S. and Žiauberyte-Jakštie, R. (2017). Five Steps to Develop Workplace Innovation. In: Oeij, P.R.A., Rus, D., Pot, F.D (eds), *Workplace Innovation. Theory, Research and Practice* (pp. 301 – 320). Springer: Cham (Switzerland).
- Fisher, R., Ury, W. and Patton, B. (1991). *Getting to Yes: Negotiating Agreement without Giving In*. (2nd ed.). Boston: Houghton Mifflin.
- Guest, D., Knox, A., & Warhurst, C. (2022). Humanizing work in the digital age: Lessons from socio-technical systems and quality of working life initiatives. *Human Relations*, 00187267221092674.
- Gustavsen, B. (1992). *Democratic dialogue*. Maastricht: Van Gorcum.
- Herriot, P. (2001). *The Employment Relationship: A Psychological Perspective*. Hove, East Sussex: Routledge.
- Karasek, R.A. & Theorell, T. (1990). *Healthy work; stress, productivity and the reconstruction of working life*. New York: Basic Books.
- Kochan, T.A., Dyer, L. (2021). *Shaping the Future of Work: A Handbook for Action and a New Social Contract*. Routledge.
- Kuipers, H., Van Amelsvoort, P., & Kramer, E.-H. (2020). *New ways of organizing: Alternatives to bureaucracy*. Leuven, Den Haag: Acco.

- Oeij, P., Dhondt, S., Hulsegge, G., Kirov, V., Pomares, E. – with Barnes, S.-A., Götting, A., Behrend, C., Kangas, O., Karonen, E., Kohlgrüber, M., Malamin, B., Unceta, A., Wright, S., & Kispeter, E. (August 2022). *Frontrunner companies and the digital transformation: strategies to deliver inclusive economic growth*. (BEYOND4.0 deliverable D8.1 'Report on changes, challenges, frontrunner companies and recommendations'). Leiden: BEYOND4.0. (Retrieved from: <https://beyond4-0.eu/publications>).
- Oeij, P., Hulsegge, G., Kirov, V., Pomares, E., Dhondt, S. – with Barnes, S.-A., Behrend, C., Dekker, R., Götting, A., Kangas, O., Karonen, E., Kispeter, E., Kohlgrüeber, M., Malamin, B., Unceta, A., and Wright, S. (October 2022). *Policy paper: digital transformation and regional policy options for inclusive growth* (BEYOND4.0 deliverable D4.2 'Policy paper'/Update version 2). Leiden: BEYOND4.0. (Retrieved from: <https://beyond4-0.eu/publications>).
- Oeij, P.R.A. Oeij, Hulsegge, G., Preenen, P.T.Y., Somers, G. & Vos, M. (2022). Firm strategies and managerial choices to improve employee innovation adoption in the logistics industry. *Journal of Innovation Management*, 10(1), 76-98. DOI: 10.24840/2183-0606_010.001_0005.
- Oeij, P.R.A., Preenen, P.Y.T., Van der Torre, W., Van der Meer, L., Van den Eerenbeemt, J. (2019). Technological choice and workplace innovation: Towards efficient and humanised work. *European Public & Social Innovation Review*, 4(1), 15-26.
- Oeij, P.R.A., Dhondt, S., McMurray, A.J. (eds.) (forthcoming 2023). *A Research Agenda for Workplace Innovation: The Challenge of Disruptive Transitions*. Cheltenham, UK: Edward Elgar Publishing.
- Oeij, P.R.A., Rus, D., Pot, F.D (eds.) (2017). *Workplace Innovation: Theory, Research and Practice*. Series 'Aligning Perspectives on Health, Safety and Well-Being'. Springer: Cham (Switzerland).
- Oeij, P.R.A., Wiezer, N.M., Elo, A.-L., Nielsen, K., Vega, S., Wetzstein, A. & Żołnierczyk, D. (2006). Combating Psychosocial Risks in Work Organisations: Practice of Interventions in Europe. In S. McIntyre & J. Houdmont (eds.), *Occupational Health Psychology: European Perspectives on Research, Education and Practice* (Vol. 1). (pp. 233-263). European Academy of Occupational Health Psychology. Castelo de Maia: ISMAI Publishers.
- Osterman, P. (2018). In Search of the High Road: Meaning and Evidence. *ILR Review*, 71(1), 3-34.
- Pasmore, W., Francis, C., Haldeman, J., & Shani, A. (1982). Sociotechnical systems: A North American reflection on empirical studies of the seventies. *Human relations*, 35(12), 1179-1204.
- Stam, E. (2015). Entrepreneurial Ecosystems and Regional Policy: A Sympathetic Critique. *European Planning Studies* 23(9): 1759-1769.

Totterdill, P., Dhondt, S. & Milsome, S. (2002). *Partners at work?: a report to Europe's policy makers and social partners*. Nottingham: Hi-Res Project.

Taplin, D.H., Clark, H. (2012). *Theory of Change Basics. A primer on theory of change*. New York: ActKnowledge.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28 (2), 118-144, <https://doi.org/10.1016/j.jsis.2019.01.003>.

Warhurst, C., Barnes, S. & Wright, S. with Dhondt, S., Erhel, C., Greenan, N., Guergoat-Larivière M., Hamon-Cholet, S., Kalugina, E., Kangas, O., Kirov, V., Kohlgrüber, M., Mathieu, C., Murray Leach, T., Oeij, P., Perez, C., Pomares, E., Ryan-Collins, J., Schröder, A. and van der Zee, F. (2020). *D2.1 Guidance paper on key concepts, issues and developments. Conceptual framework guide and working paper*. Deliverable D2.1. Beyond 4.0.; version 2, June 2020. https://beyond4-0.eu/storage/publications/D2.1%20Guidance%20paper%20on%20key%20%20concepts,%20Issues%20and%20developments/BEY4.0_WP02_D2-1-Guidance_paper_FINAL_v2_revision_20200621.pdf