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2 Innovation Policy Learning

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7 Definition

8 The term innovation policy learning stands for
9 the change of innovation policy-relevant knowl-
10 edge, skills, or attitudes, which are the results of
11 the assessment of past, present, or possible future
12 policies (Biegelbauer 2013).

13 Emergence of the Term and 14 Development of Research

15 The approaches utilizing notions of policy learn-
16 ing share a conviction that the activities of policy-
17 makers can be explained by understanding these
18 actions in terms of feedback cycles used in order
19 to assess previous actions. Policy-makers engage
20 in learning in order to make sense of the world
21 they live in, to gain a better understanding of the
22 effects of their policies, and to arrive at better
23 decisions in the future.

24 The notion “innovation policy learning” can
25 be traced back to two different discussions, one
26 rooted in political science and the other in eco-
27 nomics. In political science, learning has been
28 discussed as a category of policy analysis since

the 1960s, when Karl Deutsch introduced his 29
cybernetics of government (Deutsch 1966). 30
Another milestone for the development of the 31
term was Hugh Heclo’s book on British and 32
Swedish social policy (1974), in which he writes: 33
“Governments not only, ‘power’ . . . they also 34
puzzle. Policy-making is a form of collective 35
puzzlement on societies behalf” (Heclo 1974, 36
305). With this terminology, he captured one of 37
the basic premises of the discussion on policy 38
learning, namely, that political action cannot be 39
explained alone by looking at interests and insti- 40
tutions and how they relate to power, which 41
would be the classical categories of political sci- 42
ence. Rather policy-makers also engage into 43
efforts to solve what they perceive to be policy 44
problems (Bandelow 2003; Biegelbauer 2013). 45

Similarly influential is the “advocacy coalition 46
framework”, developed mainly by Paul Sabatier 47
(Sabatier and Weible 2007). In this framework, 48
political processes are located in policy subfields, 49
which are characterized by competing advocacy 50
coalitions that may or may not change their 51
belief structures through learning. At about the 52
same time Peter Hall found that the change 53
from Keynesian to monetarist economic policies 54
in the early 1980s was best explained through 55
social learning. His theory engulfs three targets 56
of policy change, settings of policy instruments, 57
policy instruments themselves, and finally 58
policy paradigms, which are the ideational struc- 59
ture policies are embedded in and which most 60
importantly explain the scope and the workings 61
of policies. Social learning proper encompasses 62

63 the change of policy paradigms, something
64 happening only rarely (Hall 1993).

65 In the 2000s, policy learning approaches have
66 been further developed, through, for example,
67 critique of key terms (Maier et al. 2003), the
68 further expansion of concepts of social learning
69 (Oliver and Pemberton 2004), the advocacy coa-
70 lition framework (Sabatier and Weible 2007),
71 and of interpretative approaches (Grin and
72 Loeber 2007), which also have integrated ideas
73 from organizational sociology (Argyris and
74 Schön 1978).

75 The second debate in which the term innova-
76 tion policy learning is rooted stems from evolu-
77 tionary economics. Neoclassic economic theory
78 originally has exogenized innovation as a factor
79 of economic development (Biegelbauer 2000).
80 Yet with a number of empirical studies analyzing
81 the production factors' input on growth carried
82 out in search for new growth models, a new set of
83 models was created in the late 1970s (Rosenberg
84 et al. 1992). Joseph Schumpeter's vision of a
85 dynamic and evolutionary economy (Schumpeter
86 1971) was integrated into a number of studies
87 (e.g., Nelson and Winter 1982; Carayannis
88 and Ziemnowicz 2007), which transcended the
89 disciplinary boundaries of economics and led to
90 a view of economic growth and technological
91 change, which has increasingly been rivaling the
92 neoclassical economic model ever since.

93 The key difference between the old neoclassi-
94 cal models and the newer Schumpeterian ones is
95 that the latter are more dynamic in their
96 evolutionary perspectives (Hofer 2003).
97 With regard to technological change, this
98 means an endogenization of the innovation
99 process. Similar to the neoclassical model, the
100 new models see technological change as
101 the main driving factor for economic growth.
102 However, since the new models are interested in
103 explaining technological change, they assume the
104 production function to include factors such as the
105 level of technology or more broadly the stock
106 of knowledge, investments into R&D, skills of
107 the work force (human capital), indicators of
108 the complexity of institutional arrangements,
109 and the like, aside physical capital (Biegelbauer
110 2000).

111 In evolutionary economics, an important
112 mechanism for the creation of knowledge and
113 skills is learning. This notion has been developed
114 especially by Bengt-Age Lundvall's concept of
115 the "learning economy" (Lundvall 1992).
116 Lundvall has differentiated between different
117 forms of knowledge and skills, some of which
118 had been rather neglected by economic theoriz-
119 ing before. This is especially the case with
120 non-codified knowledge which accrues through
121 "learning by doing" and forms an important
122 knowledge base upon which a lot of innovation
123 activities are based.

124 The wider framework of Lundvall's conception
125 of a learning economy is the concept of "national
126 systems of innovation" (Freeman 1987; Lundvall
127 1992; Nelson 1993), "the network of institutions in
128 the public and the private sectors whose activities
129 and interactions initiate, import, modify and
130 diffuse new technologies" (Freeman 1987).

131 The notions of learning economies and
132 national systems of innovation transformed in
133 an ongoing process what was before science,
134 technology, higher education, and industry
135 policies into innovation policy (Biegelbauer
136 and Borrás 2003; Edler 2003; Carayannis and
137 Campbell 2006). This move impacts on the
138 selection of policies as well as on the ways
139 policies are perceived. Policy instruments have
140 become more complex and are constructed to
141 fulfill a multitude of purposes for the needs of a
142 multitude of actors, and their effects are expected
143 to be systemic (Kuhlmann and Smits 2004;
144 Weber 2009). These changes have been
145 interpreted as policy learning closely connected
146 to the developments in the area of evolutionary
147 economic innovation theory (Mytelka and
148 Smith 2001).

149 **Ramifications for Innovation Policy and** 150 **Policy Analysis**

151 A number of policy instruments have been
152 devised to foster policy learning: evaluations,
153 benchmarks, foresight exercises, impact assess-
154 ments, expert commissions, and studies have

155 been utilized to make policy-making ever more
 156 evidence-based and rational (Biegelbauer 2007,
 157 2009; Biegelbauer and Mayer 2008).

158 Especially the European Union has built
 159 a whole learning architecture as part of the
 160 Lisbon Agenda and the Strategy 2020, both
 161 featuring the main goal of making the EU the
 162 most innovative and competitive region of
 163 the world. These strategies make use of the
 164 open method of coordination and its plethora of
 165 learning instruments. The exact nature of the
 166 open method of coordination, for example, the
 167 degree of its formality, differs from policy field to
 168 policy field (Borrás and Greve 2004; Borrás and
 169 Radaelli 2011). In RTDI policy, it engulfs
 170 a variety of rather informal networks, projects,
 171 and platforms in which experiences with RTDI
 172 policy-making are to be analyzed and exchanged
 173 (Lisbon Expert Group 2009). An important role
 174 plays a set of indicators, the Innovation Union
 175 Scoreboard, which has been developed in order to
 176 ease a systematic comparison of the EU member
 177 states' experiences – the Innovation Union
 178 Scoreboard covers the 27 EU member and 7
 179 additional countries with 25 innovation
 180 research-related indicators as part of the EU's
 181 Strategy 2020, which has replaced the EU Lisbon
 182 Agenda in 2010 (Biegelbauer 2012).

183 In the 2000s, efforts have been made to
 184 integrate the two strands of research described
 185 here, one from political science and another one
 186 from evolutionary economics, in order to
 187 better understand innovation policy learning.
 188 This has taken the form of historical analyses of
 189 innovation systems and innovation policy on
 190 national (Biegelbauer 2000) and supranational
 191 (Edler 2003) levels, of comparisons of national
 192 systems of innovation (Biegelbauer and Borrás
 193 2003), analyses of the relation between innova-
 194 tion theory and policy development (Mytelka and
 195 Smith 2001), critique of (naïve) benchmarking
 196 exercises (Lundvall and Tomlinson 2001), and
 197 the open method of coordination in innovation
 198 policy (Lisbon Expert Group 2009).

Conclusions and Future Directions 199

200 From the research on innovation policy learning,
 201 several conclusions can be drawn for the further
 202 development of policy analysis. First of all, the
 203 concentration in the research field on rational
 204 decision-making in the sense of the maximization
 205 of personal utility should be balanced with other
 206 perspectives on decision-making processes. Pol-
 207 icy-making is not only about a quest for power
 208 and influence, it is also about gaining knowledge,
 209 solving problems, and dealing with historically
 210 contingent norms and practices in the form of
 211 institutions, discourses, and culture (Gottweis
 212 1998; Prainsack 2011).

213 Second, these different factors, for example,
 214 interests, cognition, institutions, discourses, and
 215 cultures, all play a role in the policy-making
 216 process, which is much messier, less sequential,
 217 and rational as usually depicted in the statements
 218 of politicians, accounts of journalists, but also
 219 social scientists (Hoppe 2009; Biegelbauer 2013).

220 Third, there is an urgent need for a fine-grained
 221 empirically driven policy analysis recognizing
 222 the messiness of decision-making processes
 223 instead of producing more schematic depictions
 224 of policy-making utilizing models of lower
 225 solution. Such a policy analysis could lead to a
 226 deeper understanding of the interplay of factors
 227 leading to policies and stay closer to accounts of
 228 policy-making one can hear from policy workers
 229 once the microphone has been turned off. Such a
 230 policy analysis could further our understanding
 231 of policy-making, and it moreover would be
 232 also useful for providing orientation and reflec-
 233 tion knowledge for politicians and civil servants.

Cross-References 234

- ▶ Innovation Policies 235
- ▶ Innovation Systems and Entrepreneurship 236
- ▶ Joseph A. Schumpeter and Innovation 237
- ▶ National Innovation System/National
 Innovations Systems 238
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240 **References**

241 Argyris C, Schön DA. Organizational learning. A theory
 242 of action perspective. Reading: Addison-Wesley;
 243 1978.

244 Bandelow N. Policy Lernen und politische
 245 Veränderungen. In: Bandelow N, Schubert K, editors.
 246 Lehrbuch der Politikfeldanalyse. München:
 247 Oldenbourg; 2003. p. 289–321.

248 Biegelbauer P. 130 years of catching up with the west:
 249 a comparative perspective on Hungarian industry,
 250 science and technology policy-making since industrial-
 251 ization. Aldershot/Vermont: Ashgate Publishing;
 252 2000.

253 Biegelbauer P. Learning from abroad: the Austrian Com-
 254 petence Centre Programme Kplus. *Sci Public Policy*.
 255 2007;34(9):606–18.

256 Biegelbauer P. Erfahrungsorientiertes Lernen in der
 257 österreichischen Forschungs-, Technologie- und
 258 Innovationspolitik. In: Fröhlich J, Leitner K-H, Weber
 259 KM, editors. Innovationsforschung und Technolo-
 260 giepolitik in Österreich: Neue Perspektiven und
 261 Gestaltungsmöglichkeiten. Innsbruck: Studienverlag;
 262 2009. p. 197–214.

263 Biegelbauer P. Wie lernt die Politik – Lernen aus
 264 Erfahrung in Politik und Verwaltung. Wiesbaden: VS
 265 Verlag; 2013.

266 Biegelbauer P, Borrás S, editors. Innovation policies in
 267 Europe and the US. The new agenda. Aldershot:
 268 Ashgate Publications; 2003.

269 Biegelbauer P, Mayer S. Regulatory impact assessment in
 270 Austria: promising regulations, disappointing prac-
 271 tices. *Crit Policy Anal*. 2008;2(2):118–42.

272 Borrás S, Greve B. Concluding remarks: new method
 273 or just cheap talk? *J Eur Public Policy*.
 274 2004;11(2):329–36.

275 Borrás S, Radaelli C. The politics of governance architec-
 276 tures: creation, change and effects of the EU Lisbon
 277 strategy. *J Eur Public Policy*. 2011;18(4):461–82.

278 Carayannis E, Campbell D, editors. Knowledge creation,
 279 diffusion and use in innovation networks and knowl-
 280 edge clusters: a comparative systems approach across
 281 the United States, Europe and Asia. Westport: Praeger;
 282 2006.

283 Carayannis E, Ziemnowicz C, editors. Rediscovering
 284 Schumpeter. Creative destruction evolving into
 285 ‘Mode 3’. Houndmills, Basingstoke: Palgrave Mac-
 286 millan; 2007.

287 Deutsch K. The nerves of government. Models of political
 288 communication and control. New York: The Free
 289 Press; 1966.

290 Edler J. How do economic ideas become relevant in RTD
 291 policy making? Lessons from a European case study.
 292 In: Biegelbauer P, Borrás S, editors. Innovation poli-
 293 cies in Europe and the US. The new agenda. Aldershot:
 294 Ashgate Publications; 2003. p. 253–84.

295 Freeman C. Technology policy and economic perfor-
 296 mance: lessons from Japan. London: Pinter; 1987.

Gottweis H. Governing molecules: the discursive politics
 of genetic engineering in Europe and in the United
 States. Cambridge, MA: MIT Press; 1998.

Grin J, Loeber A. Theories of policy learning: agency,
 structure and change. In: Fischer F, Miller GJ, Sidney
 MS, editors. Handbook of public policy analysis. The-
 ory, politics, and methods. Boca Raton: CRC Press/
 Taylor and Francis; 2007. p. 201–19.

Hall P. Policy paradigms, social learning, and the state.
Comp Polit. 1993;25(April):275–96.

Hecló H. Modern social policies in Britain and Sweden:
 from relief to income maintenance. New Haven/Lon-
 don: Yale University Press; 1974.

Hofer R. Evolutionäre Ökonomie und historische
 Perspektive: Erklärung von Innovationsmustern? In:
 Pichler R, editor. Innovationsmuster in der Österrei-
 chischen Wirtschaftsgeschichte: wirtschaftliche
 Entwicklung, Unternehmen, Politik und Innovations-
 verhalten im 19. und 20. Jahrhundert. Innsbruck:
 Studienverlag; 2003. p. 43–56.

Hoppe R. Ex ante evaluation of legislation: between puz-
 zling and powering. In: Verschuuren J, editor. The
 impact of legislation. Leiden: Martinus Nijhoff Pub-
 lishers; 2009. p. 81–104.

Kuhlmann S, Smits R. The rise of systemic instruments in
 innovation policy. *Int J Foresight Innov Policy*.
 2004;1(1/2):4–32.

Lisbon Expert Group. The open method of coordination in
 research policy. Assessment and recommendations.
 Report for the European Commission (2009).

Lundvall B-Å, editor. National systems of innovation:
 towards a theory of innovation and interactive learn-
 ing. London: Pinter; 1992.

Lundvall B-Å, Tomlinson M. Policy learning through
 benchmarking national systems of innovation – learn-
 ing by comparing. Report for the advanced
 benchmarking concepts (ABC) project. Aalborg Uni-
 versity, Denmark (2001).

Maier LM, Hurrelmann A, Nullmeier F, Pritzlaff T,
 Wiesner A. Politik als Lernprozess? Wissenszentrierte
 Ansätze in der Politikanalyse. Opladen: Leske +
 Budrich; 2003. p. 7–22.

Mytelka LK, Smith K. Policy learning and innovation
 theory: an interactive and co-evolving process. *Res*
Policy. 2001;31(8–9):1467–79.

Nelson R, editor. National innovation systems:
 a comparative analysis. New York: Oxford University
 Press; 1993.

Nelson R, Winter S. An evolutionary theory of economic
 change. Cambridge: Harvard University Press; 1982.

Oliver MJ, Pemberton H. Learning and change in 20th-
 century British economy policy. *Governance*.
 2004;17(3):415–41.

Prainsack B. The power of prediction: how personal geno-
 mics became a policy challenge. *Österreichische*
Zeitschrift für Politikwissenschaft. 2011;40(4):401–15.

Rosenberg N, Landau R, Mowery D. Technology and
 the wealth of nations. Stanford: Stanford University
 Press; 1992.

- 356 Sabatier P, Weible C. The advocacy coalition framework: 364
357 innovations and clarifications. In: Sabatier PA, editor. 365
358 Theories of the policy process. 2nd ed. Boulder: 366
359 Westview Press; 2007. 367
360 Schumpeter J. The instability of capitalism. In: Rosenberg 368
361 N, editor. The economics of technological change – 369
362 selected readings. 1st ed. Harmondsworth: Penguin 370
363 Books; 1971. 1928.
- Weber KM. FTI Politik im Spiegel von Theorie und 364
Praxis: von Planung über Steuerung zu Governance. 365
In: Leitner K-H, Weber KM, Fröhlich J, editors. 366
Innovationsforschung und Technologiepolitik in 367
Österreich: Neue Perspektiven und Gestaltungsmö- 368
glichkeiten. Innsbruck: Studienverlag; 2009. p. 369
231–54. 370

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