

Connectedness, activism and dignity at work in a precarious era
Thursday 26 August 2021

**Institutional Complementarities and Technological
Transformation: Analysing VET Responsiveness in the Context
of Industry 4.0 Skills Needs and Workforce Development**

Luca Antonazzo, Dean Stroud, Martin Weinel

Cardiff University



Industry 4.0

- I4.0 relies on key innovations, such as ICT and robotics and more recent concepts, such as the Internet of Things, Cyber-Physical Systems, Cloud Computing, Big Data and Artificial Intelligence.
- Industry 4.0, aims to achieve a thorough interconnection of all the elements taking part in the value-added process, transforming analogue data into digital data and using cloud computing and data science to improve efficiency and competitiveness.
- The technological and organisational transformations that stem from Industry 4.0 will change the kind of skills, competencies and qualifications that are needed in the future

VET trends in Europe

- Strengthening the ties between IVET and the labour market (involving employers more in the design of the qualifications)
- Relaunching apprenticeships as a way to anchor training to actual jobs (e.g., ‘duality’)
- Broadening courses contents to equip learners with more transversal skills
- Extending and strengthening IVET provision at post-secondary and tertiary level

Theoretical framework

VoC approach distinguishes between:

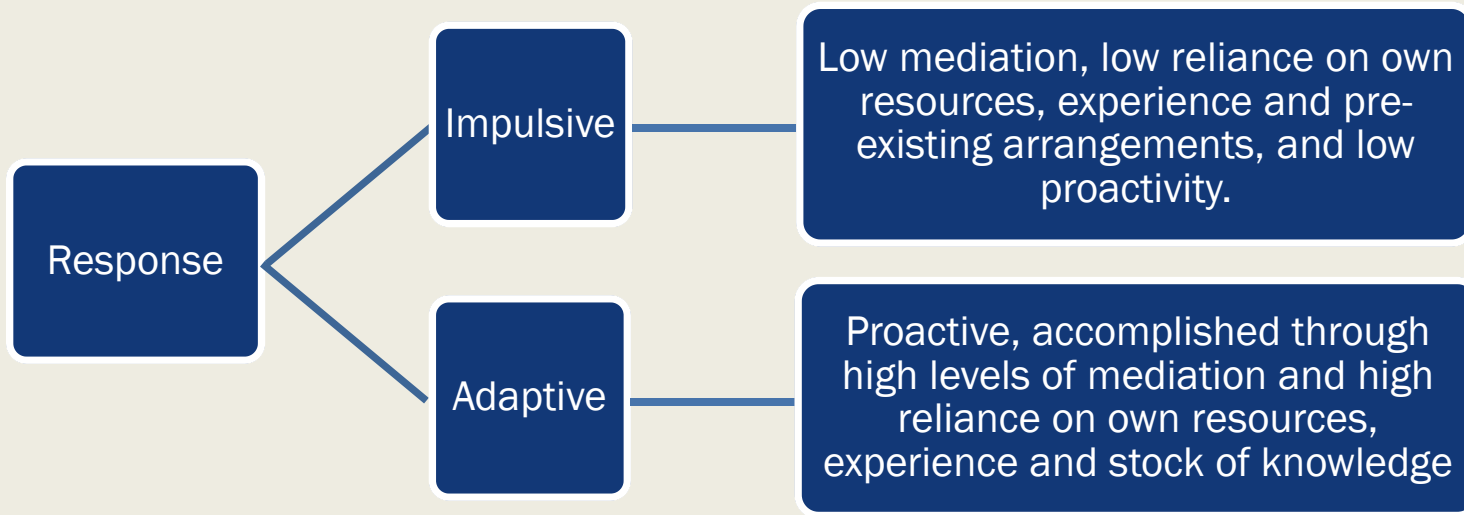
- **LMEs** characterized by the primary role of the market in regulating the economic system's dynamics. This leads to short-term strategies based on high returns and short payback and low trust relations between firms, and between firms and institutional actors.
- **CMEs** characterized by state intervention that regulates economic dynamics within the market. Here firms are strongly linked through sectoral associations and with the relevant social partners. Companies are encouraged to adopt more long-term strategies and are less dependent on financial markets.
- **Mediterranean model** based on more employment protection and less social protection than CMSs. It relies on a large set of family-based small firms and the prominent role of the state in the economy. It is also characterized by a relatively low level of market competition and by a workforce with more general than specialised skills.

VET responsiveness: impulsive & adaptive

Response: *Impulsive vs Adaptive*

1. **Mediation:** will or capacity to translate exogenous pressures into a national agenda, selecting a response strategy among many possible. Proactively anticipate potential challenges. Define a trajectory of societal change.
2. **Optimisation:** systematic learning, rather than ad hoc solutions. Problems are confronted building on one's own resources, experience and stock of knowledge, and pre-existing arrangements.

VET responsiveness: impulsive & adaptive



VET is embedded in a **wider institutional context** (industrial relations, labour market etc.). The way VET responds also depends on how the broader environment conveys and supports such responses

A close up: VET reforms in Germany

- In 2018, completed review and update of the curricula for 11 metalworking and electrical qualifications to meet the new industry and market challenges
- Introduced new 'Module' on 'Digitalisation of work, data protection and information security'
- Skills gaps related to digitalisation and environmental sustainability have been tackled in dual apprenticeships by introducing new 'standard modules' and by updating existing modules on labour law and collective bargaining, as well as on occupational health and safety. Coming to effect August 2021

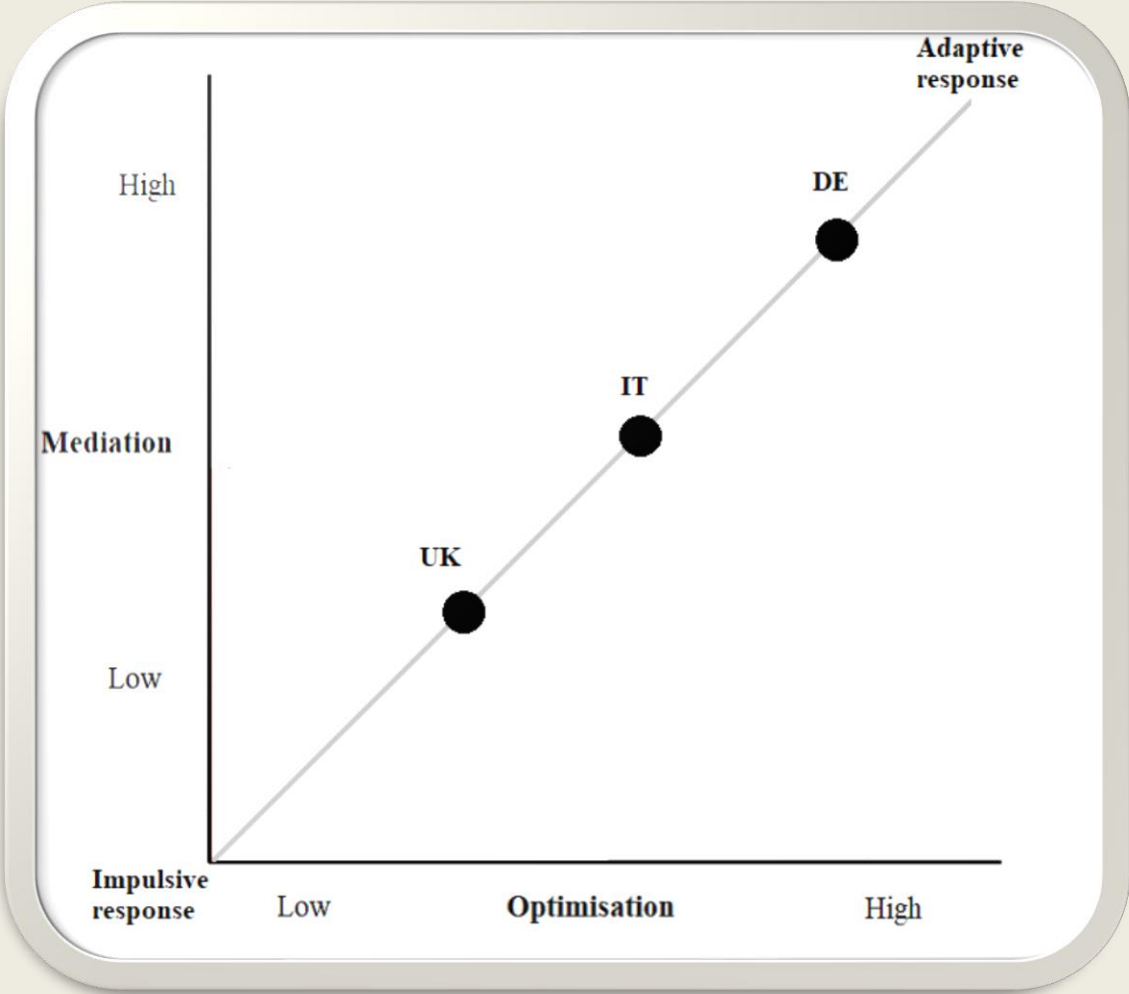
A close up: VET reforms in the United Kingdom

- Since 2015, apprenticeship frameworks being replaced by new standards developed by sectoral panels of employers, which are occupation-focused (rather than qualification-led) and combine on-the-job training and study
- Since 2017, development of new technical study programmes, T-levels, aiming to simplify and relaunch the national (England) IVET. T-levels are based also on the same standards as apprenticeships.

A close up: VET reforms in Italy

- Post-secondary level, new higher technical training programmes (ITS) established in 2008. Designed to have strong links with companies and to keep into account the industrial characteristics of the Regions.
- In 2015, established the opportunity for learners to obtain a secondary vocational qualification or a diploma in a dual-mode
- Vocational schools' curricula updated in 2017
- IVET profiles (IeFP) updated and integrated in 2019 after a two-years review process

Response model



Implications for workforce development

Liberal/market driven
systems: tendency to
produce impulsive
responses

Risk of low engagement of
employers and/or workers

Risk of scarce recognition of
standards

Undermining overall recognizability
of the system

Risk of occupational dead-ends

Implications for workforce development

Coordinated systems:
tendency to produce
adaptive responses

Changes to curricula are recognised
nationwide

System consistency preserved

Longer-term time frame of curricula and
programmes

Convergence of interests

Consolidation of qualifications within
occupational families

Implications for workforce development

14.0 requires an IVET capable of intervening on the whole spectrum of occupational profiles, updating and upskilling them to meet new challenges and navigate further industrial transformation.

- **Impulsive VET responses** might address shorter-term business needs and risk undermining the perceived value of VET (e.g., producing dead-ends, low-quality training, low trust)
- **Adaptive VET responses** seem to provide stronger grounds for tackling prospective challenges (e.g., consolidating the system, enhancing trust, establishing a positive feedback loop between employers-workers-providers)



Thank You

== For Your Attention ==

Email: antonazzol@cardiff.ac.uk