

Mixed Methodology: Combining Qualitative and Quantitative Approaches (Applied Social Research Methods)

200th Issue

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Technological Forecasting & Social Change was launched at the time of the first Moon landings in 1969. The leading individuals in academia, science and industry contributed in the early volumes of the journal included Nobel laureate Denis Gabor, who wrote about regulatory foresight in the first issue. Its title was initially Technological Forecasting, and the words and Social Change were added in Volume 2 (Linstone, 1989).

The paradigm changes that the journal has experienced, and the fast evolution of its published content—always of particular relevance to the international scientific scene—are remarkable. Reaching 200 volumes is no mean feat, and we can proudly note TFSC's high impact, the number of contributions it has carried (6,408 items in all up to October 2021) and its citation density: 70,436 citations of papers it has published. TFSC has earned its academic standing as one of the leading journals in business, technology, regional studies and urban planning. This is a good time for a retrospective review and to share with our authors and readers the range of patterns that have helped define the distinctive profile of TFSC. Its success has been due to the consistent, dedicated efforts of a team: editors (past and present), editorial review committee, associate editors, reviewers and, obviously, our authors. We also owe special thanks to the Elsevier team and editorial staff for their great contribution to this success.

Significant technological change can be precipitated out of even modest evolution in component technologies (Arthur, 2009). However, it is important to reflect on generic innovations and address the processes of substitution and the creative adaptation of existing products and services (Cunningham and Kwakkel, 2011). Automation now supports the implementation and integration of new processes and digital elements into society (Makowski and Kajikawa, 2021): it involves the link between technology, human actors, and organisational, contextual and social factors (Leonidou et al., 2018). Innovation, therefore, has the potential to address a range of problems where cutting-edge and systematic solutions are required (Ghazinoory et al., 2020). In turn, technological changes have—as often—followed the development of society, and the recent emphasis has been on the need to adopt these tools in the service of the environment. We need to keep in mind that many of the key concepts in scientific research arise because technology, psychology and institutions change at different speeds (Phillips and Linstone, 2016). This is why Technological Forecasting & Social Change encourages research on measuring the pace of social change, and their potential socio-economic impacts (Hung et al., 2009). Its

mission is to help us to understand the rate at which changes are generated, the environmental impacts they produce, the evolution with which they are associated in the culture and tradition of each society and the role of emerging technologies. This is why digitalisation should be seen as transforming and shaping many of our habits, thus driving social change. Therefore we must bear in mind Phillips' argument (2008) that when technologies advance beyond the speed of social evolution, problems occur. This leads us to examine the different types of innovations and their economic impact, which "because of the amount of new knowledge provided (Dewar and Dutton, 1986)" generates particular interest in both radical innovations (Garcia and Calantone, 2002) and incremental innovations (Souto, 2015).

User resistance is one of the main problems in introducing technologies, which often generate barriers of use, value and risk (Huang, and Coghlan, 2021). Therefore, these limitations should be taken into account in research on innovation. Other, linked issues are cost and scalability. This is why technological collaborations take on particular importance globally: they facilitate improvements in organisations' innovative capacities (Santamaría et al., 2021), allows resources to be shared, costs to be reduced, uncertainty around scalability to be reduced, and technological scope to be expanded (Becker and Dietz, 2004). From the point of view of organisations wishing to boost their positioning and development, innovation must be managed efficiently and take into account the variables that influence each strategic action: this means they must focus on learning within their ecosystem (Radziwon and Bogers, 2019). Sustainability as an issue becomes more important in society because, with the arrival of new technologies, many companies have suffered, suffer now and will suffer problems in their adaptation and development. Technology managers are increasingly faced with decision-making problems and the development of society (Cunningham and Van Der Lei, 2009). The field of technology embraces increasingly complex new social and organisational systems whose detailed behaviours seem unpredictable (Cowan et al., 1999). TFSC has therefore favoured both quantitative and qualitative approaches, and it continues to pose ever-more challenging, holistic research objectives and approaches.

The influence of strategic commitment to environmental issues on product and process innovation (Haddoud et al., 2021) will continue to grow, as it is very relevant to the contribution of differential value in organisations, and technology once again has a part to play (Petruzzelli et al., 2011). For this reason, a range of different contributions, methods and tools need to be used in identifying trends and models, in order to provide an overview of

the problem and thus to contribute to sustainable development. Human capital and technologies will play a fundamental role. The Sustainable Development Goals (SDGs) must also be considered: the UN 2030 Agenda contains eighteen points, including social vulnerability, promulgated to raise awareness and envision a better future.

Given the large collaborative networks that have emerged in the business environment, the organisation's differential value must be studied. This requires understanding how the business culture is dynamic and open to change. Networking through technology has been critical in the dissemination and standardisation of tools and processes, and this in turn continually encourages further development. In adapting to the changing needs of society, businesses need to note that information per se has also been affected by digitalisation, so that any person with Internet connectivity becomes a content provider (Phillips, 2011). Moreover, given the need to adapt to change and detect opportunities, creativity and critical thinking are essential. They always have been so, but now they are especially relevant to particular business strategies. Digitalisation, machine learning, natural language processing, and big data have driven change in recent years. It will therefore be highly advisable to see these tools as resources, contributing to the innovation and development that enable survival in the dynamic competitive landscape.

Society has the capacity for change, but it will require widespread awareness and scientific input if it is to be managed appropriately and if organisations are to adapt to new requirements. This means optimising our understanding of change and its repercussions, soon, and thinking hard about new paradigms. These are influenced by forecasts, emerging technologies, environmental changes and the proximity and instantaneity of information. This is why knowledge of society is crucial, as technology must support the needs of people and organisations. Economic development must ensure equality and competitiveness, and enable us to approach a sustainable and open society.

Society stands at a tipping point. Careful, forward-thinking analysis and research are needed to aid the search for strategic solutions. In this, innovation and development will be fundamentally important, along with technological change and the willingness to make the best uses of technology. This call for papers highlights the need to focus on the near future and reflect on the global issues raised. As Linstone and Phillips wrote (2013), the globalisation of research has a significant, positive impact, as it allows the generation of multicultural teams, which leads to an increase in innovative thinking and the sharing of solutions in new application environments.

In this special volume, we cannot overlook the pandemic crisis that the world has suffered, COVID-19, as it has had significant impacts on the way we consume content and has increased the digitisation of science. TFSC, indeed,

proactively adapted to change during the pandemic. We have fostered broader connections between researchers, new international networks, and consequently new high-impact papers and future lines of research. Examples of cited research in this area are (Islam et al., 2020), who analysed the lack of information during the pandemic, (Belhadi et al., 2021), who considered resilience in the supply chain during the health crisis and (Å kare et al., 2021) who considered the impacts on tourism and their consequences. Thus the journal continues its tradition of demonstrating the proactive capacity to adapt to critical situations. For example, we encourage contributions on current issues that are not only scientifically rigorous but also explore the links with related variables. These include the impacts of emerging technologies, predictions on innovation and national and international policies on regional development, science and technology. As a result, works of high scientific power stand out, always referring to current trends and issues, ratifying through their scientific rigour the connections with social development. And so the growth of the impact of our journal continues.

For the special '200 volume', researchers are invited to contribute critical and conscious reflection based on research. We anticipate glimpses of future trends and insights into how society can be prepared for continuous and dynamic change. We will therefore welcome papers that explore significant topics related to digital change and its impact on society. As Phillips (2008) argued, there are many new issues and many new tools available, so models that interact with new data sources and available technologies will be required; this increases the importance of studying emerging and unstructured concepts. Phillips also has highlighted (2019) the links between technological change and social change, links that TFSC has worked on as technology and sustainability have become key elements of global scientific and industrial analysis. We intend to revisit contributions on the emerging new paradigm because there is a growing need to consider their cross-cutting nature in seeking a deeper understanding of these lines of research. So research papers that discuss keys to understanding future possibilities, or examine forecasts for the future, will be positively valued. Although awareness of issues such as technology and innovation in the context of climate change is already high, we urge that special attention be paid to them, as there is a critical need to enrich the various lines of research.

Therefore, for this special 200th issue, we invite scholars to submit studies in one of the following seven 'big areas of interest'. They are related, but with differentiating characteristics and the suggested - but not exhaustive - list of topics in each one is:

1. Climate change scenarios

Sustainability supported by digitalisation.

The green economy and digitalisation.

Sustainable development: reducing economic inequalities.

The characterisation and control of environmental changes.

The circular economy: human capital and economic growth towards global sustainability.

2. Emerging technologies

Big data and business strategy.

The Internet of Things (IoT): economic interconnections.

The cloud economy and economic sustainability.

Social and economic welfare from the perspective of social networks.

Robotics as part of the new age economy.

Artificial intelligence applied to business process optimisation.

Natural Language Processing (NLP) and its impact on business positioning.

3. Foresight

The new paradigm: review and optimisation of implemented business design criteria and their prospects.

The homogenisation of economic trends through digitalisation: Challenges of the postmodern society.

International positioning: social networks as a business tool and brand image in the future.

The evaluation and optimisation of relevant processes through process mining.

Big data and forecasting.

Machine learning: prediction for the near future.

4. Firm-level innovation

Rethinking the organisational structure in view of the changes and innovations of recent years.

Corporate social responsibility.

Evolution, industrialisation and innovation through new business models.

The integration of agile methodologies: challenges for regional development.

Metacognitive awareness for the development of business-critical thinking.

5. National policies for science and technology

National and regional policies for S&T

The impact of the SDGs on society.

Monitoring the economy and the interactive management of pandemic situations.

Innovation and the development of new economic policies that support sustainability and growth.

The evolution of government policies during the last decade.

The role of policies applied to entrepreneurship over the years.

6. New products and markets

Megacities, digitalisation and its global economic impact.

Increasing product quality and customer services.

Monitoring the economy, the interactive management of pandemic situations and their influence on the market.

Virtual reality and its development through R&D in organisations.

7. Technology adoption modelling

Technology adoption and diffusion modelling.

The evolution of entrepreneurship supported by the digitalisation of processes.

Disruptive innovations of the past that continue to be efficient in the present.

The automation of processes and its influence in the current economy.

Social media and the collaborative economy.

Social Networks as support for the internationalisation of business processes.

To sum up, continuous evolution leads to redefinitions of established parameters in society, so we hope this special issue will raise new forecasts that help readers transform and reformulate strategies and become more aware of the current situation of international markets. In the past, changes were carried out slowly, but nowadays evolution is constant. In other words, we must adopt the concept of business future thinking in order to consider and promote a collaborative, digital and open society. Researchers, therefore, should rethink existing models and envision new

adaptations that consider changes in behaviour, emerging technologies and the environment.

Important dates

The timeline of this special issue is as follows:

Submission dates: September 01, 2022 to February 28, 2023.

Review process: On a rolling basis from September 2022 to June 2023.

Publication: this is a VSI. Accepted papers will be published online immediately upon acceptance and will be included in the next available issue of the journal.

Submission guidelines

Kindly submit your paper to the Special Issue category (VSI: 200) through the online submission system (<https://www.editorialmanager.com/tfs/default.aspx>) of Technological Forecasting & Social Change. All the submissions should follow the general author guidelines of Technological Forecasting & Social Change available at <https://www.elsevier.com/journals/technological-forecasting-and-social-change/0040-1625/guide-for-authors>.

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