# **Appendix 1: Methodological strategy**

**1. Analysed documents from international institutions on the digital transformation (2015-2020)**

The sample of documents from international institutions (ILO, OECD and WB) is listed here. It consisted in various types of documents published by these three organisations between 2015 and 2020, when they developed a series of initiatives and research projects related to the digital transformation. The number of publications was large, considering these agencies had many departments and units working on this agenda.

In order to reduce the sample to a manageable number of documents -one that could be qualitatively analysed in depth-, it was limited to those pieces that resulted from searching ‘digital technologies’; ‘digitalisation’; ‘digital transformation’ on the websites of the mentioned institutions. They had to contain such keywords in the description of the documents, and have either a regional or a global focus. The latter criterion was relevant since there were numerous publications on individual countries, which were difficult to include in the sample given their extension and specificity. The study is about global social policy, and in that sense the national focus was less relevant in terms of picking documents.

The list is, in line with the previous, not exhaustive, but certainly indicative of the approaches promoted by these institutions, and of the initiatives they put in place to address the digital transformation. These are the documents considered for the analysis:

**A. ILO documents on digital technologies and social policy (2015-20)[[1]](#footnote-1):**

| **Year** | **Author** | **Report** | **Type of document** |
| --- | --- | --- | --- |
| **2015** | ILO | The future of work centenary initiative | Proceedings |
| **2016** | Meda, D. | The future of work: the meaning and value of work in Europe | Study |
| Nubler, I. | New technologies. A jobless future or a golden age of creation | Study |
| ILO | ASEAN in transformation. The future of jobs at risk of automation | Study |
| ILO | Social contract and the future of work | Brief |
| ILO | Building an inclusive future with decent work. Towards sustainable development in Asia and the Pacific | Report |
| Berg, J | Income security in the on-demand economy. Findings and policy lessons from a survey of crowdworkers | Study |
| Walwei, U | Digitalization and structural labour market problems | Study |
| ILO | A challenging future for the employment relationship | Brief |
| ILO | The future of labour supply. Demographics, migration, unpaid labour | Brief |
| Ryder, G | Statement ILO-EESC Conference on the future of work | Statement |
| ILO | Technological changes and work in the future | Brief |
| **2017** | ILO | Inception report for the Global Commission of the Future of Work | Report |
| Kucera, D | New automation technologies and job creation and destruction dynamics | Study |
| ILO | Gender dimensions of employment trends and future of work | Report |
| Jayne, T et al | The future of work in African agriculture: trends and drivers of change | Study |
| Salazar J | The future of work, employment and skills in Latin America and the Caribbean | Study |
| ILO & Eurofond | Working anytime, anywhere. The effects on the world of work | Report |
| ILO | Cooperation in a changing world of work. Towards a cooperative future | Brief |
| ILO | The future of work we want. A global dialogue | Proceedings |
| IOE | Understanding the future of work | Report |
| ITUC | ITUC 2017 Global Poll | Report |
| ITUC | The future of work | Report |
| **2018** | Balliester, T & Elsheikhi, A | The future of work. A literature review | Study |
| Weber, E | Setting out for digital social security | Study |
| De Stefano, V | “Negotiating the algorithm”: automation, artificial intelligence and labour protection | Study |
| ILO | Back to the Future. Challenges and opportunities for the future of work addressed in ILO sectoral meetings since 2010 | Report |
| Chacaltana, J et al | New technologies and the transition to formality: the trend towards e–formality | Study |
| ILO | The impact of technology on the quality and quantity of jobs | Brief |
| Behrendt, C & Nguyen, Q A | Innovative approaches for ensuring universal social protection for the future of work | Study |
| ILO | Care work and care jobs for the future of decent work | Brief |
| ILO | Individuals, work and society | Brief |
| Ryder, G | Statement at the Annual Meeting of the WB and the IMF on the future of work | Statement |
| ILO | Job quality in the platform economy | Brief |
| ILO | New directions for the governance of work | Brief |
| ILO | New business models for inclusive growth | Brief |
| ILO | Skills policies and systems for a future workforce | Brief |
| ILO | Managing transitions over the life cycle | Brief |
| Montt, G et al | The future of work in a chaning natural environment. Climate change, degradation and sustainability | Study |
| Carbonero, F et al | Robots worldwide. The impact of automation on employment and trade | Study |
| ILO | ILO expresses concern about World Bank report on future of work | Statement |
| ILO | Global Commission on Future of Work - Five things you need to know | Statement |
| Ortiz, I et al | Universal Basic Income proposals in light of ILO standards | Study |
| Moore, P | The threat of physical and psychosocial violence and harassment in digitalized work | Study |
| Ernst, E et al | The economics of artificial intelligence. Implications for the future of work | Study |
| ILO | Global value chains for an inclusive and sustainable future | Brief |
| **2019** | ILO | Work for a brighter future. Global Commission of the future of work | Report |
| ILO | A quantum leap on gender equality for the future of work | Report |
| Ryder, G | Correctly valuing the work of the future | Brief |
| Ryder, G | Statement at the Annual Meeting of the WB and the IMF | Statement |
| ILO | Skills for a greener future | Brief |
| ILO | Lifelong learning: concepts, issues and actions | Report |
| ILO & IOE | Changing business and opportunities for employers’ and business organizations | Report |
| **2020** | ILO | The future of work in the digital economy | Report |
| ILO | Digital skills and the future of work. Challenges and opportunities in a post COVID-19 environment | Brief |
| ILO | Using digital technologies in employment-intensive works | Brief |
| ILO | Skill-Up Programme results. Building a skills ecosystem | Report |
| ILO | The feasibility of using big data in anticipating and matching skills needs | Report |
| De Mattos et al | Robotics and reshoring. Employment implications for developing countries | Study |

Source: Author

**B. OECD documents on digital technologies and social policy (2015-20)[[2]](#footnote-2):**

| **Year of publication** | **Author** | **Title** | **Type of document** |
| --- | --- | --- | --- |
| **2015** | OECD | OECD Digital Economy Outlook 2015 | Book |
| OECD | Government at a glance 2015: digital government |  |
| OECD | OECD Science, Technology and Industry Scoreboard 2015 | Book |
| OECD | Digital security risk management for economic and social prosperity | Report |
| **2016** | OECD | OECD Labour and Employment ministerial statement. Building more resilient and inclusive labour markets | Statement |
| OECD | Automation and independent work in a digital economy | Policy brief |
| OECD | The future of work policy forum. Issues paper | Statement |
| Arntz, M et al | The risk of automation for jobs in OECD countries: a comparative analysis | Working paper |
| Berger T et al | Structural transformation in the OECD. Digitalisation, de-industrialisation and the future of work | Working paper |
| De Backer K et al | Reshoring: myth or reality? | Working paper |
| Scarpetta, S | What future for work? | Article |
| **2017** | OECD | Basic income as a policy option | Policy brief |
| OECD | OECD work on education and skills | Policy brief |
| OECD | OECD Employment Outlook 2017 | Book |
| OECD | Future of work and skills | Policy brief |
| OECD | Going digital: the future of work for women | Policy brief |
| OECD | Draft reports on computers and the future of skills demand | Report |
| OECD | Draft Summary Record: 130th Session of the Employment, Labour and Social Affairs Committee (ELSAC) | Proceedings |
| Breemersch, K et al | Labour market polarisation in advanced countries | Working paper |
| Gurria, A | Opening remarks by OECD Secretary-General. High-Level Policy Forum on the New OECD Jobs Strategy | Statement |
| **2018** | OECD | Good jobs for all in a changing world of work. The OECD Jobs Strategy | Book |
| OECD | Job creation and local economic development 2018: preparing for the future of work | Book |
| OECD-ILO | Building Trust in a Changing World of Work. The Global Deal for Decent Work and Inclusive Growth Flagship Report 2018 | Report |
| OECD | Social Policy for Shared Prosperity: Embracing the Future. Statement of the 2018 OECD Ministerial Meeting on Social Policy | Statement |
| OECD | OECD Science, Technology and Innovation Outlook 2018 | Book |
| OECD | OECD Employment Outlook 2018 | Book |
| OECD | Achieving inclusive growth in the face of digital transformation and the future of work. OECD report to G20 Finance Ministers | Report |
| Andrews et al | Digital technology diffusion: a matter of capabilities, incentives or both? | Working paper |
| De Backer K et al | Industrial robotics and the global organisation of production | Working paper |
| Grundke, R et al | Which skills for the digital era? Returns to skills analysis | Working paper |
| Nedelkolska, L et al | Automation, skills use and training | Working paper |
| **2019** | OECD | 2019 Ministerial Council Statement. Harnessing Digital Transition for Sustainable Development: Opportunities and Challenges | Statement |
| OECD | OECD Employment Outlook 2019. The future of work | Book |
| OECD | OECD Skills Strategy 2019. Skills to shape a better future | Book |
| OECD | Negotiating our way up. Collective bargaining in a changing world of work | Book |
| OECD | Individual Learning Accounts: Design is key for success | Policy brief |
| OECD | An introduction to online platforms and their role in the digital transformation | Book |
| OECD | Artificial intelligence in society | Book |
| OECD | Going digital: shaping policies, improving lives | Book |
| Gurria, A | Setting course for a human-centred AI | Statement |
| Milanez, A | Taxation and the future of work | Working paper |
| Salvatori, A et al | Job polarisation and the middle class | Working paper |
| **2020** | OECD | OECD Employment Outlook 2020. Worker security and the covid-19 crisis | Book |
| OECD | OECD.AI Policy Observatory. A platform to share and shape AI policies | Report |
| Crivellaro et al | Going national: implementing the OECD Jobs Strategy | Working paper |
| Gurria, A | Global Deal Conference. Social dialogue for a better future of work. Opening remarks | Statement |
| Pak, M et al | Implementing the OECD jobs strategy | Working paper |
| Soto, D | Technology and the future of work in emerging economies: what is different? | Working paper |

Source: Author

**C. WB documents on digital technologies and social policy (2015-20)[[3]](#footnote-3):**

| **Year of publication** | **Author** | **Title** | **Type of document** |
| --- | --- | --- | --- |
| **2015** | Eden, M et al | On the welfare implications of automation | Working paper |
| **2016** | WB | World Development Report 2016: Digital dividends | Book |
| Maloney, W et al | Are automation and trade polarizing country labor markets too? | Working paper |
| Cunningham W et al | Employer voices, employer demands, and implications for public skills development policy | Working paper |
| **2017** | Cunningham W et al | Vietnam's future jobs. Leveraging mega-trends for greater prosperity | Report |
| WB | The future of work requires more, not less technology in developing countries | Brief |
| **2018** | WB | The Human Capital Project | Report |
| WB | The future of work: race with –not against- the machine | Brief |
| WB | Framing the future of work | Brief |
| WB | Consultation for World Development Report 2019 | Website |
| WB | A multiplicity of skills is needed to succeed | Brief |
| Kim J | The human capital gap. Getting governments to invest in people | Statement |
| Kraay, A | Methodology for a World Bank Human Capital Index | Working paper |
| **2019** | WB | World Development Report 2019: The changing nature of work | Book |
| WB | Human Capital Project: year 1 progress report | Report |
| WB | WB Africa Human Capital Plan | Report |
| Artuc, E et al | Does automation in rich countries hurt developing ones? Evidence from the U.S. and Mexico | Working paper |
| Choi, J | The future of work in Africa | Book |
| Djankov, S et al | The changing nature of work | Paper |
| Packard, T et al | Protecting all. Risk sharing for a diverse and diversifying world of work | Book |
| **2020** | WB | World Development Report 2020: Trading for development in the age of global value chains | Book |
| WB | Jobs diagnostics: a step-by-step guide | Brief |
| WB | Adapting jobs policies and programs in the face of accelerated technological change | Brief |
| WB | Africa Human Capital Plan. Progress report, year one | Report |
| Christiansen L et al | The future of work in agriculture - some reflections | Working paper |
| Gentilini, U et al | Exploring universal basic income. A guide to navigating concepts, evidence, and practices | Book |

Source: Author

**2. Coding matrix for document analysis**

The following coding matrix[[4]](#footnote-4) was designed to examine the documents involved in the sample. I utilised NVivo 12 to codify the majority of the documents, using the license provided by the academic institution where I am affiliated.

The rationale behind this matrix follows a distinction between different types of ideas in political research, offered by Mehta[[5]](#footnote-5). This typology distinguishes between problem definitions, policy solutions and conceptual foundations. The first refer to the representation of policy issues; the assumptions that underlie their construction and their possible effects on society. The second element alludes to programmes and their outcomes, as well as the conditions that made them possible, like the existence of evidence or responsible agencies that push them forward. Lastly, the conceptual dimension corresponds to the ideational basis of the different arguments supported by policy actors, which can be either cognitive or normative ideas, as Schmidt suggests[[6]](#footnote-6).

The three mentioned categories were then operationalised through sub-categories and rules of codification that specify what type of contents should be coded. The coding matrix, with some examples, is the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Categories** | **Sub-categories** | **Rules of codification** | **Examples** |
| **I. Problem definition** | a. Problem representation | Currently or potentially harmful aspects of digital technologies | Technological unemployment; deskilling; surveillance |
| b. Assumptions | Key concepts, binaries, or categorisations that underlie the support the representation of the problem | Man versus machine; productivity; race between technology and skills; decent work |
| c. Origins | Historical and epistemological sources of the problem definition | Econometric modelling; simulations; critical epistemology |
| d. Unproblematic aspects | Elements of the problem that are left aside but, in comparison, highlighted by other representations | Human and environmental costs of economic growth; beneficial or negative consequences of technological evolution |
| e. Effects | Material impact of such representation. Institutional changes; who benefits and who harms | Increasing economic productivity; promoting social protection for workers |
| f. Dissemination | Diffusion strategies and reception in the media and other audiences | Publication of reports; advertisement in social networks; organisation of conferences |
| **II. Policy solutions** | a. Programmes | Measures and plans aimed to be developed by any governance system (global, national, local) that is supposed to be a solution for the problem | Continuous training; universal basic income; robot tax; reforming higher education; |
| b. Expected outcomes | Expected results from the programmes as their potential beneficiaries | National economies; workers; employers; governments |
| c. Limiting factors | Factors that could alter the expected outcomes | State of the global economy; adoption of new technologies; international relations; class conflict |
| d. Responsible agencies | Governance agencies that are supposed to develop the programmes | Intergovernmental organisations; national governments; companies; individuals |
| e. Evidence | Conceptual and empirical grounds that justify the implementation of the policies | Empirical data; successful or failed cases; best practices |
| **III. Conceptual foundations** | a. Cognitive ideas | Notions used to define a state of affairs or an empirical object | Digital transformation; digital economy; automation; robotisation; platform work |
| b. Normative ideas | Notions used as a normative horizon towards which actions should be oriented | Inclusiveness; economic growth; development; social protection |

Source: Author

1. Available on: <https://www.ilo.org/global/lang--en/index.htm> [↑](#footnote-ref-1)
2. Available on: <https://www.oecd.org/> [↑](#footnote-ref-2)
3. Available on: <https://www.worldbank.org/en/home> [↑](#footnote-ref-3)
4. A strategy suggested by Gibbs G (2014) *Using software in qualitative analysis*. In: Flick U (ed.) The SAGE Handbook of Qualitative Data Analysis. London: Sage, pp. 277–294; Mayring P (2000) Qualitative content analysis. *Forum Qualitative Social Research* 1(2): 10. [↑](#footnote-ref-4)
5. Mehta J (2011) The varied roles of ideas in politics. From “whether” to “how.” In: Belánd D and Cox RH (eds) *Ideas and Politics in Social Science Research*. New York: Oxford University Press, pp. 23–46. [↑](#footnote-ref-5)
6. Schmidt VA (2010) Taking ideas and discourse seriously: Explaining change through discursive institutionalism as the fourth ‘new institutionalism’. European Political Science Review 2(1): 1–25 [↑](#footnote-ref-6)