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**Corporate Governance and
the Innovative Economy:
Policy Implications**

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Abstract

Corporate governance is concerned with the institutions that influence the ways in which business corporations allocate resources and returns. Our approach to the analysis of corporate governance and its policy implications focuses on its relation to the innovation process and the innovative economy. We identify four different types of corporate governance institutions – executive, supervisory, consultative, and regulatory -- based on different relations with the locus of decision-making power over the allocation of corporate resources and returns. The prime foci for corporate governance policy are two: First, the reform of corporate governance institutions so that they provide better support to the innovation process. Second, the reform of corporate governance processes so that, within the framework of the governance institutions, they encourage corporate strategies that entail allocations of resources and returns to broader and deeper skill bases that can engage in organisational learning.

Keywords: Corporate governance, innovation, strategy, organisational learning, economic performance

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Corporate Governance and the Innovative Economy: Policy implications

1. Systems of Corporate Governance

Corporate governance is concerned with the institutions that influence the ways in which business corporations allocate resources and returns. Corporate governance is important for business enterprises because it both enables and proscribes strategic decisions concerning the types of investments that corporations should make and to whom the returns on these investments should be distributed. Corporate governance is also important for national economies, and for the EU, because of the central role that corporations play in the allocation of resources and returns on national and international levels.

Within the EU many different national systems of corporate governance prevail. Currently, however, European integration and globalization are creating pressures toward convergence to a common system. There are contending national models of corporate governance, emanating from advanced economies such as Germany, the United Kingdom, Japan, and the United States, that support different types of corporate allocation decisions concerning investments in productive capabilities and the distribution of corporate revenues. Despite these differences, all of the models purport, in one way or another, to enhance economic performance. What distinguishes the models of corporate governance from one another are different views of the sources and measures of superior economic performance, including the types of investments that “create value”, the distribution of returns among different participants in the economy, and the sustainability of superior economic performance over time.

Our approach to the analysis of corporate governance and its policy implications focuses on its relation to the innovation process and the innovative economy.¹ With

¹ For the ISE research by the authors on which this paper builds, see William Lazonick and Mary O'Sullivan, “The Governance of Innovation”; and Mary O'Sullivan, “The Innovative Enterprise and Corporate Governance.” See also William Lazonick and Mary O'Sullivan, “Big Business and Skill Formation in the Wealthiest Nations: The Organizational Revolution in the Twentieth Century,” in

a view toward promoting innovation within enterprises, nations, and the EU as a whole, what type of corporate governance system should the EU put in place? What types of reforms of national systems of corporate governance would have to be made to move toward a European system of corporate governance that promotes innovation? Quite apart from national and EU policy initiatives, are current changes in systems of corporate governance in Europe supporting or undermining the innovation process? Should EU corporate governance policy seek to encourage or counter trends that are already taking place?

Answers to these questions require:

1. a characterisation of the innovation process that captures its essential features as revealed by a large body of empirical work;
2. an analysis of the implications of this characterisation for the ways in which corporations allocate resources and returns to generate innovation, or what we might call an “innovative allocative process”;
3. the implications of the resultant characterisation of the innovative allocative process for policies that seek to reform corporate governance to promote innovation.

Drawing on previous empirical research into, and theoretical analyses of, the innovation process, corporate strategy, and corporate governance, this paper provides a broad conceptual framework for formulating corporate governance policy for an innovative economy. Our goal here is to introduce policy makers who seek to promote innovation in enterprises and economies to a coherent perspective on the relation between corporate governance and innovative performance. This perspective

Alfred D. Chandler, Jr., Franco Amatori, and Takashi Hikino, *Big Business and the Wealth of Nations*, Cambridge University Press, 1996; William Lazonick and Mary O’Sullivan, “Organization, Finance, and International Competition,” *Industrial and Corporate Change*, 5, 1, 1996; William Lazonick and Mary O’Sullivan, “Finance and Industrial Development, Parts I and II,” *Financial History Review*, 4, 1 and 2, 1997; William Lazonick and Mary O’Sullivan, “Corporate Governance and Corporate Employment: Is Prosperity Sustainable in The United States?” Jerome Levy Economics Institute Working Paper No. 183, January 1997, abridged as “Investment in Innovation, Corporate Governance, and Employment: Is Prosperity Sustainable in the United States?” Jerome Levy Economics Institute Policy Brief No. 73, 1997; William Lazonick, “Organizational Learning and International Competition: The Skill-Base Hypothesis,” Jerome Levy Economics Institute Working Paper No. 201, August 1997 (revised September 1997); William Lazonick and Mary O’Sullivan, “Corporate Strategy, Organizational Learning, and International Competition,” paper presented to the Conference on Corporations and Human Capital, sponsored by the Brookings Institution and the MIT Sloan School of Management, January 12, 1998; Mary O’Sullivan, “The Political Economy of German Corporate Governance,” Jerome Levy Economics Institute Working Paper, forthcoming February 1998; William Lazonick, “The Japanese Financial Crisis, Corporate Governance, and Sustainable Prosperity,” Jerome Levy Economics Institute Working Paper, forthcoming February 1998

will help policy makers to discriminate among contending theories of corporate governance and to formulate policies that take into account the socio-economic realities of particular places and times.

2. Characterisation of the Innovation Process

The innovation process develops and utilises productive resources to generate higher quality and/or lower cost products than had previously been available at prevailing factor prices. By definition, a learning process underlies the innovation process; if we already knew how to generate higher quality, lower cost products, and then the act of doing so would not require innovation. The learning process generates and integrates specialised knowledge that makes innovation possible. Research on the innovation process as it has occurred in the advanced economies reveals that the learning process is *cumulative, collective, and uncertain*.

The learning process is cumulative when what has already been learned provides a foundation for what can be learned. There are different ways for individuals to absorb existing knowledge as a basis for generating new knowledge. The particular path that learning takes affects what those who follow this path ultimately know. The alternative hypothesis would be that the acquisition of specialised learning is independent of prior specialised learning, thus permitting individuals to acquire specialised learning when and if it is required. The empirical evidence supports the proposition that the capability of individuals to absorb existing specialised knowledge and generate new specialised knowledge cumulates over time.

The learning process is collective when the generation of new knowledge is the result of the interaction of individuals engaged in learning rather than the combination of the different types of specialised knowledge that different individuals have learned. Collective learning means that, through the interaction of individuals in the knowledge-creation process, specialised knowledge develops as part of an integrated body of knowledge. The types of problems that individuals with specialised knowledge confront and hence the way in which individuals cumulate that specialised knowledge over time depend on the challenges and progress of the learning collectivity as a whole. The alternative hypothesis would be that, with appropriate incentives, individuals combine their already acquired specialised

knowledge for the sake of innovation. The empirical evidence on the innovation process in the advanced economies demonstrates both the prevalence and importance of collective learning, as distinct from collections of learning, in the generation of new knowledge.

Learning processes that are cumulative and collective are complex, and that complexity creates uncertainty about whether innovative outcomes – higher quality, lower cost products – will result. The types of uncertainty inherent in the learning process can be classified as *productive* and *competitive*. Productive uncertainty exists because a cumulative and collective learning process may fail to develop productive resources to generate higher quality, lower cost products at prevailing factor prices. Competitive uncertainty exists because the innovative efforts of one productive entity may be devalued by the emergence of other productive entities that are able to generate even higher quality and/or lower cost products (sometimes with access to inputs at lower factor prices). The alternative hypothesis would be that learning is done subject to a known set of constraints, and that it can therefore be treated as a constrained optimisation problem. The empirical evidence on the innovation process suggests that the transformation of learning into innovation is uncertain, and that the extent of this uncertainty increases as the learning process required to generate innovation becomes more cumulative and collective.

3. Characterisation of the Innovative Allocation Process

The cumulative, collective, and uncertain character of the learning process implies that business enterprises that seek to contribute to the innovation process must allocate resources and returns in ways that are *developmental*, *organisational*, and *strategic*. The cumulative character of the learning process means that the allocative process must make irreversible commitments of resources to sustain the learning process for a sufficient length of time for new knowledge that can result in innovation to emerge. The collective character of the learning process means that the allocative process must commit resources to an organisation that permits groups of individuals to learn in an interactive manner. The uncertain character of the learning process means that the allocative process must be under the control of strategists who are themselves integrated into the cumulative and collective learning

processes. The integration of strategy and learning places strategic decision makers in a privileged position for assessing what types of cumulated knowledge will be of strategic importance for innovative success as well as the potential for innovation of the particular learning collectivity on whom they are relying to generate new knowledge.

An alternative perspective on the allocation process that generates superior economic performance would be that, in contrast to being developmental, organisational, and strategic, it is *reversible, individual, and optimal*. Indeed, these characteristics of the process of allocating resources and returns underpin neoclassical economics as a theory of the market (as distinct from corporate) allocation of resources and returns. Such a theory of the economy ascribes no importance to, and provides no analysis of:

1. economic development (and hence the role of accumulation over time),
2. collective organisation (and hence the role of the corporate enterprise), or
3. innovative strategy (and hence the conditions under which economic actors confront, rather than avoid, productive and competitive uncertainty).

The theory of the market economy does not, as a result, contain a theory of innovation. We view the theory of the market economy as a theory of an “adaptive” economy – an economy in which, at every point in time, economic actors adapt their allocative decisions in order to optimize subject to (exogenous) technological constraints. In contrast, a perspective that views the allocation of resources and returns as developmental, organisational, and strategic can provide the foundations for a theory of the innovative economy.

Specifically, our characterisation of the innovative allocation process provides an explanation for the existence and development of the business enterprise, especially in its modern corporate form. The need for resource allocation that is developmental means that the innovative enterprise must persist over some period of time. But if the learning process was just cumulative but not collective, then the innovative enterprise could consist of an individual who accumulated resources and appropriated returns. The innovative resource allocation could then be just developmental but not organisational, and the innovative economy could be a collection -- but not a collectivity -- of these individuals whose cumulated knowledge could be combined after the fact of the learning process. A social entity known as

the corporate enterprise would have no economic reason to exist. It is the cumulative and collective character of the learning process, and hence the need for resource allocation that is both developmental and organisational, that compels the innovative enterprise to be a collectivity, and not just a collection, of individuals.

The enterprise, moreover, may be part of a larger innovative collectivity, such as a district, a nation, or even a region (such as an integrated Europe). From this perspective, the core of the innovative (district, national, or regional) economy may be a collection of innovative enterprises, but it may also involve interaction among innovative enterprises in a cumulative and collective learning process. From the perspective of the innovation process, it is not the legally distinct enterprise that is the relevant unit of analysis. Rather the relevant unit of analysis is *the unit of strategic control* over the allocation of resources and returns. Moreover, members of a particular enterprise may be engaged in a number of processes of organisational learning, some wholly internal to the enterprise and others involving interaction with other enterprises, communities, research organisations, educational institutions, and government agencies, involving different, and often overlapping, structures of strategic control.

Nevertheless, during the past century, the legally distinct enterprise, in the form of the corporate enterprise, has been an important, if not the most important, unit of strategic control over the allocation of resources and returns in the most advanced economies. The distinctive feature of the modern corporate enterprise is that this strategic control is exercised by a group, or (overlapping) groups, of company employees rather than by those with legally instituted property rights (that is, public stockholders).

We call this strategic control over the corporate allocation of resources and returns “organisational control”. Organisational control over the allocation of corporate *resources* defines the unit of strategic control at a point in time. Organisational control over the allocation of the *returns* that these resources generate defines the unit of strategic control as an ongoing entity, or a “going concern”. Organisational control over the allocation of resources enables the enterprise to invest in collective learning processes that give it the potential for generating unique productive

capabilities based on unique knowledge-generating capabilities. Organisational control over the allocation of returns enables the enterprise to:

1. create incentives for participants in the innovation process to continue to contribute their skills and efforts to the organisation as a collectivity;
2. make new investments in productive resources that sustain the organisation's capability to engage in cumulative learning;
3. reward and reallocate the labor of those participants in prior innovation processes whose skills and efforts are no longer required for present or future innovation processes; and
4. satisfy the expectations of external political and economic interests who have established claims on the company's returns, thus undermining the incentive of these interests to challenge organisational control.

There is, therefore, a dynamic interaction between the allocation of resources and allocation of returns in the development of the business enterprise as an identifiable organisation. The allocation of returns is the result of the economic success of prior allocations of resources, and forms the foundation for new allocations of resources based on the strategic integration of the knowledge-creating organisation. Central to this dynamic, and hence to the sustained viability of the enterprise is cumulative and collective – or organisational -- learning that, at prevailing factor prices, can result in higher quality, lower cost products.

Given these characteristics of the innovation process and the innovative enterprise, how then can we characterise the social conditions that enable organisational control to be in fact transformed into innovative outcomes? Our research into the dynamics of the innovation process has identified two social conditions that, given organisational control over the strategic allocation of resources and returns, support processes of cumulative and collective learning. These social conditions are *financial commitment* and *organisational integration*.

Financial commitment describes the social relations that are the basis for the ongoing access of a business enterprise to the financial resources required to sustain the process of organisational learning until the innovation process can generate financial returns. The level and duration of financial commitment required to generate innovation varies across industries characterised by learning processes of different complexity. Given organisational control, financial commitment allows strategic

redirection of the organisational learning process through the process that allocates resources and returns.

But financial commitment is only a necessary, not sufficient, condition for innovation. Financial commitment can result in the persistence of the allocation of resources to the production of goods and services that, either for reasons of internal organisation or external competition, can no longer generate returns to sustain the enterprise as a collectivity. Financial commitment can also result in the allocation of returns to claimants who may have once made productive contributions to the learning process, but now no longer do so. Whether the combination of organisational control and financial commitment generates innovation depends on the relation between organisational integration and the learning requirements of the product and process technologies in which the enterprise invests.

Organisational integration describes the social relations that provide participants in a complex division of labor with the incentives to cooperate in contributing their skills and efforts toward the achievement of common goals. As such, organisational integration provides an essential social condition for an enterprise to engage in and make use of organisational learning. The increasingly collective and cumulative character of organisational learning means that, for a particular product, an innovative investment strategy is one that entails investments in *broad and deep skill bases* -- divisions of labor that involve numerous functional specialties and that extend far down the organisational hierarchy to groups of people with different levels of authority and responsibility for the development and utilisation of productive resources.

In terms of inputs into the production process, organisational integration supplies knowledge and financial commitment supplies money. In contributing to the innovation process, however, these inputs are not commodities. They reflect the social relations to the corporate enterprise of people who, in supplying knowledge and money to the enterprise, give strategic decision-makers organisational control over the allocation of corporate resources and returns. These social relations constitute norms according to which enterprises make strategic decisions concerning the allocation of resources and returns to organisational learning. In all of the advanced economies, in different ways and to varying degrees at any one time as

well as over time, organisational integration and financial commitment have provided the social foundations for innovation and economic development.

A large and growing body of research on the innovation process in cross-national perspective reveals national differences in corporate investments in integrated skill bases that can engage in organisational learning. In some nations, the system of governance supports corporate investments in broad and deep skill bases, including, for example, learning processes that integrate the capabilities of managerial and shop-floor employees. In other nations, the governance system encourages investment in narrow and concentrated skill bases, composed of a relatively small number of highly educated personnel. Moreover, there is significant cross-national variation in the extent to which people with different functional specialisations learn as an organisation rather than as distinct functional specialists who happen to be employed by the same enterprise. Furthermore, within the strategic decision-making process itself, there is discernible cross-national variation in the extent to which corporate strategists understand and identify with the learning processes that characterise the organisations over which they preside.

Cross-national comparisons of organisational learning in specific industries, therefore, show systematic variations in:

1. the *hierarchical integration* of personnel with different levels of responsibility and authority in the learning process,
2. the *functional integration* of personnel with different types of technical specialisations within the learning process, and
3. the *strategic integration* of those managers who make strategic decisions concerning the allocation of corporate resources and returns into processes of organisational learning.

These dimensions of *organisational integration* appear to be related to the employment, financial, and legal environments in which corporate enterprises are embedded. In cross-national comparative perspective, corporate enterprises in some national economies are characterised by hierarchical, functional, and/or strategic *segmentation* relative to their counterparts in particular industries in other national economies, with implications for innovative performance. In historical perspective, moreover, there seem to be dynamic interactions among these three dimensions of organisational integration or segmentation, so that, once an enterprise has embarked

on a segmentation path, it becomes increasingly difficult to restructure its organisation to embark on an integration path.

Not only do national institutions and historical evolution matter. The organisational learning opportunities and requirements of particular technologies matter as well. The collective skill bases that, when organisationally integrated, generate innovation vary across industries characterised by different technologies that provide different opportunities for organisational learning. For example, organisational learning in the pharmaceutical industry relies on the integration of a different skill base than organisational learning in the automobile industry. Moreover, for any given technology, the characteristics of these innovative skill bases also vary over time. For example, in the automobile industry from the 1970s, Japanese companies successfully confronted the leading American and European companies by investing in broader and deeper skill bases to develop and utilise technology.

Certain allocative systems may therefore promote innovation in one industry but fail to advance it in another, and may even retard the development of certain industries. When combined with an analysis of cross-national differences in systems of corporate governance that influence ways in which national corporations allocate resources and returns, the “skill-base hypothesis” helps to explain international competitive advantage across industries at a point in time, and changes in international competitive leadership within industries over time.

4. Implications for Corporate Governance Policy

This conceptual framework for understanding the innovative enterprise provides the basis for considering the types of national and EU policies that will support innovation processes in particular and the innovative economy more generally. To promote sustainable prosperity and social equality, the goal of corporate governance policy is to contribute to the creation of a broad and deep skill base within the EU. The allocative strategies of corporate enterprises will be an important determinant of the extent to which this goal is achieved. The prime foci for corporate governance policy are the reform of:

1. *corporate governance institutions* so that they provide better support to the innovation process, and,
2. *corporate governance processes* so that, within the framework of these institutions, they encourage corporate strategies that entail allocations of resources and returns to broader and deeper skill bases that can engage in organisational learning.

Reforming corporate governance institutions

We can identify four different types of corporate governance institutions, based on different relations with the locus of decision-making power over the allocation of corporate resources and returns.

1. *Executive institutions* determine the responsibilities and qualifications of those people engaged in decision-making over the allocation of resources and returns within the corporation;
2. *Supervisory institutions* determine to whom executive decision-makers are directly responsible and the rights of these supervisors to influence, and intervene in, the process of executive decision-making.
3. *Consultative institutions* determine the parties (unions, stockholders, enterprise groups, industry associations, government agencies) with whom, and the procedures by which, executive decision-makers consult in gathering information and gaining support for their allocative decisions.
4. *Regulatory institutions* determine the laws and rules that enable and proscribe corporate decision-making over the allocation of corporate resources and returns.

Government policy should seek to structure the institutions of corporate governance to encourage a strategic decision-making process for the allocation of corporate resources and returns that

1. seeks the influence of and is accountable to those people engaged in organisational learning within units of strategic control;
2. reallocates both people and money from existing enterprises to new units of strategic control that can engage in organisational learning; and
3. encourages the integration into processes of organisational learning of groups of producers within enterprises, districts, nations, and regions who have previously been segmented or excluded from organisational learning processes.

Toward these ends, policy reform of:

1. *executive* institutions should make corporate executives responsible for maintaining and extending the organisational learning capabilities of their enterprises and establish qualification criteria for those who occupy corporate executive positions that will exclude those who are not able or willing to allocate resources and returns to organisational learning;

2. *supervisory* institutions should mandate the inclusion on a corporate supervisory board of representatives from organisations of employees, enterprises, communities, educational institutions, financial institutions, and public agencies that can demonstrate (and reconfirm on a periodic basis) that they have a direct interest in ensuring that the corporation allocate resources and returns to organisational learning processes;
3. *consultative* institutions should encourage the creation of interactive structures as part of the normal operation of the enterprise that link employees and subsidiary enterprises with executive decision makers for the purpose of sharing of information and opinion concerning the technological and market orientation of corporate strategy, the skill bases that will be required to implement these strategies, and evaluation of the enterprise's innovative performance;
4. *regulatory* institutions should aim at transforming corporate law and related regulatory practices to reflect an awareness of the dependence of an economy and society on the innovative performance of corporate enterprises, while, at the same time, through executive, supervisory, and consultative institutions, ensuring the autonomy of the enterprise as a unit of control that integrates allocative strategy with organisational learning.

Reforming corporate governance processes

The reform of corporate governance processes entails policies to ensure the exercise of strategic control by those who have the abilities and incentives to allocate resources and returns to organisational learning. These policies include:

1. developing the abilities of executives, supervisors, consultants, and regulators, to engage in organisational learning;
2. structuring the incentives for these participants too engage in organisational learning, and thereby reduce their incentives to engage in behavior that results in strategic, functional, and hierarchical segmentation.

Developing the abilities of “corporate actors” to engage in organisational learning cannot start once they enter, or develop relations with the enterprise. People have to learn how to learn. To implement organisational learning strategies in the corporate enterprise, experience in cumulative and collective learning needs to be embedded in the entire system of skill-formation, beginning with the pre-employment educational system. If the national educational system generates strata of the labor force that have not developed the capability for cumulative and collective learning, it will be virtually impossible to integrate them into organisational learning processes in the world of work. Insofar as these people find employment in the corporate enterprise, hierarchical segmentation is the probable result. If the national educational system generates functional specialists who do not engage in collective learning, then it will

be very difficult to integrate them into organisational learning processes within the corporate enterprise. Functional segmentation is the probable result.

Hierarchical and functional segmentation tend to breed strategic segmentation within the corporate enterprise. Lacking the social foundations for organisational learning required to innovate in international competition, those who have executive responsibility for the allocation of corporate resources and returns will tend to turn to adaptive strategies that seek to downsize the corporate labour force and distribute corporate revenues rather than innovative strategies that seek to retain revenues for reallocation to innovative investment strategies. Nevertheless, in a world in which the pressures of international competition are making innovative strategies all the more uncertain and in which the problem of intergenerational dependence is increasingly leading national savings systems to look to the distribution of corporate revenues to fund retirement incomes, there are abundant incentives for top corporate executives to become segmented from the organisational learning process, even when the people that they employ are able and willing to engage in organisational learning. In the face of these changes, government policies designed to encourage corporate strategists to allocate resources and returns to organisational learning will require, in the first instance, a concerted public effort to recognise the social contributions of those enterprises (and their top executives) that make such innovative resource allocations, not only within the structures of existing enterprises but also by taking people and money from those enterprises to spin off new ventures that have a high degree of autonomy in strategic control.

In a world dominated by the rhetoric of “free markets” and “shareholder value”, the political mandate and economic rationale for such corporate governance needs to be established. The place to start is with an understanding of the characteristics of the innovative enterprises that have been central to the development of the advanced economies in the past. Good policy requires good theory, which in turn requires an integration of theory and history. Bringing the theory of the innovative enterprise into the debates on corporate governance – and generating the process of cumulative and collective learning on the part of academics, corporate executives, labor leaders, government policy makers about how successful economies operate that such an endeavour entails -- is a necessary prelude to placing this broad policy agenda on the table, let alone mobilizing political support for its implementation.

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See footnote 1, page 1.

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STEP-gruppen ble etablert i 1991 for å forsyne beslutningstakere med forskning knyttet til alle sider ved innovasjon og teknologisk endring, med særlig vekt på forholdet mellom innovasjon, økonomisk vekst og de samfunnsmessige omgivelser. Basis for gruppens arbeid er erkjennelsen av at utviklingen innen vitenskap og teknologi er fundamental for økonomisk vekst. Det gjenstår likevel mange uløste problemer omkring hvordan prosessen med vitenskapelig og teknologisk endring forløper, og hvordan denne prosessen får samfunnsmessige og økonomiske konsekvenser. Forståelse av denne prosessen er av stor betydning for utformingen og iverksettelsen av forsknings-, teknologi- og innovasjonspolitikken. Forskningen i STEP-gruppen er derfor sentrert omkring historiske, økonomiske, sosiologiske og organisatoriske spørsmål som er relevante for de brede feltene innovasjonspolitik og økonomisk vekst.

The STEP-group was established in 1991 to support policy-makers with research on all aspects of innovation and technological change, with particular emphasis on the relationships between innovation, economic growth and the social context. The basis of the group's work is the recognition that science, technology and innovation are fundamental to economic growth; yet there remain many unresolved problems about how the processes of scientific and technological change actually occur, and about how they have social and economic impacts. Resolving such problems is central to the formation and implementation of science, technology and innovation policy. The research of the STEP group centres on historical, economic, social and organisational issues relevant for broad fields of innovation policy and economic growth.