Fourth Industrial Revolution, the future of labour markets, competitiveness and welfare -
2. Transformative impact of disruptive technologies (such as block-chain, Internet of Things etc.) on public administrations (RIA)

Proposed Call: Novel technology and sustainable work

> **Challenge** Describe the specific challenge you would like to see addressed. Please refer to specific calls from the scoping paper

The new industrial policy signifies the *European Union (EU)'s* first step towards a new industrial growth model. Investment is clearly needed for the modernisation of traditional industrial sectors as well as healthcare and the emerging service sector.

New value chains and activities with sufficient potential for new growth and employment have to be fostered. This includes nurturing new economic strengths through the development of future *Disruptive technologies,* while at the same time strengthening technologies already present. Since these are long-term processes, efforts must be sustained in a consistent way by long-term strategies translated into concrete action plans; on the conversion of social needs into industrial solutions; and on the cross-fertilisation of industry policy with other policies such as employment, education, welfare and sustainable development in a broader context. The impact of disruptive technologies will not only be in the public sector but on economy in general

Whilst the paradigm shift in human-technology and human-environment interaction brought about by *Industry 4.0*, has the potential to open up new opportunities (with an emphasis on the importance of human aspects of work), the challenge is to find ways to build the prerequisites for sustainable work, as a resource for health, innovation and growth, into the system, i.e. autonomy, participation, involvement to promote learning, feedback, and structural involvement of the employees and their customers in the innovation process.

This is important since empowering work environments that enable employees and customers at all levels to use their knowledge, competences and creativity to the full, is a pre-requisite for a successful transformation impact of *Disruptive technologies*. Future sustainable work should include modern work and office concepts such as empowering job design; self-organised team working; and structured opportunities for reflection. Furthermore, they should highlight learning and improvement; include high involvement in innovation practices; encourage entrepreneurial behaviour at all levels of the organisation; and ensure employee representation in strategic decision-making. Finally, disruptive technologies as part of the gig economy, big data and block chain also have a strong impact on traditional or obsolete technologies and on the labour market structure. Automatization

and digitalisation will lead to a turn-over of both jobs and enterprises, highlighting the need for skill upgrading and secure transition.

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Scope Describe the scope the specific topic should have, incl target group

Research activities should address the following issues:

- Determination of the prerequisites for embedding novel technologies into an innovative social organisation (within the workplace) i.e. to look for what is important and valuable in a given work context. The aim is to reconcile up-to-date and well performing systems with high engagement and high performance workplaces that enables contacts with the customers. The methods should include measuring the transformation impact of *disruptive technologies* on business strategies; organisational cultures and structures and management processes, and working conditions and workplaces.
- Development of methods and practical tools for the sustainability of the work (such as proactive means (and prevention) through design methods), to address the impact of disruptive technologies on work content, work processes and the working environment for both employees and customers. Focus, in this regard, should be on empowerment; job design; organisational structures; opportunities for learning and improvement; safety and health at work; high Involvement innovation practises; and employee representation in strategic decision making.
- Determination of the prerequisites to adapt to the education systems, workplace learning arenas, transition skills and capacities of the workers to the new forms of work promoted by *disruptive technologies.* Attention also has to be paid to gender, age, ethnicity and experience levels. The influence of *disruptive technologies* on mental and physical loads for the individual worker attention needs also be studied so as to secure that developing tasks promote health and well-being (prevention by design).

Change. What **Impact** Describe the societal and economic impact the proposed topic should have on the Society if the benefit if this problem is addressed e.g. policy change, health improvement, effect on employment, cost reduction, etc)

• Higher performance against a wide range of business indicators – including potential *win-win* outcomes, which benefit employers, employees and the customers/patients.
• Modern resilient, sustainable and competitive novel technologies and public sector organisations.
• Knowledge transfer from industrial high-efficiency production to public sectors (such as service and health-care) and *Small and Medium-sized Enterprises* (SMEs).
• A more wide-spread interest across Europe for sustainable work, rendering Europe's current and future leading businesses and organisations ready for new work concepts i.e. job design; work organisation; skills development; health-promoting mental and physical jobs; and concert action of workers and consumers as a tool for innovation and growth.
• Stronger focus of the interaction between higher education, research environments and enterprises to support organizational learning and a culture of collaboration between academia, the public sector and private enterprises, including civil society organisations.

Possible **type of action** (RIA/IA/CSA/

RIA

EU added value. Describe how this links to and complement other European initiatives(and/or fills this gap). Describe the added value to address this this issue with European partners

This proposal links to the work of DG Employment as well as to the three European agencies, Eurofound (Sustainable work and Workplace innovation), EU-OSHA (The impact of digitalisation on health and safety in 2030) and Cedefop (Future skills need).

6. **Support** What other organisations and/or countries support this issue/topic

PEROSH (Partnership for European Research on Occupational Safety and Health), ISEE?? EPICOH?

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