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**ELECTRON LECTURES**

on discipline **«Innovative entrepreneurship»**

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**Component (**optionally**)**

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6M050600 – «Economy»

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**Tneme of lecture № 1. Introduction to innovative entrepreneurship. The practice of innovation**

**Plan of lecture:**

**1. The definition of innovative entrepreneurship**

**2. The key policy dimensions regarding innovative entrepreneurship**

**3. Innovation as the specific tool of entrepreneurs**

**4. Purposeful Innovation**

**5. The Seven Sources for Innovative Opportunity**

**1. The definition of innovative entrepreneurship**

Much like the popular myth that a bumblebee's flight is aerodynamically impossible, experts often suggest that innovative entrepreneurship is economically impossible. Entrepreneurs must be irrationally optimistic because there are few economic returns to innovative entry. Entrepreneurs cannot innovate effectively because incumbent firms have better complementary assets. Entrepreneurs cannot possibly innovate because only incumbent firms have the necessary size and market power to support innovation. And yet, they fly!

Innovative entrepreneurs add value to the economy through individual initiative, creativity, and flexibility. Innovative entrepreneurs help overcome two types of institutional frictions. First, existing firms may not innovate efficiently because of incumbent inertia resulting from various organizational rigidities. The innovative entrepreneur compensates for incumbent inertia by embodying innovations in new firms.

Second, markets for inventions may not operate efficiently because of transaction costs (search, bargaining, contracting, monitoring), imperfect IP protections, costs of transferring tacit knowledge, and imperfect information about discoveries. The innovative entrepreneur addresses frictions in markets for inventions through own-use of discoveries and adoption of innovative ideas.

This chapter presents a dynamic economic framework that will be applied to study the innovative entrepreneur. The entrepreneurial process has three stages: invention, entrepreneurship, and competitive entry. The dynamic framework emphasizes the interaction between the personal consumption-saving decisions and the business decisions of the individual inventor and entrepreneur. As economic functions change, the individual’s role shifts from inventor to entrepreneur to owner, although there may be different individuals at each stage. The time line of the three-stage entrepreneurial process appears in Figure 1.1.

**Why is innovative entrepreneurship important?**

At a time when policy makers are pooling efforts to restore growth and overcome the global economic and financial crisis, specific attention has been focused on innovative entrepreneurship, as it can play an important role in contributing to economic growth, job creation and poverty reduction, and can help address key social challenges.

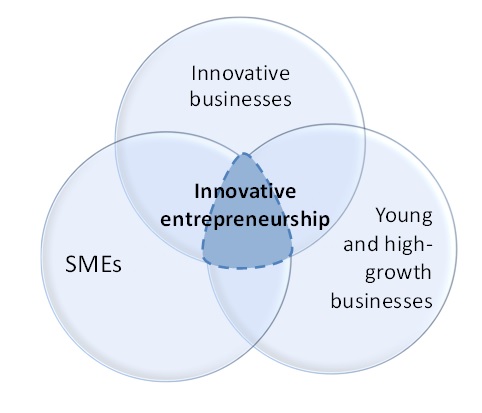
**What types of businesses are innovative entrepreneurs?**

The definition of innovative entrepreneurship used here is not synonymous with either small and medium-sized enterprises (SMEs) or business start-ups but is derived from the intersection of three areas:

* innovative businesses
* young and high-growth businesses
* SMEs

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##### **Figure 1. The module for innovative entrepreneurship.**



**2. The key policy dimensions regarding innovative entrepreneurship**

**What are the key policy dimensions regarding innovative entrepreneurship?**

The following six policy dimensions are particularly relevant for innovative entrepreneurship:

**Access to finance**. This policy dimension is concerned with access to capital required to establish and run a business. It includes access to debt financing, venture capital, business angels and other types of finance, as well as exit options and market. Access to finance is a key driver in the creation, survival and growth of innovative new ventures, as it enables new ventures to invest in innovative projects, improve their productivity, finance their growth and meet market demand.

* **Access to knowledge**. This dimension covers the various private, public and academic knowledge links that nourish innovative entrepreneurial activity. It deals with technological co-operation between firms, university-industry interface, R&D investments and other investments in innovation, intellectual property systems and access to information and communication technologies (ICT). Access to knowledge is essential for innovative entrepreneurship, as it is a key source of innovation-driven entrepreneurial opportunities.
* **Market environment**. This dimension deals with several aspects of market development and access, such as access to domestic markets, access to foreign markets, product market regulation, states of competition and public procurement. Market development and access play a key role in innovative entrepreneurship, since market opportunities will ultimately determine conditions for business success or failure.
* **Access to labour**. This policy dimension deals with the conditions for acquiring highly-skilled human capital by entrepreneurs. It includes policies affecting the cost of hiring/firing, the availability of skilled labour and immigration.
* **Entrepreneurial capabilities and culture**. This dimension accounts for societal and cultural infrastructures, such as business support infrastructure, business and entrepreneurship skills and experience, and attitudes towards entrepreneurship. Entrepreneurial capabilities play a critical role in market entry and in the success of new ventures, since they determine the capacity to identify opportunities, run new businesses, drive innovations and learn and adapt to changing circumstances. Culture may also affect innovative entrepreneurship by influencing the propensity of individuals to become entrepreneurs.
* **Regulatory Framework**. This dimension deals with government regulations and public policies that influence the creation and early-stage growth of new companies, such as the administrative framework for entry and growth, the taxation regime and bankruptcy regulations.

**3. Innovation as the specific tool of entrepreneurs**

Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a discipline, capable of being learned, capable of being practiced. Entrepreneurs need to search purposefully for the sources of innovation, the changes and their symptoms that indicate opportunities for successful innovation.

And they need to know and to apply the principles of successful innovation.

Nor are entrepreneurs capitalists, although of course they need capital as do all economic (and most noneconomic) activities.

They are not investors, either. They take risks, of course, but so does anyone engaged in any kind of economic activity. The essence of economic activity is the commitment of present resources to future expectations, and that means to uncertainty and risk. The entrepreneur is also not an employer, but can be, and often is, an employee—or someone who works alone and entirely by himself or herself.

Entrepreneurship is thus a distinct feature whether of an individual or of an institution. It is not a personality trait; in thirty years I have seen people of the most diverse personalities and temperaments perform well in entrepreneurial challenges. To be sure, people who need certainty are unlikely to make good entrepreneurs. But such people are unlikely to do well in a host of other activities as well—in politics, for instance, or in command positions in a military service, or as the captain of an ocean liner. In all such pursuits decisions have to be made, and the essence of any decision is uncertainty.

But everyone who can face up to decision making can learn to be an entrepreneur and to behave entrepreneurially. Entrepreneurship, then, is behavior rather than personality trait. And its foundation lies in concept and theory rather than in intuition.

Every practice rests on theory, even if the practitioners themselves are unaware of it. Entrepreneurship rests on a theory of economy and society. The theory sees change as normal and indeed as healthy.

And it sees the major task in society—and especially in the economy— as doing something different rather than doing better what is already being done.

Say was primarily concerned with the economic sphere. But his definition only calls for the resources to be “economic.” The purpose to which these resources are dedicated need not be what is traditionally thought of as economic. Education is not normally considered “economic”; and certainly economic criteria are hardly appropriate to determine the “yield” of education (though no one knows what other criteria might pertain). But the resources of education are, of course, economic.

They are in fact identical with those used for the most unambiguously economic purpose such as making soap for sale. Indeed, the resources for all *social* activities of human beings are the same and are “economic” resources: capital (that is, the resources withheld from current consumption and allocated instead to future expectations), physical resources, whether land, seed corn, copper, the classroom, or the hospital bed; labor, management, and time. Hence entrepreneurship is by no means limited to the economic sphere although the term originated there. It pertains to all activities of human beings other than those one might term “existential” rather than “social.” And we now know that there is little difference between entrepreneurship whatever the sphere.

The entrepreneur in education and the entrepreneur in health care—both have been fertile fields—do very much the same things, use very much the same tools, and encounter very much the same problems as the entrepreneur in a business or a labor union.

Entrepreneurs see change as the norm and as healthy. Usually, they do not bring about the change themselves. But—and this defines entre preneur and entrepreneurship—the *entrepreneur always searches for change, responds to it, and exploits it as an opportunity.*

Entrepreneurship, it is commonly believed, is enormously risky. And, indeed, in such highly visible areas of innovation as high tech—microcomputers, for instance, or biogenetics—the casualty rate is high and the chances of success or even of survival seem to be quite low.

But why should this be so? Entrepreneurs, by definition, shift resources from areas of low productivity and yield to areas of higher productivity and yield. Of course, there is a risk they may not succeed.

But if they are even moderately successful, the returns should be more than adequate to offset whatever risk there might be. One should thus expect entrepreneurship to be considerably less risky than optimization. Indeed, nothing could be as risky as optimizing resources in areas where the proper and profitable course is innovation, that is, where the opportunities for innovation already exist.

Theoretically, entrepreneurship should be the least risky rather than the most risky course.

In fact, there are plenty of entrepreneurial organizations around whose batting average is so high as to give the lie to the all but universal belief in the high risk of entrepreneurship and innovation.

Entrepreneurship is “risky” mainly because so few of the so-called entrepreneurs know what they are doing. They lack the methodology.

They violate elementary and well-known rules. This is particularly true of high-tech entrepreneurs.

**4. Purposeful Innovation**

Entrepreneurs innovate. Innovation is the specific instrument of ntrepreneurship. It is the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource.

There is no such thing as a “resource” until man finds a use for something in nature and thus endows it with economic value. Until then, every plant is a weed and every mineral just another rock. Not much more than a century ago, neither mineral oil seeping out of the ground nor bauxite, the ore of aluminum, were resources. They were nuisances; both render the soil infertile.

The penicillin mold was a pest, not a resource. Bacteriologists went to great lengths to protect their bacterial cultures against contamination by it. Then in the 1920s, a London doctor, Alexander Fleming, realized that this “pest” was exactly the bacterial killer bacteriologists had been looking for—and the penicillin mold became a valuable resource.

The same holds just as true in the social and economic spheres.

There is no greater resource in an economy than “purchasing power.” But purchasing power is the creation of the innovating entrepreneur.

Equally, whatever changes the wealth-producing potential of already existing resources constitutes innovation.

There was not much new technology involved in the idea of moving a truck body off its wheels and onto a cargo vessel. This “innovation,” the container, did not grow out of technology at all but out of a new perception of the “cargo vessel” as a materials-handling device rather than a “ship,” which meant that what really mattered was to make the time in port as short as possible. But this humdrum innovation roughly quadrupled the productivity of the ocean-going freighter and probably saved shipping. Without it, the tremendous expansion of world trade in the last forty years—the fastest growth in any major economic activity ever recorded—could not possibly have taken place.

What really made universal schooling possible—more so than the popular commitment to the value of education, the systematic training of teachers in schools of education, or pedagogic theory—was that lowly innovation, the textbook. (The textbook was probably the invention of the great Czech educational reformer Johann Amos Comenius, who designed and used the first Latin primers in the midseventeenth century.) Without the textbook, even a very good teacher cannot teach more than one or two children at a time; with it, even a pretty poor teacher can get a little learning into the heads of thirty or thirty-five students.

Even if the Japanese now have to move beyond imitating, importing, and adapting other people’s technology and learn to undertake genuine technical innovation of their own, it might be prudent not to underrate them. Scientific research is in itself a fairly recent “social innovation.” And the Japanese, whenever they have had to do so in the past, have always shown tremendous capacity for such innovation.

Above all, they have shown a superior grasp of entrepreneurial strategies.

We cannot yet develop a theory of innovation. But we already know enough to say when, where, and how one looks systematically for innovative opportunities, and how one judges the chances for their success or the risks of their failure. We know enough to develop, though still only in outline form, the practice of innovation.

Something similar now has to be done with respect to innovation.

Entrepreneurs will have to learn to *practice systematic innovation.*

Successful entrepreneurs do not wait until “the Muse kisses them” and gives them a “bright idea”; they go to work. Altogether, they do not look for the “biggie,” the innovation that will “revolutionize the industry,” create a “billion-dollar business,” or “make one rich overnight.” Those entrepreneurs who start out with the idea that they’ll make it big—and in a hurry—can be guaranteed failure. They are almost bound to do the wrong things. An innovation that looks very big may turn out to be nothing but technical virtuosity; and innovations with modest intellectual pretensions, a McDonald’s, for instance, may turn into gigantic, highly profitable businesses. The same applies to nonbusiness, public-service innovations.

Successful entrepreneurs, whatever their individual motivation— be it money, power, curiosity, or the desire for fame and recognition— try to create value and to make a contribution. Still, successful entrepreneurs aim high. They are not content simply to improve on what already exists, or to modify it. They try to create new and different values and new and different satisfactions, to convert a “material” into a “resource,” or to combine existing resources in a new and more productive configuration.

And it is change that always provides the opportunity for the new *Purposeful Innovation and the Seven Sources* and different. *Systematic innovation therefore consists in the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation.*

As a rule, these are changes that have already occurred or are under way.

The overwhelming majority of successful innovations *exploit* change. To be sure, there are innovations that in themselves constitute a major change; some of the major technical innovations, such as the Wright Brothers’ airplane, are examples. But these are exceptions, and fairly uncommon ones.

Most successful innovations are far more prosaic; they exploit change. And thus the discipline of innovation (and it is the knowledge base of entrepreneurship) is a diagnostic discipline: a systematic examination of the areas of change that typically offer entrepreneurial opportunities.

**5. The Seven Sources for Innovative Opportunity**

Specifically, systematic innovation means monitoring *seven sources* for innovative opportunity.

The first four sources lie within the enterprise, whether business or public-service institution, or within an industry or service sector.

They are therefore visible primarily to people within that industry or service sector. They are basically symptoms. But they are highly reliable indicators of changes that have already happened or can be made to happen with little effort. These four source areas are:

*•* ***The unexpected****—the* unexpected success, the unexpected failure, the unexpected outside event;

*•* ***The incongruity****—between* reality as it actually is and reality as it is assumed to be or as it “ought to be”;

*•* ***Innovation based on process need****;*

*•* ***Changes in industry structure or market structure***that catch everyone unawares.

The second set of sources for innovative opportunity, a set of three, involves changes outside the enterprise or industry:

*•* ***Demographics***(population changes);

*•* ***Changes in perception, mood, and meaning****;*

*•* ***New knowledge****,* both scientific and nonscientific.

The lines between these seven source areas of innovative opportunities are blurred, and there is considerable overlap between them. They can be likened to seven windows, each on a different side of the same THE PRACTICE OF INNOVATION building. Each window shows some features that can also be seen from the window on either side of it. But the view from the center of each is distinct and different.

The seven sources require separate analysis, for each has its own distinct characteristic. No area is, however, inherently more important or more productive than the other. Major innovations are as likely to come out of an analysis of symptoms of change (such as the unexpected success of what was considered an insignificant change in product or pricing) as they are to come out of the massive application of new knowledge resulting from a great scientific breakthrough.

But the order in which these sources will be discussed is not arbitrary.

They are listed in descending order of reliability and predictability.

For, contrary to almost universal belief, new knowledge— and especially new scientific knowledge—is not the most reliable or most predictable source of successful innovations. For all the visibility, glamour, and importance of science-based innovation, it is actually the least reliable and least predictable one. Conversely, the mundane and unglamorous analysis of such symptoms of underlying changes as the unexpected success or the unexpected failure carry fairly low risk and uncertainty. And the innovations arising therefrom have, typically, the shortest lead time between the start of a venture and its measurable results, whether success or failure.

*1. Source: The Unexpected*

No other area offers richer opportunities for successful innovation than the unexpected success. In no other area are innovative opportunities less risky and their pursuit less arduous. Yet the unexpected success is almost totally neglected; worse, managements tend actively to reject it.

One reason why it is difficult for management to accept unexpected success is that all of us tend to believe that anything that has lasted a fair amount of time must be “normal” and go on “forever.” Anything that contradicts what we have come to consider a law of nature is then rejected as unsound, unhealthy, and obviously abnormal.

Almost by accident, such a “mini-mill” was acquired. It soon began to grow rapidly and to generate cash and profits. Some of the younger men within the steel company therefore proposed that the available investment funds be used to acquire additional “minimills” and to build new ones. Within a few years, the “mini-mills” would then give the steel company several million tons of steel capacity based on modern technology, low labor costs, and pinpointed markets. Top management indignantly vetoed the proposal; indeed, all the men who had been connected with it found themselves “ex-employees” within a few years. “The integrated steelmaking process is the only right one,” top management argued.

“Everything else is cheating—a fad, unhealthy, and unlikely to endure.” Needless to say, ten years later the only parts of the steel industry in America that were still healthy, growing, and reasonably prosperous were “mini-mills.”

To a steelmaker who has spent his entire life working to perfect the integrated steelmaking process, who is at home in the big steel mill, and who may himself be the son of a steelworker (as a great many American steel company executives have been), anything but “big steel” is strange and alien, indeed a threat. It takes an effort to perceive in the “enemy” one’s own best opportunity.

Top management people in most organizations, whwhether small or large, public-service institution or business, have typically grown up in one function or one area. To them, this is the area in which they feel comfortable.

Practically every company—but every public-service institution as well—has a monthly or quarterly report. The first sheet lists the areas in which performance is below expectations: it lists the problems and the shortfalls. At the monthly meetings of the management group and the board of directors, everybody therefore focuses on the problem areas. No one even looks at the areas where the company has done better than expected. And if the unexpected success is not quantitative but qualitative—as in the case of the hospital instruments mentioned above, which opened up new major markets outside the company’s traditional ones—the figures will not even show the unexpected success as a rule.

To exploit the opportunity for innovation offered by unexpected success requires analysis. Unexpected success is a symptom.

But a symptom of what? The underlying phenomenon may be nothing more than a limitation on our own vision, knowledge, and understanding.

Managements must look at every unexpected success with the questions: (1) What would it mean to us if we exploited it? (2) Where could it lead us? (3) What would we have to do to convert it into an opportunity? And (4) How do we go about it? This means, first, that managements need to set aside specific time in which to discuss unexpected successes; and second, that someone should always be designated to analyze an unexpected success and to think through how it could be exploited.

The unexpected success is an opportunity, but it makes demands. It demands to be taken seriously. It demands to be staffed with the ablest people available, rather than with whoever we can spare. It demands seriousness and support on the part of management equal to the size of the opportunity. And the opportunity is considerable.

*2. Source: Incongruities*

An incongruity is a discrepancy, a dissonance, between what is and what “ought” to be, or between what is and what everybody assumes it to be. We may not understand the reason for it; indeed, we often cannot figure it out. Still, an incongruity is a symptom of an opportunity to innovate. It bespeaks an underlying “fault,” to use the geologist’s term. Such a fault is an invitation to innovate. It creates an instability in which quite minor efforts can move large masses and bring about a restructuring of the economic or social configuration.

Incongruities do not, however, usually manifest themselves in the figures or reports executives receive and pay attention to. They are qualitative rather than quantitative.

Like the unexpected event, whether success or failure, incongruity is a symptom of change, either change that has already occurred or change that can be made to happen. Like the changes that underlie the unexpected event, the changes that underlie incongruity are changes *within* an industry, a market, a process. The incongruity is thus clearly visible to the people within or close to the industry, market, or process; it is directly in front of their eyes. Yet it is often overlooked by the insiders, who tend to take it for granted—”This is the way it’s always been,” they say, even though “always” may be a very recent development.

There are several kinds of incongruity:

— An incongruity between the economic realities of an industry (or of a public-service area);

— An incongruity between the reality of an industry (or of a public-service area) and the assumptions about it;

— An incongruity between the efforts of an industry (or a public-service area) and the values and expectations of its customers;

— An internal incongruity within the rhythm or the logic of a process.

Whenever the people in an industry or a service misconceive reality, whenever they therefore make erroneous assumptions about it, their efforts will be misdirected. They will concentrate on the area where results do not exist. Then there is an incongruity between reality and behavior, an incongruity that once again offers opportunity for successful innovation to whoever can perceive and exploit it.

Incongruity between perceived reality and actual reality often declares itself. But whenever serious, concentrated efforts do not make things better but, on the contrary, make things worse—where faster ships only mean more port congestion and longer delivery times—it is highly probable that efforts are being misdirected. In all likelihood, refocusing on where the results are will yield substantial returns easily and fast.

Of all incongruities, that between perceived and actual reality may be the most common. Producers and suppliers almost always misconceive what it is the customer actually buys. They must assume that what represents “value” to the producer and supplier is equally “value” to the customer. To succeed in doing a job, any job, one has to believe in it and take it seriously. People who make cosmetics must believe in them; otherwise, they turn out shoddy products and soon lose their customers. People who run a hospital must believe in health care as an absolute good, or the quality of medical and patient care will deteriorate fast. And yet, no customer ever perceives himself as buying what the producer or supplier delivers. Their expectations and values are always different.

The reaction of the typical producer and supplier is then to complain that customers are “irrational” or “unwilling to pay for quality.”

Whenever such a complaint is heard, there is reason to assume that the values and expectations the producer or supplier holds to be real are incongruous with the actual values and expectations of customers and clients. Then there is reason to look for an opportunity for innovation that is highly specific, and carries a good chance of success.

Twenty-five years or so ago, during the late 1950s, a pharmaceutical company salesman decided that he wanted to go into business for himself.

He therefore looked for an incongruity within a process in medical practice.

*3. Source: Process Need*

“Opportunity is the source of innovation” has been the leitmotif of the preceding chapters. But an old proverb says, “Necessity is the mother of invention.” This chapter looks at *need* as a source of innovation, and indeed as a major innovative opportunity.

The need we shall discuss as a source of innovative opportunity is a very specific one: I call it “process need.” It is not vague or general but quite concrete. Like the unexpected, or the incongruities, it exists within the process of a business, an industry, or a service. Some innovations based on process need exploit incongruities, others demographics. Indeed, process need, unlike the other sources of innovation, does not start out with an event in the environment, whether internal or external. It starts out with the job to be done. It is task-focused rather than situation-focused. It perfects a process that already exists, replaces a link that is weak, redesigns an existing old process around newly available knowledge.

Sometimes it makes possible a process by supplying the “missing link.”

In innovations that are based on process need, everybody in the organization always knows that the need exists. Yet usually no one does anything about it. However, when the innovation appears, it is immediately accepted as “obvious” and soon becomes “standard.”

*4. Source: Industry and Market Structures*

Industry and market structures sometimes last for many, many years and seem completely stable.

Actually, market and industry structures are quite brittle. One small scratch and they disintegrate, often fast. When this happens, every member of the industry has to act. To continue to do business as before is almost a guarantee of disaster and might well condemn a company to extinction. At the very least the company will lose its leadership position; and once lost, such leadership is almost never regained. But a change in market or industry structure is also a major opportunity for innovation.

A few years later in Detroit, the young Henry Ford also saw that the market structure was changing and that automobiles in America were no longer a rich man’s toy. His response was to design a car that could be totally mass-produced, largely by semiskilled labor, and that could be driven by the owner and repaired by him. Contrary to legend, the 1908 Model T was not “cheap”: it was priced at a little over what the world’s highest-priced skilled mechanic, the American one, earned in a full year. (These days, the cheapest new car on the American market costs about onetenth of what an unskilled assembly-line worker gets in wages and benefits in a year.) But the Model T cost one-fifth of the cheapest model then on the market and was infinitely easier to drive and to maintain.

*5. Source: Demographics*

The unexpected; incongruities; changes in market and industry structure; and process needs—the sources of innovative opportunity discussed so far in Chapters 3 through 6—manifest themselves within a business, an industry, or a market. They may actually be symptoms of changes outside, in the economy, in society, and in knowledge. But they show up internally.

The remaining sources of innovative opportunity:

— Demographics;

— Changes in perception, meaning, and mood;

— New knowledge are external. They are changes in the social, philosophical, political, and intellectual environment.

***6. Source: Changes in Perception***

“THE GLASS IS HALF FULL”

In mathematics there is no difference between “The glass is half full” and “The glass is half empty.” But the meaning of these two statements is totally different, and so are their consequences. If general perception changes from seeing the glass as “half full” to seeing it as “half empty,” there are major innovative opportunities.

Here are a few examples of such changes in perception and of the innovative opportunities they opened up—in business, in politics, in education, and elsewhere. Whether sociologists or economists can explain the perceptional *Source: Changes in Perception* phenomenon is irrelevant. It remains a fact. Very often it cannot be quantified; or rather, by the time it can be quantified, it is too late to serve as an opportunity for innovation. But it is not exotic or intangible.

It is concrete: it can be defined, tested, and above all exploited.

*7. Source: New Knowledge*

Knowledge-based innovation is the “super-star” of entrepreneurship.

It gets the publicity. It gets the money. It is what people normally mean when they talk of innovation. Of course, not all knowledgebased innovations are important. Some are truly trivial. But amongst the history-making innovations, knowledge-based innovations rank high. The knowledge, however, is not necessarily scientific or technical.

Social innovations based on knowledge can have equal or even greater impact.

Knowledge-based innovation differs from all other innovations in its basic characteristics: time span, casualty rate, predictability, and in the challenges it poses to the entrepreneur. And like most “superstars,” knowledge-based innovation is temperamental, capricious, and hard to manage.

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**Theme of the lecture №2.** **Entrepreneurial Management**

**Plan of lecture:**

**1. Management for Entrepreneurs**

**2. The Entrepreneurial Business**

**3. Entrepreneurial strategies**

**1. Management for Entrepreneurs**

The entrepreneurial requires different management from the existing.

But like the existing it requires systematic, organized, purposeful management. And while the ground rules are the same for every entrepreneurial organization, the existing business, the public-service institution, and the new venture present different challenges, have different problems, and have to guard against different degenerative tendencies.

There is need also for individual entrepreneurs to face up to decisions regarding their own roles and their own commitments.

Entrepreneurship is based on the same principles, whether the entrepreneur is an existing large institution or an individual starting his or her new venture singlehanded. It makes little or no difference whether the entrepreneur is a business or a nonbusiness public-service organization, nor even whether the entrepreneur is a governmental or nongovernmental institution. The rules are pretty much the same, the things that work and those that don’t are pretty much the same, and so are the kinds of innovation and where to look for them. In every case there is a discipline we might call *Entrepreneurial Management.*

Yet the existing business faces different problems, limitations, and constraints from the solo entrepreneur, and it needs to learn different things. The existing business, to oversimplify, knows how to manage but needs to learn how to be an entrepreneur and how to innovate. The nonbusiness public-service institution, too, faces different problems, has different learning needs, and is prone to making different mistakes.

And the new venture needs to learn how to be an entrepreneur and how to innovate, but above all, it needs to learn how to manage.

For each of these three:

• the existing business

• the public-service institution

• the new venture

a specific guide to the practice of entrepreneurship must be developed.

What does each have to do? What does each have to watch for?

And what had each better avoid doing?

Logically, the discussion might start with the new venture, just as, logically, the study of medicine might start with the embryo and newborn baby. But the medical student starts out by studying the anatomy and pathology of the adult, and the practice of entrepreneurship is likewise best started by discussing the “adult,” the existing business and the policies, practices and problems that are pertinent in managing it for entrepreneurship.

Today’s businesses, especially the large ones, simply will not survive in this period of rapid change and innovation unless they acquire entrepreneurial competence. In this respect the late twentieth century is totally different from the last great entrepreneurial period in economic history, the fifty or sixty years that came to an end with the outbreak of World War I. There were not many big businesses around in those years, and not even many middle-sized ones. Today, it is not only in the self-interest of the many existing big businesses to learn to manage themselves for entrepreneurship; they have a social responsibility to do so. In sharp contrast to the situation a century ago, rapid destruction of the existing businesses—especially the big ones—by innovation, the “creative destruction” by the innovator, in Joseph Schumpeter’s famous phrase, poses a genuine social threat today to employment, to financial stability, to social order, and to governmental responsibility.

**2. The Entrepreneurial Business**

“Big businesses don’t innovate,” says the conventional wisdom. This sounds plausible enough. True, the new, major innovations of this century did not come out of the old, large businesses of their time.

The railroads did not spawn the automobile or the truck; they did not even try. And though the automobile companies did try (Ford and General Motors both pioneered in aviation and aerospace), all of today’s large aircraft and aviation companies have evolved out of separate new ventures. Similarly, today’s giants of the pharmaceutical industry are, in the main, companies that were small or nonexistent fIfty years ago when the first modern drugs were developed. Everyone of the giants of the electrical industry—General Electric, Westinghouse, and RCA in the United States; Siemens and Philips on the Continent; Toshiba in Japan—rushed into computers in the 1950s.

Not one was successful. The field is dominated by IBM, a company that was barely middle-sized and most definitely not high-tech forty years ago.

The new always looks so small, so puny, so unpromising next to the size and performance of maturity. Anything truly new that looks big is indeed to be distrusted. The odds are heavily against its succeeding.

And yet successful innovators, as was argued earlier, start small and, above all, simple.

The claim of so many businesses, “Ten years from now, ninety percent of our revenues will come from products that do not even exist today,” is largely boasting. Modifications of existing products, yes; variations, yes; even extensions of existing products into new markets and new end uses—with or without modifications.

But the truly new venture tends to have a longer lead time. Successful businesses, businesses that are today in the right markets with the right products or services, are likely ten years hence to get three-quarters of their revenues from products and services that exist today, or from their linear descendants.

In fact, if today’s products or services do not generate a continuing and large revenue stream, the enterprise will not be able to make the substantial investment in tomorrow that innovation requires.

It thus takes special effort for the existing business to become entrepreneurial and innovative. The “normal” reaction is to allocate productive resources to the existing business, to the daily crisis, and to getting a little more out of what we already have. The temptation in the existing business is always to feed yesterday and to starve tomorrow.

It is, of course, a deadly temptation. The enterprise that does not innovate inevitably ages and declines. And in a period of rapid change such as the present, an entrepreneurial period, the decline will be fast.

Once an enterprise or an industry has started to look back, turning it around is exceedingly difficult, if it can be done at all. But the obstacle to entrepreneurship and innovation which the success of the present business constitutes is a real one. The problem is precisely that the enterprise is so successful, that it is “healthy” rather than degeneratively diseased by bureaucracy, red tape, or complacency.

This is what makes the examples of existing businesses that do manage successfully to innovate so important, and especially the examples of existing large and fair-sized businesses that are also successful entrepreneurs and innovators. These businesses show that the obstacle of success, the obstacle of the existing, *can* be overcome. And it can be overcome in such a way that both the existing and the new, the mature and the infant, benefit and prosper. The large companies that are successful entrepreneurs and innovators—Johnson & Johnson, Hoechst, ASEA, 3M, or the one hundred middle-sized “growth” companies—clearly know how to do it.

Where the conventional wisdom goes wrong is in its assumption that entrepreneurship and innovation are natural, creative, or spontaneous.

If entrepreneurship and innovation do not well up in an organization, something must be stifling them. That only a minority of existing successful businesses are entrepreneurial and innovative is thus seen as conclusive evidence that existing businesses quench the entrepreneurial spirit.

But entrepreneurship is not “natural”; it is not “creative.” It is work. Hence, the correct conclusion from the evidence is the opposite of the one commonly reached. That a substantial number of existing businesses, and among them a goodly number of fair-sized, big, and very big ones, succeed as entrepreneurs and innovators indicates that entrepreneurship and innovation can be achieved by any business.

But they must be consciously striven for. They can be learned, but it requires effort. Entrepreneurial businesses treat entrepreneurship as a duty. They are disciplined about it … they work at it … they practice it.

Specifically, entrepreneurial management requires *policies and practices* in four major areas.

First, the organization must be made receptive to innovation and willing to perceive change as an opportunity rather than a threat. It must be organized to do the hard work of the entrepreneur. Policies and practices are needed to create the entrepreneurial climate.

Second, systematic measurement or at least appraisal of a company’s performance as entrepreneur and innovator is mandatory, as well as built-in learning to improve performance.

Third, entrepreneurial management requires specilic practices pertaming to organizational structure, to stalling and managing, and to compensation, incentives, and rewards.

Fourth, there are some “dont’s”: things *not to do* in entrepreneurial management.

And finally, there needs to be an innovation plan, with specific objectives laid out.

1. There is only one way to make innovation attractive to managers: a systematic policy of abandoning whatever is outworn, obsolete, no longer productive, as well as the mistakes, failures, and misdirections of effort. Every three years or so, the enterprise must put every single product, process, technology, market, distributive channel, not to mention every single internal staff activity, on trial for its life. It must ask: Would we *now* go into this product, this market, this distributive channel, this technology *today?* If the answer is “No,” one does not respond with, “Let’s make another study.” One asks, “What do we have to do to stop wasting resources on this product, this market, this distributive channel, this staff activity?”

Sometimes abandonment is not the answer, and may not even be possible. But then at least one limits further efforts and makes sure that productive resources of men and money are no longer devoured by yesterday. This is the right thing to do in any event to maintain the health of the organization: every organism needs to eliminate its waste products or else it poisons itself. It is, however, an absolute necessity, if an enterprise is to be capable of innovation and is to be receptive to it. “Nothing so powerfully concentrates a man’s mind as to know that he will be hung on the morning,” Dr. Johnson was fond of saying. Nothing so powerfully concentrates a manager’s mind on innovation as the knowledge that the present product or service will be abandoned within the foreseeable future.

Innovation requires major effort. It requires hard work on the part of performing, capable people—the scarcest resource in any organization.

“Nothing requires more heroic efforts than to keep a corpse from stinking, and yet nothing is quite so futile,” is an old medical proverb. In almost any organization I have come across, the best people are engaged in this futile effort; yet all they can hope to accomplish is to delay acceptance of the inevitable a little longer and at great cost.

But if it is known throughout the organization that the dead will be left to bury their dead, then the living will be willing—indeed, eager—to go to work on innovation.

To allow it to innovate, a business has to be able to free its best performers for the challenges of innovation. Equally it has to be able to devote financial resources to innovation. It will not be able to do either unless it organizes itself to slough off alike the successes of the past, the failures, and especially the “near-misses,” the things that “should have worked” but didn’t. If executives know that it is company policy to abandon, then they will be motivated to look for the new, to encourage entrepreneurship, and will accept the need to become entrepreneurial themselves. This is the first step—a form of organizational hygiene.

2. The second step, the second policy needed to make an existing business “greedy for new things,” is to face up to the fact that all existing products, services, markets, distributive channels, processes, technologies, have limited—and usually short—health and life expectancies.

An analysis of the life cycle of existing products, services, and so on has become popular since the 1970s. Some examples are the strategy concepts advocated by the Boston Consulting group; the books on strategy by the Harvard Business School professor Michael Porter; and socalled portfolio management.

In the strategies that have been widely advertised these last ten years, especially portfolio management, the findings of such analysis constitute an action program by themselves. This is a misunderstanding and bound to lead to disappointing results, as a good many companies found out when they rushed into such strategies in the late 1970s and early 1980s. The findings should lead to a *diagnosis.* This in turn requires judgment. It requires knowledge of the business, of its products, its markets, its customers, its technologies.

It requires experience rather than analysis alone. The idea that bright young people straight from business school and equipped only with sharp analytical tools could crunch out of their computer life-and-death decisions about businesses, products, and markets is pure quackery, to be blunt.

This analysis (in *Managing for Results,* I called it a “Business XRay”) is intended as a tool to find the right questions rather than a way automatically to come up with the right answers. It is a challenge to all the knowledge that can be found in a given company, and all the experience. It will—and should—provoke dissent. The action that follows from classifying this or that product as “today’s breadwinner” is a *risk-taking decision.* And so is what to do with the product that is on the point of becoming “yesterday’s breadwinner,” or with an “unjustified specialty,” or with an “investment in managerial ego.”

3. The Business X-Ray furnishes the information needed to define how much innovation a given business requires, in what areas, and within what time frame. The best and simplest approach to this was developed by Michael J. Kami as a member of the Entrepreneurship Seminar at the New York University Graduate Business School in the 1950s. Kami first applied his approach to IBM, where he served as head of business planning; and then, in the early 1960s, to Xerox, where he served for several years in a similar capacity.

In this approach a company lists each of its products or services, but also the markets each serves and the distributive channels it uses, in order to estimate their position on the product life cycle. How much longer will this product still grow? How much longer will it still maintain itself in the marketplace? How soon can it be expected to age and decline—and how fast? When will *it* become obsolescent? This enables the company to estimate where it would be if it confined itself to managing to the best of its ability what already exists. And this then shows the gap between what can be expected realistically, and what a company still needs to do to achieve its objectives, whether in sales, in market standing, or in profitability.

The gap is the minimum that must be filled *if* the company is not to go downhill. In fact, the gap has to be filled or the company will soon start to die. The entrepreneurial achievement must be large enough to fill the gap, and timely enough to fill it before the old becomes obsolescent.

But innovative efforts do not carry certainty; they have a high probability of failure and an even higher one of delay. A company therefore should have under way at least three times the innovative efforts which, *if* successful, would fill the gap.

Most executives consider this excessively high. Yet experience has proved that it errs on the low side, if it errs at all. To be sure, some innovative efforts will do better than anyone expects, but others will do much less well. And everything takes longer than we hope or estimate; everything also requires more effort. Finally, the one thing certain about any major innovative effort is that there are going to be last-minute hitches and last-minute delays. To demand innovative efforts which, if everything goes according to plan, yield three times the minimum results needed is only elementary precaution.

4. Systematic abandonment; the Business X-Ray of the existing business, its products, its services, its markets, its technologies; and the definition of innovation gap and innovation need—these together enable a company to formulate an *entrepreneurial plan* with objectives for innovation and deadlines.

Such a plan ensures that the innovation budget is adequate. And— the most important result of all—it determines how many people are needed, with what abilities and capacities. Only when people with proven performance capacity have been assigned to a project, supplied with the tools, the money, and the information they need to do the work, and given clear and unambiguous deadlines—only then do we have a plan. Until then, we have “good intentions,” and what those are good for, everybody knows.

These are the fundamental policies needed to endow a business with entrepreneurial management; to make a business and its management greedy for new things; to make it perceive innovation as the healthy, normal, necessary course of action. Because it is based on a “Business X-Ray”—that is, on an analysis and diagnosis of the current business, its products, services, and markets—this approach also ensures that the existing business will not be neglected in the search for the new, and that the opportunities inherent in the existing products, services, and markets will not be sacrificed to the fascination with novelty.

The Business X-Ray is a tool for decision making. It enables us, indeed forces us, to allocate resources to results in the existing business. But it also makes it possible for us to determine how much is needed to create the business of tomorrow and its new products, new services, and new markets. It enables us to turn innovative intentions into innovative performance.

To render an existing business entrepreneurial, management must take the lead in making obsolete its own products and services rather than waiting for a competitor to do so. The business must be managed so as to perceive in the new an opportunity rather than a threat. It must be managed to work *today* on the products, services, processes, and technologies that will make a different tomorrow.

Entrepreneurship in the existing business also requires managerial practices.

1. First among these, and the simplest, is focusing managerial vision on opportunity. People see what is presented to them; what is not presented tends to be overlooked. And what is presented to most managers are “problems”—especially in the areas where performance falls below expectations—which means that managers tend not to see the opportunities. They are simply not being presented with them.

Management, even in small companies, usually get a report on operating performance once a month. The first page of this report always lists the areas in which performance has fallen below budget, in which there is a “shortfall,” in which there is a “problem.” At the monthly management meeting, everyone then goes to work on the so-called problems. By the time the meeting adjourns for lunch, the whole morning has been taken up with the discussion of those problems.

Of course, problems have to be paid attention to, taken seriously, and tackled. But if they are the only thing that is being discussed, opportunities will die of neglect. In businesses that want to create receptivity to entrepreneurship, special care is therefore taken that the opportunities are also attended to (cf. Chapter 3 on the unexpected success).

In these companies, the operating report has *two* “first pages”: the traditional one lists the problems; the other one lists all the areas in which performance is better than expected, budgeted, or planned for. For, as was stressed earlier, the unexpected success in one’s own business is an important symptom of innovative opportunity.

If it is not seen as such, the business is altogether unlikely to be entrepreneurial. In fact the business and its managers, in focusing on the “problems,” are likely to brush aside the unexpected success as an intrusion on their time and attention. They will say, “Why should we do anything about it? It’s going well without our messing around with it.” But this only creates an opening for the competitor who is a little more alert and a little less arrogant.

Typically, in companies that are managed for entrepreneurship, there are therefore two meetings on operating results: one to focus on the problems and one to focus on the opportunities.

One medium-sized supplier of health-care products to physicians and hospitals, a company that has gained leadership in a number of new and promising fields, holds an “operations meeting” the second and the last Monday of each month. The first meeting is devoted to problems—to all the things which, in the last month, have done less well than expected or are still doing less well than expected six months later. This meeting does not differ one whit from any other operating meeting. But the second meeting—the one on the last Monday—discusses the areas where the company is doing better than expected: the sales of a given product that have grown faster than projected, or the orders for a new product that are coming in from markets for which it was not designed. The top management of the company (which has grown ten-fold in twenty years) believes that its success is primarily the result of building this opportunity focus into its monthly management meetings. “The opportunities we spot in there,” the chief executive officer has said many times, “are not nearly as important as the entrepreneurial attitude which the habit of looking for opportunities creates throughout the entire management group.”

2. This company follows a second practice to generate an entrepreneurial spirit throughout its entire management group. Every six months it holds a two-day management meeting for all executives in charge of divisions, markets, and major product lines—a group of about forty or fifty people. The first morning is set aside for reports to the entire group from three or four executives whose units have done exceptionally well as entrepreneurs and innovators during the past year. They are expected to report on what explains their success: “What did we do that turned out to be successful?” “How did we find the opportunity?” “What have we learned, and what entrepreneurial and innovative plans do we have in hand now?”

Again, what actually is reported in these sessions is less important than the impact on attitudes and values. But the operating managers in the company also stress how much they learn in each of these sessions, how many new ideas they get, and how they return back home from these sessions full of plans and eager to try them.

Entrepreneurial companies always look for the people and units that do better and do differently. They single them out, feature them, and constantly ask them: “What are you doing that explains your success?” “What are you doing that the rest of us aren’t doing, and what are you *not* doing that the rest of us are?”

3. A third practice, and one that is particularly important in the large company, is a session—informal but scheduled and well prepared— in which a member of the top management group sits down with the junior people from research, engineering, manufacturing, marketing, accounting and so on. The senior opens the session by saying: “I’m not here to make a speech or to tell you anything, I’m here to listen. I want to hear from you what your aspirations are, but above all, where you see opportunities for this company and where you see threats. And what are your ideas for us to try to do new things, develop new products, design new ways of reaching the market? What questions do you have about the company, its policies, its direction … its position in the industry, in technology, in the marketplace?” These sessions should not be held too often; they are a substantial time-burden on senior people. No senior executive should therefore be expected to sit down more than three times a year for a long afternoon or evening with a group of perhaps twenty-five or thirty juniors. But the sessions should be maintained systematically. They are an excellent vehicle for upward communications, the best means to enable juniors, and especially professionals, to look up from their narrow specialties and see the whole enterprise. They enable juniors to understand what top management is concerned with, and why. In turn, they give the seniors badly needed insight into the values, vision, and concerns of their younger colleagues. Above all, these sessions are one of the most effective ways to instill entrepreneurial vision throughout the company.

This practice has one built-in requirement. Those who suggest anything new, or even a change in the way things are being done, whether in respect to product or process, to market or service, should be expected to *go to work.* They should be asked to submit, within a reasonable period, a working paper to the presiding senior and to their colleagues in the session, in which they try to develop their idea.

What would it look like if converted into reality? What in turn does reality have to look like for the idea to make sense? What are the assumptions regarding customers and markets, and so on. How much work is needed how much money and how many people … and how much time? And what results might be expected?

Again, the yield of entrepreneurial ideas from all this may not be its most important product—though in many organizations the yield has been consistently high. The most valuable achievement may well be entrepreneurial vision, receptivity to innovation, and “greed for new things” throughout the entire organization.

For a business to be receptive to entrepreneurship, innovative performance must be included among the measures by which that business controls itself. Only if we assess the entrepreneurial performance of a business will entrepreneurship become action. Human beings tend to behave as they are expected to.

In the normal assessments of a business, innovative performance is conspicuous by its absence. Yet it is not particularly difficult to build measurement, or at least judgment, of entrepreneurial and innovative performance into the controls of the business.

1. The first step builds into each innovative project feedback from results to expectations. This indicates the quality and reliability of both our innovative plans and our innovative efforts.

Research managers long ago learned to ask at the beginning of any research project: “What results do we expect from this project? When do we expect those results? When do we appraise the progress of the project so that we have control?” They have also learned to check whether their expectations are borne out by the actual course of events.

This shows them whether they are tending to be too optimistic or too pessimistic, whether they expect results too soon or are willing to wait too long, whether they are inclined either to overestimate the impact of a successfully concluded research project or to underestimate it.

And this in turn enables them to correct said tendencies, and to identify both the areas in which they do well and the ones in which they tend to do poorly. Such feedback is, of course, needed for all innovative efforts, not merely for technical research and development.

The first aim is to find out what we are doing well, for one can always go ahead and do more of the same, even if we usually do not have the slightest idea why we are doing well in a given area. Next, one finds out the limitations on one’s strengths: for instance, a tendency either to underestimate the amount of time needed or to overestimate it; or a tendency to overestimate the amount of research required in a given area while underestimating the resources required for developing the results of research into a product or a process. Or one finds a tendency, very common and very damaging, to slow down marketing or promotion efforts for the new venture just when it is about to take off.

One of the most successful of the world’s major banks attributes its achievements to the feedback it builds into all new efforts, whether it is going into a new market such as South Korea, into equipment leasing, or into issuing credit cards. By building feedback from results to expectations for all new endeavors, the bank and its top management have also learned what they can expect from new ventures: How soon a new effort can be expected to produce results and when it should be supported by greater efforts and greater resources.

Such feedback is needed for all innovative efforts, the development and introduction of a new safety program, say, or a new compensation plan. What are the first indications that the new effort is likely to get into trouble and needs to be reconsidered? And what are the indications that enable us to say that this effort, even though it looks as if it were headed for trouble, is actually doing all right, but also that it may take more time than we originally anticipated?

2. The next step is to develop a systematic review of innovative efforts all together. Every few years an entrepreneurial management looks at all the innovative efforts of the business. Which ones should receive more support at this stage and should be pushed? Which ones have opened up new opportunities? Which ones, on the other hand, are not doing what we expected them to do, and what action should we take? Has the time come to abandon them, or, on the contrary, has the time come to redouble our efforts—but with what expectations and what deadline?

The top management people at one of the world’s largest and most successful pharmaceutical companies sit down once a year to review its innovative efforts. First, they review every new drug development, asking: “Is this development going in the right direction and at the right speed? Is it leading to something we want to put into our own line, or is it going to be something that won’t fit our markets so we’d better license it to another pharmaceutical manufacturer? Or ought we perhaps abandon it?” And then the same people look at all the other innovative efforts, especially in marketing, asking exactly the same questions. Finally, they review, equally carefully, the innovative performance of their major competitors. In terms of its research budget and its total expenditures for innovation, this company ranks only in the middle level. Its record as an innovator and entrepreneur is, however, outstanding.

3. Finally, entrepreneurial management entails judging the company’s total innovative performance against the company’s innovative objectives, against its performance and standing in the market, and against its performance as a business all together. Every five years, perhaps, top management sits down with its associates in each major area and asks: “What have you contributed to this company in the past five years that really made a difference? And what do you plan to contribute in the next five years?”

But are not innovative efforts by their nature intangible? How can one measure them?

It is indeed true that there are some areas in which no one can, or should, decide the degree of relative importance. Which is more signify cant, a breakthrough in basic research, which years later may lead to an effective cure for certain cancers, or a new formulation that enables patients to administer an old but effective medication themselves instead of having to visit a physician or a hospital three times a week? It is impossible to decide. Equally, a company must choose between a new way to service customers, which enables the company to retain an important account it would otherwise have lost, and a new product, which gives the company leadership in markets that, while still small, may within a few years become big and important ones. These are judgments rather than measurements. But they are not arbitrary; they are not even subjective.

And they are quite rigorous even though not capable of quantification.

Above all, they do what a “measurement” is meant to enable us to do: to take purposeful action based on knowledge rather than on opinion or guesswork.

The most important question for the typical business in this review is probably: Have we gained innovative leadership, or at least maintained it? Leadership does not necessarily equate with size. It means to be accepted as the leader, recognized as the standard-setter; above all, it means having the freedom to lead rather than being obliged to follow. This is the acid test of successful entrepreneurship in the existing business.

Policies, practices, and measurements make possible entrepreneurship and innovation. They remove or reduce possible impediments.

They create the proper attitude and provide the proper tools. But innovation is done by people. And people work within a structure.

For the existing business to be capable of innovation, it has to create a structure that allows people to be entrepreneurial. It has to devise relationships that center on entrepreneurship. It has to make sure that its rewards and incentives, its compensation, personnel decisions, and policies, all reward the right entrepreneurial behavior and do not penalize it.

1. This means, first, that the entrepreneurial, the new, has to be organized separately from the old and existing. Whenever we have tried to make an existing unit the carrier of the entrepreneurial project, we have failed. This is particularly true, of course, in the large business, but it is true in medium-sized businesses as well, and even in small businesses.

One reason is that (as said earlier) the existing business always requires time and effort on the part of the people responsible for it, and deserves the priority they give it. The new always looks so puny—so unpromising—next to the reality of the massive, ongoing business. The existing business, after all, has to nourish the struggling innovation. But the “crisis” in today’s business has to be attended to as well. The people responsible for an existing business will therefore always be tempted to postpone action on anything new, entrepreneurial, or innovative until it is too late. No matter what has been tried— and we have now been trying every conceivable mechanism for thirty or forty years—existing units have been found to be capable mainly of extending, modifying, and adapting what already is in existence.

The new belongs elsewhere.

2. This means also that there has to be a special locus for the new venture within the organization, and it has to be pretty high up. Even though the new project, by virtue of its current size, revenues, and markets, does not rank with existing products, somebody in top management must have the specific assignment to work on tomorrow as an entrepreneur and innovator.

This need not be a full-time job; in the smaller business, it very often cannot be a full-time job. But it needs to be a clearly defined job and one for which somebody with authority and prestige is fully accountable. These people will normally also be responsible for the policies necessary to build entrepreneurship into the existing business, for the abandonment analysis, for the Business X-Ray, and for developing the innovation objectives to plug the gap between what can be expected of the existing products and services and what is needed for survival and growth of the company. They are also normally charged with the systematic analysis of innovative opportunities—the analysis of the innovative opportunities presented in the preceding section of this book, the Practice of Innovation. They should be further charged with responsibility for the analysis of the innovative and entrepreneurial ideas that come up from the organization, for example, in the recommended “informal” session with the juniors.

And innovative efforts, especially those aimed at developing new businesses, products, or services, should normally report directly to this “executive in charge of innovation” rather than to managers further down the hierarchy. They should never report to line managers charged with responsibility for ongoing operations.

This will be considered heresy in most companies, particularly “well-managed” ones. But the new project is an infant and will remain one for the foreseeable future, and infants belong in the nursery.

The “adults,” that is, the executives in charge of existing businesses or products, will have neither time nor understanding for the infant project. They cannot afford to be bothered.

Disregard of this rule cost a major machine-tool manufacturer its leadership in robotics.

The company had the basic patents on machine tools for automated mass production. It had excellent engineering, an excellent reputation, and first-rate manufacturing. Everyone in the early years of factory automation—around 1975—expected it to emerge as the leader. Ten years later it had dropped out of the race entirely. The company had placed the unit charged with the development of machine tools for automated production three or four levels down in the organization, and had it report to people charged with designing, making, and selling the company’s traditional machine-tool lines. These people were supportive; in fact, the work on robotics had been mainly their idea. But they were far too busy defending their traditional lines against a lot of new competitors such as the Japanese, redesigning them to fit new specifications, demonstrating, marketing, financing, and servicing them. Whenever the people in charge of the “infant” went to their bosses for a decision, they were told, “I have no time now, come back next week.” Robotics were, after all, only a promise; the existing machine-tool lines produced millions of dollars each year.

Unfortunately, this is a common error. The best, and perhaps the only, *way* to avoid killing off the new by sheer neglect is to set up the innovative project from the start as a separate business.

The best known practitioners of this approach are three American companies: Procter & Gamble, the soap, detergent, edible oil, and food producer—a very large and aggressively entrepreneurial company; Johnson & Johnson, the hygiene and health-care supplier; and 3M, a major manufacturer of industrial and consumer products. These three companies differ in the details of practice but essentially all three have the same policy. They *set* up the new venture as a separate business from the beginning and put a project manager in charge. The project manager remains in charge until the project is either abandoned or has achieved its objective and become a full-fledged business. And until then, the project manager can mobilize all the skills as they are needed— research, manufacturing, finance, marketing—and put them to work on the project team.

A company that engages in more than one innovative effort at a time (and bigger companies usually do) might have all the “infants” report directly to the same member of the top management group. It does not greatly matter that the ventures have different technologies, markets, or product characteristics. They all are new, small, and entrepreneurial.

They are all exposed to the same “childhood diseases.” The problems from which the entrepreneurial venture suffers, and the decisions it requires, tend to be pretty much the same regardless of technology, of market, or of product line. Somebody has to have time for them, to give them the attention they need, to take the trouble to understand what the problems are, the crucial decisions, the things that really matter in a given innovative effort. And this person has to have sufficient stature in the business to be able to represent the infant project— and to make the decision to stop an effort if it is going nowhere.

3. There is another reason why a new, innovative effort is best set up separately: to keep away from it the burdens it cannot yet carry. Both the investment in a new product line and its returns should, for instance, not be included in the traditional return-on-investment analysis until the product line has been on the market for a number of years. To ask the fledgling development to shoulder the full burdens an existing business imposes on its units is like asking a six-year-old to go on a long hike carrying a sixty-pound pack; neither will get very far. And yet the existing business has requirements with respect to accounting, to personnel policy, to reporting of all kinds, which it cannot easily waive.

The innovative effort and the unit that carries it require different policies, rules, and measurements in many areas. How about the company’s pension plan, for instance? Often it makes sense to give people in the innovative unit a participation in future profits rather than to put them into a pension plan when they are producing, as yet, no earnings to supply a pension fund contribution.

The area in which separation of the new, innovative unit from the ongoing business is most important is compensation and rewards of key people. What works best in a going, established business would kill the “infant”—and yet not be adequate compensation for its key people.

Indeed, the compensation scheme that is most popular in large businesses, one based on return on assets or on investment, is a near-complete bar to innovation.

I learned this many years ago in a major chemical company.

Everybody knew that one of its central divisions had to produce new materials to stay in business. The plans for these materials were there, the scientific work had been done … but nothing happened. Year after year there was another excuse. Finally, the division’s general manager spoke up at a review meeting, “My management group and I are compensated primarily on the basis of return-on-investment. The moment we spend money on developing the new materials, our return will go down by half for at least four years. Even if I am still here in four years time when we should show the first returns on these investments— and I doubt that the company will put up with me that long if profits are that much lower—I’m taking bread out of the mouths of all my associates in the meantime. Is it reasonable to expect us to do this?” The formula was changed and the developmental expenses for the new project were taken out of the return-on-investment figures. Within eighteen months the new materials were on the market. Two years later they had given the division leadership in its field which it has retained to this day. Four years later the division doubled its profits.

In terms of compensation and rewards for innovative efforts, however, it is far easier to define what should not be done than it is to spell out what should. The requirements are conflicting: the new project must not be burdened with a compensation load it cannot carry, yet the people involved must be adequately motivated by rewards appropriate to their efforts.

Specifically, this means that the people in charge of the new project should be kept at a moderate salary. It is, however, quite unrealistic to ask them to work for less money than they received in their old jobs. People put in charge of a new area within an existing business are likely to make good money. They are also the people who could easily move to other jobs, either within or outside the company, in which they would make more money. One therefore has to start out with their existing compensation and benefits.

One method that both 3M and Johnson & Johnson use effectively is to promise that the person who successfully develops a new product, a new market, or a new service and then builds a business on it will become the head of that business: general manager, vice-president, or division president, with the rank, compensation, bonuses, and stock options appropriate to the level. This can be a sizable reward, and yet it does not commit the company to anything except in case of success.

Another method—and which one is preferable will depend largely on the tax laws at the time—is to give the people who take on the new development a share in future profits. The venture might, for instance, be treated as if it were a separate company in which the entrepreneurial managers in charge have a stake, say 25 percent. When the venture reaches maturity, they are bought out at a pre-set formula based on sales and profits.

One thing more is needed: the people who take on the innovating task in an existing business also “venture.” It is only fair that their employer share the risk. They should have the option of returning to their old job at their old compensation rate if the innovation fails.

They should not be rewarded for failure, but they should certainly not be penalized for trying.

4. As implied in discussing individual compensation, the returns on innovation will be quite different from those of the existing business and will have to be measured differently. To say, “We expect all our businesses to show at least a fifteen percent pre-tax return each year and ten percent annual growth” may make sense for existing businesses and existing products. It makes absolutely no sense for the new project, being at once much too high and much too low.

For a long time (years, in many cases) the new endeavor shows neither profits nor growth. It absorbs resources. But then it should grow very fast for quite a long time and return the money invested in its development at least fifty-fold—if not at a much higher rate—or else the innovation is a failure. An innovation starts small but it should end big. It should result in a new major business rather than in just another “specialty” or a “respectable” addition to the product line.

Only by analyzing a company’s own innovative experience, the feedback from its performance on its expectations, can the company determine what the appropriate expectations are for innovations in its industry and its markets. What are the appropriate time spans? And what is the optimal distribution of effort? Should there be a heavy investment of men and money at the beginning, or should the effort at the start be confined to one person, with a helper or two, working alone? When should the effort then be scaled up? And when should “development” become “business,” producing large but conventional returns?

These are key questions. The answers to them are not to be found in books. Yet they cannot be answered arbitrarily, by hunch, or by fighting it out. Entrepreneurial companies do know what patterns, rhythms, and time spans pertain to innovations in their specific industry, technology, and market.

The innovative major bank mentioned earlier knows, for instance, that a new subsidiary established in a new country will require investment for at least three years. It should break even in the fourth year, and should have repaid the total investment by the middle of the sixth year. If it still requires investment by the end of the sixth year, it is a disappointment and should probably be shut down.

A new major service—leasing, for example—has a similar though somewhat shorter cycle. Procter & Gamble—or so it looks from the outside—knows that its new products should be on the market and selling two to three years after work on them has begun. They should have established themselves as market leaders eighteen months later. IBM, it seems, figures on a five-year lead time for a new major product before market introduction. Within another year the new product should then start to grow fast. It should attain market leadership and profitability fairly early in its second year on the market, have repaid the full investment by the early months of the third year, and peak and level out in its fifth year on the market. By then, a new IBM product should already have begun to make it obsolescent.

The only way, however, to know these things is through the systematic analysis of the performance of the company and of its competitors, that is, by systematic feedback from innovation results to innovation expectations and by regular appraisal of the company’s performance as entrepreneur.

And once a company understands what results should and could be expected from its innovative efforts, it can then design the appropriate controls. These will both measure how well units and their managers perform in innovation and determine which innovative efforts to push, which to reconsider, and which to abandon.

5. The final structural requirement for entrepreneurship in the existing business is that a person or a component group should be held clearly accountable.

In the “middle-sized growth companies” mentioned earlier, this is usually the primary responsibility of the chief executive officer (CEO). In large companies, it probably is more likely a designated and very senior member of the top management group. In smaller businesses, this executive in charge of entrepreneurship and innovation may well carry other responsibilities as well.

The cleanest organizational structure for entrepreneurship, though suitable only in the very large company, is a totally separate innovating operation or development company.

The earliest example of this was set up more than one hundred years ago, in 1872, by Hefner-Alteneck, the first college-trained engineer hired by a manufacturing company anywhere, the German Siemens Company. Hefner started the first “research lab” in industry.

Its members were charged with inventing new and different products and processes. But they were also responsible for identifying new and different end uses and new and different markets. And they not only did the technical work; they were responsible for development of the manufacturing process, for the introduction of the new product into the marketplace, and for its profitability.

Fifty years later, in the 1920s, the American DuPont Company independently set up a similar unit and called it a Development Department. This department gathers innovative ideas from all over the company, studies them, thinks them through, analyzes them. Then it proposes to top management which ones should be tackled as major innovative projects. From the beginning, it brings to bear on the innovation all the resources needed: research, development, manufacturing, marketing, finance, and so on. It is in charge until the new product or service has been on the market for a few years.

Whether the responsibility for innovation rests with the chief executive officer, with another member of top management, or with a separate component, whether it is a full-time assignment or part of an executive’s responsibilities, it should always be set up and recognized both as a separate responsibility and as a responsibility of top management.

And it should always include the systematic and purposeful search for innovative opportunities.

It might be asked, Are all these policies and practices necessary?

Don’t they interfere with the entrepreneurial spirit and stifle creativity?

And cannot a business be entrepreneurial without such policies and practices? The answer is, Perhaps, but neither very successfully nor for very long.

Discussions of entrepreneurship tend to focus on the personalities and attitudes of top management people, and especially of the chief executive.\* Of course, any top management can damage and stifle entrepreneurship within its company. It’s easy enough. All it takes is to say “No” to every new idea and to keep on saying it for a few years—and then make sure that those who came up with the new ideas never get a reward or a promotion and become ex-employees fairly swiftly. It is far less certain, however, that top management personalities and attitudes can by themselves—without the proper policies and practices—create an entrepreneurial business, which is what most of the books on entrepreneurship assert, at least by implication.

In the few short-lived cases I know of, the companies were built and still run by the founder. Even then, when it gets to be successful the company soon ceases to be entrepreneurial unless it adopts the policies and practices of entrepreneurial management.

The reason why top management personalities and attitudes do not suffice in any but the very young or very small business is, of course, that even a medium-sized enterprise is a pretty large organization. It requires a good many people who know what they are supposed to do, want to do it, are motivated toward doing it, and are supplied with both the tools and continuous reaffirmation. Otherwise there is only lip service; entrepreneurship soon becomes confined to the CEO’s speeches.

And I know of no business that continued to remain entrepreneurial beyond the founder’s departure, unless the founder had built into the organization the policies and practices of entrepreneurial management.

If these are lacking, the business becomes timid and backward-looking within a few years at the very latest. And these companies do not even realize, as a rule, that they have lost their essential quality, the one element that had made them stand out, until it is perhaps too late. For this realization one needs a measurement of entrepreneurial performance.

Two companies that were entrepreneurial businesses *par excellence* under their founders’ management are good examples: Walt Disney Productions and McDonald’s. The respective founders, Walt Disney and Ray Kroc, were men of tremendous imagination and drive, each the very embodiment of creative, entrepreneurial, and innovative thinking. Both built into their companies strong operating day-to-day management. But both kept to themselves the entrepreneurial responsibility within their companies. Both depended on the “entrepreneurial personality” and did not embed the entrepreneurial spirit in specific policies and practices. Within a few years after the death of these men, their companies had become stodgy, backward-looking, timid, and defensive.

Companies that have built entrepreneurial management into their structure—Procter & Gamble, Johnson & Johnson, Marks and Spencer—continue to be innovators and entrepreneurial leaders decade after decade, irrespective of changes in chief executives or economic conditions.

**3. Entrepreneurial strategies**

Just as entrepreneurship requires entrepreneurial management, that is, practices and policies within the enterprise, so it requires practices and policies outside, in the marketplace. It requires entrepreneurial strategies.

“Fustest with the Mostest”

Of late, “strategy in business” has become the “in” word, with any number of books written about it.† However, I have not come across any discussion of entrepreneurial strategies. Yet they are important; they are distinct; and they are different.

There are four specifically entrepreneurial strategies:

1. Being “Fustest with the Mostest”;

2. “Hitting Them Where They Ain’t”;

3. Finding and occupying a specialized “ecological niche”;

4. Changing the economic characteristics of a product, a market, or an industry.

These four strategies are not mutually exclusive. One and the same entrepreneur often combines two, sometimes even elements of three, in one strategy. They are also not always sharply differentiated; the same strategy might, for instance, be classified as “Hitting Them Where They Ain’t” or as “Finding and occupying a specialized ‘ecological niche.’” Still, each of these four has its prerequisites. Each fits certain kinds of innovation and does not fit others. Each requires specific behavior on the part of the entrepreneur.

Finally, each has its own limitations and carries its own risks.

BEING “FUSTEST WITH THE MOSTEST”

Being “Fustest with the Mostest” was how a Confederate cavalry general in America’s Civil War explained consistently winning his battles. In this strategy the entrepreneur aims at leadership, if not at dominance of a new market or a new industry.

Being “Fustest with the Mostest” does not necessarily aim at creating a big business right away, though often this is indeed the aim. But it aims from the start at a permanent leadership position.

Being “Fustest with the Mostest” is the approach that many people consider the entrepreneurial strategy *par excellence.* Indeed, *if* one were to go by the popular books on entrepreneurs, one would conclude that being “Fustest with the Mostest” is the only entrepreneurial strategy—and a good many entrepreneurs, especially the high-tech ones, seem to be of the same opinion.

They are wrong, however. To be sure, a good many entrepreneurs have indeed chosen this strategy. Yet being “Fustest with the Mostest” is not even the dominant entrepreneurial strategy, let alone the one with the lowest risk or the highest success ratio. On the contrary, of all entrepreneurial strategies it is the greatest gamble. And it is unforgiving, making no allowances for mistakes and permitting no second chance.

But if successful, being “Fustest with the Mostest” is highly rewarding.

Here are some examples to show what this strategy consists of and what it requires.

Hoffmann-LaRoche of Basel, Switzerland, has for many years been the world’s largest and in all probability its most profitable pharmaceutical company. But its origins were quite humble: until the mid1920s, Hoffmann-LaRoche was a small and struggling manufacturing chemist, making a few textile dyes. It was totally overshadowed by the huge German dye-stuff makers and two or three much bigger chemical firms in its own country. Then it gambled on the newly discovered vitamins at a time when the scientific world still could not quite accept that such substances existed. It acquired the vitamin patents—nobody else wanted them. It hired the discoverers away from Zurich University at several times the salaries they could hope to get as professors, salaries even industry had never paid before. And it invested all the money it had and all *it* could borrow in manufacturing and marketing these new substances.

The strategy of being “Fustest with the Mostest” has to hit right on target or it misses altogether. Or, to vary the metaphor, being “Fustest with the Mostest” is very much like a moon shot: a deviation of a fraction of a minute of the arc and the missile disappears into outer space. And once launched, the “Fustest with the Mostest” strategy is difficult to adjust or to correct.

To use this strategy, in other words, requires thought and careful analysis. The entrepreneur of so much of the popular literature or of Hollywood movies, the person who suddenly has a “brilliant idea” and rushes off to put it into effect, is not going to succeed with it. In fact, for this strategy to succeed at all, the innovation must be based on a careful and deliberate attempt to exploit one of the major opportunities for innovation.

**“Hit Them Where They Ain’t”**

Two completely different entrepreneurial strategies were summed up by another battle-winning Confederate general in America’s Civil War, who said: “Hit Them Where They Ain’t.”

They might be called creative imitation and entrepreneurial judo, respectively.

CREATIVE IMITATION

Creative imitation is clearly a contradiction in terms. What is creative must surely be original. And if there is one thing imitation is not, it *is* “original.” Yet the term fits. It describes a strategy that is “imitation” in its substance. What the entrepreneur does is something somebody else has already done. But it is “creative” because the entrepreneur applying the strategy of “creative imitation” understands what the innovation represents better than the people who made it and who innovated.

The foremost practitioner of this strategy and the most brilliant one is IBM. But it is also very largely the strategy that Procter & Gamble has been using to obtain and maintain leadership in the soap, detergent, and toiletries markets. And the Japanese Hattori Company, whose Seiko watches have become the world’s leader, also owes its domination of the market to creative imitation.

Like being “Fustest with the Mostest,” creative imitation is a strategy aimed at market or industry leadership, if not at market or industry dominance. But it is much less risky. By the time the creative imitator moves, the market has been established and the new venture has been accepted. Indeed, there is usually more demand for it than the original innovator can easily supply. The market segmentations are known or at least knowable. By then, too, market research can find out what customers buy, how they buy, what constitutes value for them, and so on. Most of the uncertainties that abound when the first innovator appears have been dispelled or can at least be analyzed and studied. No one has to explain any more what a personal computer or a digital watch are and what they can do.

The creative innovator exploits the success of others. Creative imitation is not “innovation” in the sense in which the term is most commonly understood. The creative imitator does not invent a product or service; he perfects and positions it. In the form in which it has been introduced, it lacks something. It may be additional product features. It may be segmentation of product or services so that slightly different versions fit slightly different markets. It might be proper positioning of the product in the market. Or creative imitation supplies something that is still lacking.

Ecological Niches

The entrepreneurial strategies discussed so far, being “Fustest with the Mostest,” creative imitation, and entrepreneurial judo, all aim at market or industry leadership, if not at dominance. The “ecological niche” strategy aims at control. The strategies discussed earlier aim at positioning an enterprise in a large market or a major industry. The ecological niche strategy aims at obtaining a practical monopoly in a small area. The first three strategies are competitive strategies. The ecological niche strategy aims at making its successful practitioners immune to competition and unlikely to be challenged. Successful practitioners of “Fustest with the Mostest,” creative imitation, and entrepreneurial judo become big companies, highly visible if not household words. Successful practitioners of the ecological niche take the cash and let the credit go. They wallow in their anonymity. Indeed, in the most successful of the ecological niche strategies, the whole point is to be so inconspicuous, despite the product’s being essential to a process, that no one is likely to try to compete.

There are three distinct niche strategies, each with its own requirements, its own limitations, and its own risks:

• the toll-gate strategy;

• the specialty skill strategy; and

• the specialty market strategy.

THE TOLL-GATE STRATEGY

Earlier, in Chapter 4, I discussed the strategy of the Alcon Company, which developed an enzyme to eliminate the one feature of the standard surgical operation for senile cataracts that went counter to the rhythm and the logic of the process. Once this enzyme had been developed and patented, it had a “toll-gate” position. No eye surgeon would do without it. No matter what Alcon charged for the teaspoonful of enzyme that was needed for each cataract operation, the cost was insignificant in relation to the total cost of the operation. I doubt that any eye surgeon or any hospital ever even inquired what the stuff cost.

The total market for this particular preparation was so small—maybe $50 million dollars a year worldwide—that it clearly would not have been worth anybody’s while to try to develop a competing product.

There would not have been one additional cataract operation in the world just because this particular enzyme had become cheaper. All that potential competitors could possibly do, therefore, would have been to knock down the price for everybody, without deriving much benefit for themselves.

THE SPECIALTY SKILL

Specialty skill niches are by no means confined to manufacturing.

Within the last ten years a few private trading firms, most of them in Vienna, Austria, have built a similar niche in what used to be called “barter” and is now called “counter-trade”: taking goods from a developing importing country, Bulgarian tobacco or Brazilian-made irrigation pumps, in payment for locomotives, machinery, or pharmaceuticals exported by a company in a developed country. And much earlier, an enterprising German attained such a hold on one specialty skill niche that guidebooks for tourists are still called by his name, “Baedeker.”

A specialty skill niche is rarely found by accident. In every single case, it results from a systematic survey of innovative opportunities. In every single case, the entrepreneur looks for the place where a specialty skill can be developed and can give a new enterprise a unique controlling position. Robert Bosch spent years studying the new automotive field to position his new company where it could immediately establish itself as the leader.

Hamilton Propeller, for many years the leading airplane propeller manufacturer in the United States, was the result of a systematic search by its founder in the early days of powered flight. Baedeker made several attempts to start a service for the tourist before he decided on the guidebook that then bore his name and made him famous.

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# Tneme of lecture № 3. Market environment for innovative entrepreneurship

**Plan of lecture:**

1. **Market development and access affect innovative entrepreneurship**
2. **State of competition**
3. **Access to foreign and domestic markets**
4. **Public procurement for innovation**
5. **Markets for technology**
6. **Market development and access affect innovative entrepreneurship**

**How do market development and access affect innovative entrepreneurship?**

Market development and access play a key role for innovative entrepreneurship since market opportunities will ultimately determine the conditions that lead to business success or failure. Competition can foster innovation by giving firms an incentive to be more effective and thus survive. Barriers to market entry are a substantial obstacle for innovative entrepreneurs. Moreover, improved access to domestic and foreign markets can facilitate the acquisition of foreign technologies and contribute to improved knowledge spillovers, as well as facilitate firms’ market expansion. At the same time, competition will not always benefit innovation: if it does not allow innovators to recover the costs of their investments in innovation, the rate of those investments will decline. Markets for technology also play a critical role in innovative entrepreneurship as they allow new ventures to get access to technologies that might be too time consuming, too costly or even impossible to develop internally.

In the context of innovative entrepreneurship, the following factors are worth taking into account:

* **Public procurement can be particularly influential** if set up specifically to support innovative entrepreneurs.
* **The impact of competition on innovative entrepreneurship is unclear.** The empirical evidence is mixed and there is still a lack of consensus on the impact of competition on innovation.
* **Markets for technology might be of highest value to smaller innovative companies** since they have fewer internal capabilities to develop technologies in-house and therefore need to rely more on external linkages. However, small and new ventures are often at a disadvantage for accessing those markets notably given substantial informational and negotiation costs.

**What are key policy dimensions regarding market development and access and innovative entrepreneurship?**

As for innovative businesses in general, common policy challenges across four policy dimensions are particularly relevant and include:

* How can governments support innovative firms to enter foreign markets? How can governments help innovative firms overcome barriers to entering foreign markets, such as unclear laws and regulation?
* How can policies help domestic innovative companies benefit from foreign direct investments?

→Access to foreign and domestic markets, which deals with imports, exports and foreign direct investments (FDI), and focuses on tariff and non-tariff barriers (e.g. quotas, administrative entry procedures) and other legal conditions that limit or encourage foreign firms’ entry.

* How can public policies improve innovative firms’ access to technologies that are key for in-house innovation but that would be too time consuming, too costly or even impossible to develop internally? How can public policies help innovative businesses increase revenues generated by the new technologies they develop?

→ Markets for technology, which refer to places where the technology seller (supply side) meet the technology buyer (demand side).

* How can regulations help ensure that innovative entrepreneurs face competitive market conditions vis-à-vis incumbents?

→ State of competition, defined as the extent to which firms independently strive in order to achieve profits, increase sales and keep market share.

* How can governments encourage innovative businesses through public procurement, while mitigating potential technological or organisational risks associated with innovation-oriented procurement?

→ Public procurement for innovation, which refers to the conditions involved in the acquisition of products and services by the public sector.

**What are the main rationales for policy interventions in support of market development and access?**

There are several rationales for policy attention to market development and access conditions. These notably include the following:

* A key rationale for policy interventions in support of market development and access is to guarantee competitive markets so that innovative entrepreneurs are not disadvantaged.
* Demand-side innovation policies based on public procurement can be used to stimulate innovation in areas where societal needs are pressing (e.g. health, environment). Demand-side innovation policies can also address other market failures: for example, innovation-oriented public procurement can be designed to help counter gaps in the supply of risk finance for small early stage ventures.

**What are the main policies that influence market development and access in the context of innovative entrepreneurship?**

As for innovative businesses in general, public policy can influence:

**State of competition** by:

* assessing the direct and unintended impacts of rules, regulations and policies on competition
* enabling businesses to benefit from their innovation through an appropriate intellectual property rights system
* further improving the competition policy framework through antitrust and network policies.

**Access to foreign and domestic markets** by:

* providing targeted support programmes to selected innovative businesses
* facilitating innovative companies’ access to information on foreign markets and to relevant training
* reducing tariff and non-tariff barriers to provide domestic firms with easier access to foreign advanced technologies and knowledge
* providing incentives to attract foreign firms’ R&D and innovation (e.g. introducing tax incentives, offering subsidies to cover various costs of setting up R&D centers)
* encouraging knowledge spillover (e.g. encouraging joint technology development involving foreign affiliates and local firms).

**Public procurement for innovation** by:

* developing expertise competencies within the public administration to design and monitor innovation-oriented procurement
* evaluating effectively the effects of public procurement on innovation
* reducing barriers for SMEs in accessing public procurement

**Markets for technology** by:

* raising companies’ awareness about the strategic opportunities offered by markets for technology
* supporting trading mechanisms that facilitate the match between supply and demand for technologies (e.g. licensing markets, university technology transfer offices, patent auction houses)
* improving information on markets for technology (e.g. making licensing deals public)
* establishing standards and transparent methods for valuing patents
* ensuring the existence of appropriate conditions to support competitive and well-structured markets for technology (e.g. through appropriate IP policy)

# 2. State of competition

It is widely recognized that the state of competition can significantly affect the number and the success of innovative firms. Both theory and evidence show that, on the one hand, competition gives firms an incentive to develop innovations in order to be more effective and to survive. On the other hand, competition may also negatively affect innovation by reducing the monopoly rents that induce a firm to invest in innovation. Overall, impediments to competition have been declining in all OECD countries in recent years, and competition policies have become more homogeneous across OECD countries. The state of competition critically depends on the regulatory framework, access to foreign and domestic markets and, more generally, on the trajectories of innovative new ventures. Public policy can improve the competition policy framework through antitrust and network policies, by assessing the impacts of rules and regulations on competition, by avoiding policies that have the potential to unnecessarily restrain competition and by considering the effects on innovation when designing and applying competition policies.

**What is the state of competition?**

Competition describes how firms independently strive in order to achieve profits, increase sales and keep market share. Competitive rivalry between firms may take place in terms of price, quality, service or combinations of these and other factors that customers may value (OECD, 2008).

Competition can be estimated by measures of industry concentration, such as the total market share of leading firms in the industry and the Herfindahl Index, which is the sum of the squares of the market shares of all firms in an industry. Higher values indicate greater concentration and lower competitive intensity.

The state of competition may be affected by the structure of the market, regulations, ownership, the nature of products, and the behaviours of certain economic agents.

Central concepts to describe the state of competition include:

* **Market power,** or the ability of firms to charge prices above competitive levels. Market power results from the structure of the market.
* **Barriers-to-entry** effectively shape the degree of competition, as high barriers-to-entry allow incumbents to engage in anti-competitive behaviour and raise prices to earn greater profits, while low barriers constrain both behaviours. The barriers-to-entry can result from natural factors (e.g. economies of scale arising from high fixed costs), sunk costs (i.e. the costs that a firm is unable to recover if it chooses to exit from a particular industry, such as research and development expenditures), practices of incumbent firms (e.g. locking in customers by long-term contracts) and regulation (e.g. restrictions on new entry into markets, lengthy and costly procedures to start new businesses).
* **Competitive neutrality** is defined as the state of competition in which no entity operating in an economic market is subject to undue competitive advantages or disadvantages.

**How does the state of competition affect innovative businesses?**

Theoretical models offer conflicting conclusions on the impact of competition on innovation.

* **On the one hand, competition may foster innovation by giving firms incentives to develop innovations in order to be more effective and to survive.** Strong competition drives the most inefficient firms out of the market and enables only the most efficient firms to survive. As a result, competitive pressures stimulate organizational innovation when successful innovation allows incumbents to subsist. Firms may have an incentive to develop new innovative products in order to differentiate their products and to thereby escape competition from rivals. Thus, strengthening competitive pressure by increasing exposure to imports can spur innovation by domestic firms. However, such benefits only arise if the framework conditions are favourable (e.g. available skilled personnel, access to finance).
* **On the other hand, competition may also negatively affect innovation by reducing the monopoly rents that induce a firm to invest in innovation** (Schumpeter, 1942). In this view, firms facing less competition have a greater incentive to innovate since they can expect adequate returns from their innovation due to the temporary monopoly power that would arise.
* W**hile the impact of competition on innovation is not clear-cut across theoretical models, it is generally recognized that this relationship depends on specific factors** and a wide range of assumptions regarding appropriability conditions, the type of innovation (e.g. product vs. process), the importance of the innovations in question (e.g. radical vs. incremental) and the change in the intensity of rivalry associated with innovation. For instance, Aghion et al. (2009) show that competitive pressures tend to stimulate innovation in technologically advanced sectors close to the technology frontier, while discouraging innovation in lagging sectors.

**What is the evidence on the state of competition and innovative businesses?**

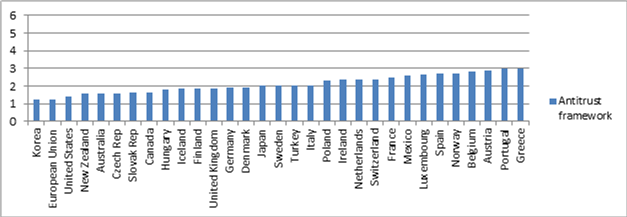
**The mostly used measures of competition are the concentration ratio and the Herfindahl index.** Both measures are traditional structural measures of market concentration based on market share. The concentration ratio is the percentage of market share of a given number of firms in an industry. For instance, the four-firm concentration ratio measures the total market share of the four largest firms in an industry. The concentration ratios illustrate the extent to which the largest firms control the industry. The Herfindahl index provides a more complete picture of industry competition than does the concentration ratio, since it takes into account the market shares of all firms in the industry. Indeed, it is calculated as the sum of the squares of the market shares of all firms in an industry. Higher values of these measures indicate greater concentration and lower competitive intensity.

**The extent to which national policies promote competition is measured by the OECD competition law and policy indicator (CLP).** The indicator is composed of: i.) the antitrust framework, i.e. policies enhancing competition in general, typically enforced by the competition authorities and ii.) network policies, i.e. policies encouraging competition in deregulated network industries, typically implemented by more or less independent sector regulators. The indicator of the antitrust framework measures the scope and enforcement of antitrust law, and the degree of independence of the competition authorities. The indicator of network policies covers the independence of sector regulators and access issues (for further details on the construction of the CLP indicator, please refer to Jens Høj, 2007). The data used in the indicators come from databases collected in collaboration with the governments of OECD member countries. The overall CLP indicator is calculated using about 100 data points for each country, with each data point measured on a scale from 0 (the best score) to 6 (the worst score).

In analysing the CLP indicators, three groups of OECD countries can be distinguished: countries with relatively strong CLP (Australia, Canada, the Czech Republic, Denmark, Italy, Korea, the United Kingdom and the United States), countries with relatively weak CLP (Austria, Greece, Japan, Mexico, Norway, Portugal and Switzerland), and the remaining countries that are not statistically distinguishable from the first two groups. Generally speaking, countries with a strong antitrust framework have relatively weak network policies, and vice-versa, with the two effects tending to offset each other in the summary indicator. This may suggest that countries counter-balance relatively weak antitrust policies by implementing strong network policies to promote competition. Conversely, countries with a tradition of strict enforcement of competition laws tend to rely on this for ensuring competition in network industries (OECD, 2009).

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##### **Figure 1. Antitrust framework indicator, score for OECD countries (2007) Scale 0 to 6 (from best to worst performance)**

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Source: Hoj (2007), « Competition Law and Policy Indicators for the OECD Countries », OECD Economics Department Working Papers, 568, OECD Publishing.

Overall, competition policies have become more homogeneous across OECD countries (Hoj, 2007). Competition laws have become quite similar, although the enforcement of these laws and the liberalisation of the network industries still significantly differ within the OECD area. Overall, impediments to competition have been declining in all OECD countries in recent years. OECD countries have been improving the general competition policy framework, but there still remains considerable room for further progress in promoting competition in network industries.

**What other topics relate to the state of competition and innovative businesses?**

The regulatory framework shapes competition in several ways and:

* **Administrative framework for entry and growth**. Administrative burdens can deter the entry of new firms into a market, reducing, thereby the competitive pressures on established firms.
* **Bankruptcy regulation**. Bankruptcy regulation influences the state of competition by shaping the process leading to non-profitable business exits and by affecting entry rate through the perceived risk of being an entrepreneur.
* **Product market regulation**. The state of competition closely relates to product market regulations.
* **Access to foreign and domestic markets**. Access to the domestic market affects the state of competition, since opening national markets to foreign companies and foreign products increases the number of competitors within domestic markets.
* **Costs of hiring and firing**. High costs of hiring and firing can constitute a barrier to entry and expansion, as they can discourage firms from hiring new employees. More generally, they can constitute barriers to an efficient reallocation of human resources.

##### **What other topics relate to the state of competition in the context of innovative entrepreneurship?**

**Trajectories of new innovative ventures**. The entry, growth and exit of innovative new ventures determine the state of competition and contribute to the process of creative destruction. An efficient process of firm entry and exit allows the death of less productive firms, and the success of more productive ones through the shift of resources to more valuable uses.

**What policies relate to the state of competition and innovative businesses?**

Public policy can influence the state of competition by:

* **Assessing the impacts of rules and regulations on competition and avoiding policies that have the potential to unnecessarily restrain competition.**

The OECD Competition Assessment Toolkit (OECD, 2011) provides a general methodology for identifying unnecessary restraints and developing alternative, less restrictive policies that still achieve government objectives. Four categories of rules and regulations are examined: i) those limiting the number or range of suppliers (regulations on entry, exclusive rights, rules and regulations on the inter-state or intra-national flow of goods, services and capital), ii) those limiting the ability of suppliers to compete (regulations on advertising and marketing, rules on content and setting standards, grandfather clauses), iii) those reducing the incentives of suppliers to compete (self-regulation, cooperation and information exchange between competitors, regulations that partially or completely exempt activities from national competition laws), and iv) those limiting the choices and information available to consumers.

* **Enabling companies to benefit from their innovation through an appropriate intellectual property rights system that allows temporary monopoly powers and creates incentives to innovate.**

Innovative companies face external obstacles to the use of intellectual property rights, such as the cost and time for application and for enforcement. Policies should address the financial constraints that limit firms’ use of intellectual property rights, reduce application time, and improve litigation and enforcement mechanisms by reducing the time and cost of enforcement procedures.

* **Further improving the competition policy framework through antitrust and network policies.**

OECD countries have been improving the general competition policy framework, but there still remains considerable room for further progress in promoting competition in both antitrust and network policies. First, weaknesses persist in competition policy enforcement despite the widespread implementation of appropriate legal frameworks. Second, progress can be achieved by strengthening competition in network industries, particularly in terms of establishing independent sector regulators.

* **Considering the effects on innovation when designing and applying competition policies.**

Competition policies should take into account the role played by innovation in preserving the dynamism of markets and should strive not to hinder firms’ innovative activities. Regulations should instruct firms about the results they must achieve, rather than instruct them about what they must do. Otherwise, there is a high probability that regulations will have a negative impact on innovation. Generally speaking, if a particular business behavior enhances the likelihood of innovation and provides gains in efficiency, these benefits should be traded-off against any potential increase in market power. If the former outweigh the latter, the business behavior may be viewed favourably. For instance, the expected increase in innovation resulting from a joint research venture between competitors can more than counterbalance any potential negative effects due to the reduction of competition and coordination of prices and production.

# 3. Access to foreign and domestic markets

Access to foreign and domestic markets can provide innovative businesses with learning opportunities and with products and services that support their innovation processes. Improved access to foreign markets may also increase the market size and the performance of innovative companies. Evidence confirms the positive effect of access to foreign and domestic markets on innovative firms. Yet the degree to which markets are open differs across countries. Access to foreign and domestic markets can be facilitated by migrants. Access to finance and business support infrastructure are often critical in accessing foreign markets. Several policies, including reducing tariff and non-tariff barriers and providing support to enter foreign markets, can help innovative businesses.

**What is access to foreign and domestic markets?**

Access to a market refers to the ease with which foreign firms can supply the market, either through trade (imports and exports) or through foreign direct investment (FDI). A variety of factors determines access to domestic and foreign markets, including most notably the following three that this node will focus on:

* **Tariff barriers**, which is taxation on foreign imports designed to raise their price and thus protect domestic industries.
* **Non-tariff barriers,** which includes all non-tariff barriers that restrict imports, such as import quotas, administrative entry procedures (e.g. bureaucratic delays at customs), standards for certain products and government interventions (e.g. in the form of subsidies to domestic firms).
* **Legal conditions** that limit or encourage foreign firms’ entry and the immigration of potentially innovative entrepreneurs. Note: the effects of migration on innovative entrepreneurship are not covered in this node but in the node on Access to labour for innovative entrepreneurship.

**How does access to foreign and domestic markets affect innovative businesses?**

* **Access to foreign markets** can support innovative businesses through **learning effects**:

→Foreign Direct Investment (FDI) may benefit innovative firms through technology and knowledge transfer, skills enhancement and enterprise **development through inter-firm linkages and spillover effects**. Foreign direct investment is often considered an efficient way to diffuse technology and better business methods to firms, and to contribute, thereby, to firms’ expansion and international competitiveness

→**Imports** can also serve as a channel for **technology diffusion and as a foundation for domestic innovation** by allowing domestic firms to access foreign technologies. These foreign technologies may typically be used in the form of intermediate production inputs for domestic firms’ product innovation, process innovation, marketing and organisational innovation.

→Improved **access to foreign markets** may help innovative companies **learn about market opportunities for new products.** Business activity in foreign markets helps firms understand trends in demand for products and services. It can improve a firm’s **ability to reflect those demands in their products and services.** To access foreign markets, firms must learn to recognize demands in those markets and adjust their products and services to reflect them. This is particularly important for innovative companies since they must continually innovate and keep up with new technology in order to participate in the global value chain (OECD, 2008a).

* Better **access to foreign markets** increases the size of the market and encourages firms to simultaneously export and invest. These joint decisions generally lead to **increases in sales and productivity gains.** Access to foreign markets can also contribute to improving innovative **firms’ performance** through **market diversification.** Access to foreign markets diversifies and expands markets. Market diversification is a useful tool, as it protects against excessive shocks to firms in a single market.
* **Access to the domestic market** contributes to intensifying competition, which can affect incentives for innovation. Competition impacts innovative efforts, although this can work in two contrasting directions. On one hand, competitive pressure can serve as an incentive to improve efficiency and help a firm survive. On the other hand, competition reduces monopoly rents resulting from innovation and may thereby lessen the incentive to invest in innovation.

**Evidence on the importance of access to foreign and domestic markets to the success of innovative businesses**

##### **Effects of exports on innovative businesses’ success**

Empirical literature shows positive effects on innovation resulting from improved access to foreign markets. For instance, Bustos (2011) finds that firms in sectors with higher tariff reductions abroad are more likely to enter the export market and to increase their spending on technology. Aw et al. (2011) find that export market expansion increases participation rates in exporting and R&D investment, both of which contribute to productivity improvement. In contrast, evidence of learning by exporting (i.e. access to foreign markets raising firms’ productivity) is rather weak, although some evidence shows a significant effect (Damijian et al., 2008; Hahn and Park, 2009; Park et al., 2010).

##### **Effects of imports on innovative businesses’ success**

Imports are found to be important for firms’ innovative performance and growth. For example, Goldberg et al. (2010) provide evidence that declines in input tariffs resulted in the introduction of new products by Indian manufacturing firms (1989-1997). Fernandes and Paunov (2010), using Chilean manufacturing firm product data from 1997-2003, show that the competitive effects of imports drive innovation, reflected in product quality upgrading. In addition to product innovation, lower input tariffs improve other performance indicators, such as firm productivity. Accessing more advanced technologies in the form of intermediate input from aboard is shown to be all the more valuable for producers in developing and emerging economies, which face a substantial technology gap (Amiti and Konings, 2007).

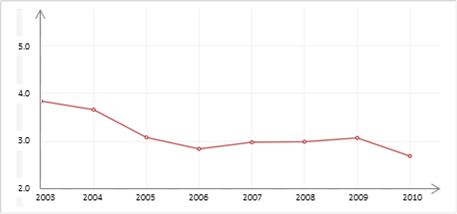
##### **Effects of foreign direct investment on innovative businesses’ success**

Evidence shows that inward foreign direct investments have generally a positive impact on domestic firm innovation, although the impact depends on multiple factors, such as the distance to the technology frontier and the type of FDI (vertical versus horizontal). For instance, Aghion et al. (2009) find that the entry of foreign firms led to subsequent productivity growth and product innovations among incumbents in technologically advanced sectors in the United Kingdom in the late 1980s. However, the entry of foreign firms discouraged innovation in industries far from the technology frontier, suggesting that the threat of foreign entry reduces the incentive to innovate in those sectors by reducing incumbents’ expected innovation rents. Kugler (2006) notes that vertical FDI have a larger potential for knowledge spillovers than horizontal FDI, since foreign suppliers are less concerned about knowledge leakages toward their domestic clients as they operate in different sectors and are not competitors. Overall, literature suggests that openness to trade and inward FDI may not suffice to support innovative firms. In the 1980s and 1990s, for instance, trade liberalization reforms in Latin American countries did not lead to expected growth (Easterly, 2001). At the same time, the use of diverse types of protectionism by emerging Asian economies has been considered to be critical to the development of their industries (Rodrik, 2011). Existing research suggests that firms in developing and emerging economies have often benefited little from knowledge spillovers from FDI for their own industries. Complementary policies seem necessary for generating the desired benefits (Chang et al., 2009).

**What is the evidence on access to foreign and domestic markets and innovative businesses?**

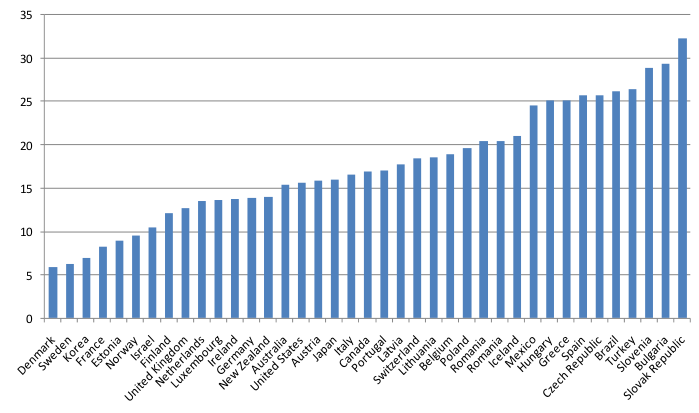
Tariff barriers are measured by the World Bank, which computes weighted mean applied tariff. Weighted mean applied tariff is the average of effectively applied rates weighted by the product import shares corresponding to each partner country. Data show a global reduction of these tariffs between 2003 and 2010 (Figure 1). The World Bank also assesses the accessibility of domestic markets by calculating import burden indicators. The import burden indicator is included in the Ease of Doing Business Index. It is the average of three measurements: i) the number of documents required to import goods, ii) the number of days necessary to comply with all procedures to import goods, and iii) the cost and fees levied on a 20-foot container. The cost measure does not include tariffs or trade taxes. Only the official cost required to import the goods is recorded (e.g. costs for documents, administrative fees for customs clearance and technical control). Data show that between 2009 and 2010, 33 economies reduced their barriers to trade and more than 100 economies improved trade procedures in the past 5 years by introducing electronic data interchange systems or by improving customs administration. Trading across borders has become faster and easier over the years. In 2010, it took on average 25.8 days to import goods (excluding maritime transport), compared to 30.9 days in 2006. In OECD high-income economies, import is even quicker and takes on average 11 days. But import burdens still vary substantially across countries, even across OECD countries (Figure 2). While the import burden is very low in Denmark, Korea and Sweden, it is much higher in some eastern European countries (World Bank, 2011).

##### **Figure 1: Tariff rate, applied, weighted mean, all products (%) from 2003 to 2010 worldwide**



World Bank staff estimates using the World Integrated Trade Solution system, based on data from United Nations Conference on Trade and Development's Trade Analysis and Information System (TRAINS) database and the World Trade Organization’s (WTO) Integrated Data Base (IDB) and Consolidated Tariff Schedules (CTS) database.  
Source: World Bank indicator available on[http://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS/countries?displ...](http://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS/countries?display=graph)

##### **Figure 2. Import burden, 2009, scale from 1 to 100**



Note: The scale reflects the average of i) number of documents, ii) time, and iii) cost to import a specific good  
Source: World Bank, Doing Business 2009

Measures of non-tariff barriers are also computed by the Heritage Foundation and The Wall Street Journal, as part of the Index of Economic Freedom. The measure of non-tariff barriers uses both qualitative and quantitative information. It includes the evaluation of quantity restrictions, price restrictions (e.g. antidumping duties, countervailing duties), regulatory restrictions (e.g. licensing, safety and industrial standards regulations, packaging, and trademark regulations), investment restrictions, customs restrictions (e.g. advance deposit requirements) and direct government intervention (e.g. subsidies and other aid, government industrial policy and regional development measures, government-financed research and other technology policies, competition policies, immigration policies, government procurement policies).

**What is the evidence on access to foreign and domestic markets and innovative businesses?**

##### **Evidence on tariff and non-tariff barriers**

Tariff and non-tariff barriers have been significantly reduced in recent years. But they still remain substantial in some sectors despite the significant efforts made by governments in many forums, including the World Trade Organization (WTO), and through co-operation among regulatory authorities. For instance, technical regulations still work as important trade barriers in the pharmaceutical, chemical and ICT industries.

**What other topics relate to access to foreign and domestic markets and innovative businesses?**

**Migration** can stimulate trade between migrants’ countries of origin and host countries, by lowering trade transaction costs as a result of migrants’ knowledge of both markets and their contact networks in both countries.

**Access to finance for innovative entrepreneurship** and **Firms’ access to finance for innovation**. Lack of access to finance may prevent domestic innovative firms from expanding internationally, implementing what they have learned from foreign companies, products and markets, and drawing profits from knowledge spillovers. Access to finance can also be a challenge for foreign innovative ventures. Banks are often reluctant to lend to migrants, possibly due to the higher failure rate of migrant businesses compared with native businesses.

**The business support infrastructure** can provide a wide range of services to help innovative companies to internationalize, such as training for international businesses and information on foreign markets, laws and regulations.

**What policies relate to access to foreign and domestic markets and innovative businesses?**

Public policy can foster access to domestic and foreign markets by:

**Reducing tariff and non-tariff barriers to provide firms with easier access to foreign advanced technologies, knowledge and markets.** While there have been successive rounds of tariff reductions, unilateral tariff liberalisation initiatives and widespread regional trade agreements, substantial tariffs and non-tariff barriers still remain in several sectors.

**Encouraging co-operation between regulatory authorities to harmonize national procedures.** Differences in regulation and duplication of regulatory procedures among trading partners are potential impediments to trade. Co-operation schemes between regulatory authorities can help in mitigating the negative effects of these differences in regulation. In pharmaceuticals, for instance, co-operation schemes between regulatory authorities include a harmonization of procedures (e.g. safety testing procedures, inspection procedures) and standards, which aims at promoting trade of medicinal products.

**Providing incentives to attract foreign firms’ R&D and innovation.** Countries increasingly compete to attract foreign firms’ R&D and innovation activities, in order to benefit from the positive effect of inward FDI on domestic firms. Various measures have been adopted, which include introducing tax incentives, offering subsidies to cover the costs of setting up R&D centers and hiring researchers, removing requirements for ownership of resulting intellectual property, and changing the rules concerning the treatment of foreign firms in national R&D programs.

**Facilitating knowledge spillover by providing supportive policy measures.** Inward foreign direct investment is an important source of knowledge for domestic firms. Policies could foster such knowledge spillover by encouraging partnerships between foreign firms and local firms. This could be done by integrating inward investment policies and cluster policies, promoting corporate spin-offs from foreign direct investors, encouraging joint technology development involving foreign affiliates and local businesses, and improving the flow of information about potential local suppliers to potential purchasers in multi-national enterprises. More generally, domestic firms’ ability to absorb and benefit from knowledge spillover depends on a wide range of policies that influence framework conditions (e.g. access to finance, supply of skilled workers capable of using foreign knowledge in innovation).

**Providing specific support to innovative ventures that have the potential to succeed in foreign markets.** Screening processes that identify domestic firms with a high potential to succeed in foreign markets can be an important way to improve policy efficiency.. Governments can then provide a wide range of services to help those ventures internationalize, such as training in conducting international businesses and supplying information on foreign markets, laws and regulations. Several types of financial support can also be useful, such as export insurance, loans and export credit guarantees, which are widely used to insure exporters against the risk of default by foreign customers.

# 4. Public procurement for innovation

Public procurement can support innovative businesses in several ways: it can stimulate innovation by creating a demand for innovative products or services, help innovative firms bridge the pre-commercialisation gap for their innovative products and services by awarding contracts for pre-commercial innovations (i.e. first sales of technology), help them achieve the critical mass needed to bring prices down and be competitive, and contribute to making access to private third-party funding easier. Evidence of the impacts of public procurement on innovation is still scarce, and the conclusions are mixed . Many OECD countries have shown a growing interest in public procurement policies in recent years. Thus, public procurement can provide critical support to investments in innovation and complement other types of finance. . Public policy can foster innovative businesses by reducing developing expertise and integrating new competencies within public administration to design and monitor innovation-oriented procurement, and by stimulating innovation-oriented public procurement within public agencies. Public policy should also address the risks associated with innovation-oriented public procurement and balance the multiple goals of public procurement in order to sustain its support of innovative businesses.

**What is public procurement?**

Public procurement refers to the conditions involved in the acquisition of products and services by the public sector. Public procurement may encourage innovation in three ways:

* First, regular public procurement, which occurs when public sector organisations buy readymade products for which no R&D is required, can incorporate innovation-related criteria in tender specifications and in assessment of tender documents.
* Second, public procurement may strategically create a demand for technologies or services that do not exist. This procurement involves purchasing a not-yet-existing product or systems.
* Third, public procurement may target the purchase of **research and development services** to support the activities and decisions of government and public authorities. This is the case for pre-commercial procurement of R&D (with no guarantee that the public sector will buy the goods or services developed).

**How does public procurement affect innovative businesses?**

* Innovation-oriented public procurement **stimulates innovation by creating a demand for innovative products or services.** Demand-pull theories suggest that the ability to produce innovations often requires market opportunity (i.e. demand). Demand then directs resources and capabilities to innovations to meet market needs (Schmookler, 1966; Rosenberg, 1969).
* Innovation-oriented public procurement can help firms **with easier access to private third-party funding.** Indeed, the provision of a market through the awarding of a contract and positive evaluation by a public agency can help attract additional financing from private sources.
* Public procurement can also help innovative businesses **bridge the pre-commercialisation gap** for their innovative products and services by awarding contracts for pre-commercial innovations (i.e. first sales of technology). Pre-commercial contracts allow innovative companies to **get testing and feedback** from public organizations on the performance of their products and services. These tests and feedback may be essential to improving the products and services, and provide firms with the opportunity to **enter the marketplace with a successful application** of their new products and services. Overall, public procurement **reduces possible concerns** about the perceived risk of adopting a new technology. Customer concerns about a firm’s or innovation’s viability often prevent innovative companies from selling their products, even if the product, process or service is technically superior to that of their rivals (Georghiou, 2007).
* Public procurement can help innovative firms achieve the critical mass and competitiveness needed to bring prices down, which may be a key factor in the commercialisation and adoption of an innovation.

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##### **Evidence on the importance of public procurement to the success of firm innovation businesses**

Public procurement has sparked a number of major technological innovations, including Internet Protocol technology and the Global Positioning System, and has played a central role in the emergence of a number of high-technology sectors in various countries, such as in the United States, Japan and France. However, evaluative evidence about of the impacts of public procurement on innovation and entrepreneurship **is scarce**, and the conclusions are **mixed.**

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##### **Evidence on the importance of public procurement to the success of innovative entrepreneurship**

**Evaluations of public procurement designed to support innovative entrepreneurship have highlighted multiple positive effects.** One evaluation has shown that Small Business Innovation Research Program awards stimulated the **creation of new firms** in the United States (NRC, 2000). The evaluation of the SBIR programme in the Netherlands in 2007 confirmed the positive effect of such programmes on the creation of new companies. Moreover, awardees grew significantly faster in terms of employment and growth, and were more likely to attract venture financing than comparable firms (Lerner, 1999). An assessment of the United Kingdom’s Small Business Research Initiative (SBRI) by Bound and Puttick (2010) confirms that SBRI-type programmes offer credibility for potential follow-on investments from the private sector.

**However, other evaluations of SBIR-type programmes have raised doubts about the programmes’ effectiveness.** Data showed that, in the United States, SBIR awards did **not lead to an increase in employment** in firms and appeared to **crowd out private money** that companies previously spent on R&D (Wallsten, 2000). The analysis also pointed to a selection process geared toward selecting firms that had the greatest likelihood of commercial success (**“picking winners”**).

Other evidence suggests that the impact of innovation-oriented procurement programmes depends on the targeted segments. Based on a survey of 1,100 innovative firms in Germany, Aschhoff and Sofka (2008) find that public procurement is especially effective for smaller firms in regions under economic stress, as well as in distributive and technological services.

**What is the evidence on public procurement and innovative businesses?**

Some countries have pursued active procurement policies fostering innovation for decades. In recent years, public procurement has received renewed impetus, as such OECD countries as Australia, Finland, Germany, Sweden and the United Kingdom, as well as the European Commission, have stressed public procurement as a key means to drive innovation. For instance, Germany has created a new Agreement on Public Procurement of Innovation by which six federal ministries (interior, economics, defence, transport, environment and research) will promote innovative procurement. All six ministries will publish long-term demand forecasts, engage in continuous market analysis to identify potential new solutions, offer professional training on legal options to promote innovation, and foster a strategic dialogue and exchange of experiences between procuring agencies, end-users, and industry and procurement agencies on all state levels.

The growing interest in public procurement policies reflects a greater awareness of the importance of feedback linkages between supply and demand in the innovation process. It also reflects a frequent perception that traditional supply-side policies have not succeeded in bringing about desired improvements in innovation performance. Furthermore, budget pressures create incentives to explore how innovation and entrepreneurship might be further fostered without increasing public spending.

**What other topics relate to public procurement and innovative businesses?**

**R&D and other investments in innovation**. Through R&D contracts, governments provide direct support to innovative firms’ investments in innovation.

**State of competition**. When procurement policies and procedures are discriminatory, not competitive or suffer from a lack of transparency, some agents, such as in-house providers, may benefit from undue preferential treatment. Incumbency advantages, including information concerning service levels and costs, and stronger positions to pre-qualify, may also deter the entry of competitors.

**Other types of finance**. Public procurement may be designed to help fill gaps in the supply of risk finance for innovative ventures. For instance, pre-commercial procurement of R&D (with no guarantee that the public sector will buy the goods or services developed) directly provides finance to businesses that conduct R&D for the government and public authorities.

**What policies relate to public procurement and innovative businesses?**

Public policy can help public procurement foster innovative businesses by:

**Developing expertise and integrating new competencies within public administration, to design and monitor innovation-oriented procurement** (e.g. developing the skills to evaluate bids for innovative solutions based on qualitative award criteria).

**Mitigating the risks associated with innovation-oriented public procurement.**

Public procurement of innovation entails risks beyond those associated with traditional procurement. A report for the European Commission (Tsipouri et al., 2010) identified major risks associated with the procurement of innovation, including:

* **Technological risks**, which are the risks of non-completion owing to technical features of the procured good or service. One way to mitigate this risk is through contract design (e.g. using cost-reimbursement contracts). Vendors might also be asked to analyse risks associated with their proposals and assess how these could best be managed in the bid submission. Additionally, market intelligence capacities can be developed through structured exchanges with industry experts.
* **Organisational risks,** which refer to risks stemming from within the procuring organisation and to risks related to the adoption of the goods and services by users. These might result from inadequate absorptive capacities in procuring institutions or incompatibilities with existing technologies and routines. These risks can be mitigated through early user involvement in the procurement process and user training schemes.

**Balancing the multiple goals of public procurement in order to secure the sustainability of public procurement programs that encourage innovation.**  
Public procurement programs targeting innovationraise important issues of governance and coherence between their primary goal, which is to purchase quality products and services for the public sector, and their secondary goal, which is to support innovation. Finding the right balance between both is essential to securing the sustainability of public procurement programs.

**Stimulating innovation-oriented public procurement within public agencies.**

Providing adequate resources, such as clear guidance, tools and support, can help public agencies use innovation-oriented public procurement. This involves providing documented examples of best practices, preparing sample documents and providing tools for tasks such as calculation of lifecycle costs (OECD, 2011b).

**What are specific policy approaches when it comes to innovative entrepreneurship?**

Public policy can help public procurement foster innovative entrepreneurship in particular by:

**Reducing barriers for SMEs in accessing public procurement.**

The large size of contracts is generally the most important barrier preventing SMEs from accessing public procurement (European Commission, 2010). Other important obstacles that disproportionately affect SMEs in accessing public procurement include overly complicated procedures that have to be carried out just to qualify for the tender, limited information, lack of clarity on how tender documents are written and lack of appropriate debriefing.

Policies and tools to allow SMEs better access to the market of public procurement include cutting tenders into lots, setting proportionate qualification levels and financial requirements, improving information about and publication of public procurement, and allowing SMEs to bid jointly (i.e. to rely on the economic and financial standing, and technical ability, of other undertakings).

**Evaluating the effects of public procurement on innovative entrepreneurship in order to improve public procurement programs.**

To date, there are few evaluations of public procurement programs targeting newly established innovative firms. Yet such evaluation is essential for increasing the effectiveness and efficiency of policies. Evaluation metrics and methodologies should be developed and used to explore the outcomes of public procurement policies on innovative entrepreneurship. Possible approaches include using data on patents to assess the innovation-related impacts of public procurement. Patterns of debt and equity financing might also be compared to get insight into the impact of public procurement on credibility for follow-on investors (OECD, 2011a).

Public procurement may support more specifically innovative entrepreneurs, including SMEs, by reserving a share of the total procurement budget for contracts or direct grants to small businesses.

# 5. Markets for technology

Markets for technology play a critical role in innovative businesses as they allow innovative firms to get access to technologies that are key for in-house innovation but that would be too time consuming, too costly or even impossible to develop internally. Markets for technology may also create markets and generate revenues for companies that develop new technologies, but who lack the capacity or desire to produce and commercialize them. Data, although scarce, also suggest that these markets may be important for innovative companies. Studies indicate a growing trend in transactions in markets for technology over the past decade. The development of markets for technology critically depends on the quality of national IP systems. It is closely related to technological collaborations among firms and with universities and public research institutes. Several policies could contribute to the development of markets for technology to support innovative businesses, including: raising firms’ awareness about the strategic opportunities offered by markets for technology, improving information in markets for technology, establishing standards and transparent methods for valuing patents, ensuring that the IP system does not discriminate against small firms, encouraging the commercialisation of IP, and, more generally, ensuring the existence of appropriate conditions to support competitive and well-structured markets for technology (e.g. through IP policy, competition policy, taxation policy, and R&D policies).

**What are markets for technology?**

Markets for technology refer to “transactions for the use, diffusion and creation of knowledge and technology” (Arora et al., 2001, p. 423). They are places where the technology seller (supply side) meets the technology buyer (demand side). Markets for technology can be characterised along several dimensions, including:

* their **purpose**, which may be to circulate existing technologies (e.g IP marketplace), or to produce or co-produce new technologies (e.g. based on bilateral contracts).
* the **type of technology transactions**. Technology transactions can **take different forms**, from pure licensing or sale of well-defined intellectual property, to complicated collaborative agreements that may include the development of the technology or its realization “from scratch” (Arora and Gambardella, 2010).
* the **actors involved,** which can be businesses, individuals, universities, government bodies and market intermediaries (e.g. technology brokers).

**How do markets for technology affect innovative businesses?**

Markets for technology may support innovative businesses by:

* Allowing innovative ventures to **adapt rapidly and at lower cost to the accelerated pace of innovation by getting access to technologies that already exist,** and which would be more time consuming, more costly and more difficult to reproduce internally than if they were purchased from the company that developed them.
* **Creating markets for firms that have developed innovations but cannot produce or commercialize them effectively.** Markets for technology provide a way to make money by selling their technology to companies that already have existing complementary assets (brand, distribution, production capacity). **Generating additional revenue from in-house innovations, especially when the technology has future potential for products or services** that are not part of the firm’s core strategy. By making inventions available to a **broader range of potential manufacturers,** markets for technology allow their use on a larger scale, and their embodiment in larger quantities and varieties of products, beyond the uses or applications foreseen by the sole proprietor.
* **Fostering innovation by facilitating the combination of existing technologies**. Inventions are born out of a combination of existing ideas, data and insights (Weitzman, 1998), which are initially separate and need to be put together for new ideas to emerge. Markets for technologies allow the exploitation of complementarities across innovative entities, hence boosting the collective efficiency of the involved innovators. For instance, new drug treatments are increasingly the result of joint work by biotech companies specialising in the identification and analysis of genetic pathways, and of pharmaceutical companies specialising in the effects of drugs on human health.
* **Encouraging firms to engage in innovative activities by enabling them to share risk and realize synergies with other companies.** At the same time, markets for technologies, such as IP marketplaces, can lead to opportunistic rent-seeking behaviour, with potential perverse effects on innovative businesses. For instance, the strategy of patent trolls (i.e. holding patents hidden in order to provoke hold-up situations and infringement, from which they expect revenues) may constitute a substantial obstacle to innovative firms.

**What are specific aspects of markets for technology when it comes to innovative entrepreneurship?**

Markets for technology might be of highest value to smaller innovative companies since they have fewer internal capabilities to develop technologies in-house and therefore need to rely more on external linkages. Besides, they may lack the ability to develop and commercialize products that stem from their technology. In this context, markets for technology provide a way for companies to make money by selling their technology to other firms that already have existing complementary assets (brand, distribution, production capacity). Markets for technology may therefore encourage the development of independent entrepreneurs specializing in the production of technology by allowing technologies to be implemented by actors other than the inventors and enabling companies to focus on what they do best.

**Evidence on the importance of markets for technology to the success of innovative entrepreneurs**

Small and new ventures are often at a disadvantage in access to technology markets vis-à-vis larger firms. In IP marketplaces, for instance, informational or negotiation costs are mainly fixed (for each transaction) and decline with the experience and size of the party. In addition, the ability to enforce contracts and IP are also subject to economies of scale.

Yet young firms are present in the market for technologies, as their patenting activities may suggest. During 2007-09, firms less than five years old that filed at least one patent application represented about 25% of all patenting firms and generated 10% of patent applications. The share of young patenting firms varies considerably across countries, led by Ireland (42%) and followed by the Nordic economies (Figure 1). SMEs are found to increasingly pursue Intellectual Property Rights (IPR) to gain access to knowledge markets, although IP choices are still not frequently embedded in a coherent long-term strategy. A United Kingdom ICT survey suggests that the large majority (67%) of SMEs that exchange patents do so because they hope to obtain direct income from market transactions (OECD, 2011). SMEs also use IPR as a way to increase collaboration with other firms. To this end, one trend observed in studies conducted in Australia and the United Kingdom is the growing use by SMEs of open source technologies, with firms increasingly constructing business models that allow a part of their technology to be adopted, built on and improved by the open source community (OECD, 2011). However, the adoption of open source is still relatively limited in sectors surveyed in the United States (biomedical and ICT) and in Nordic creative industries.

**What is the evidence on markets for technology and innovative businesses?**

There is no statistical method that enables the development of a reliable and comprehensive measure of markets for technology. This lack of empirical data is mainly due to the private nature of technology transactions. Indeed, **most transactions are proprietary and confidential.** However, evidence exists on specific aspects of markets for technology.

Studies on **licensing** usually indicate that 10-15% of patents are ultimately licensed. The share of patenting companies that license their technologies to non-affiliated companies was estimated by Zúñiga and Guellec (2009) at 20% in Europe and 27% in Japan, based on a survey conducted in 2007, while Gambardella et al. (2007) found that 13.4% of European patents resulted in licensing, based on a survey covering approximately 7,000 applications.

Available information on **international licensing** also suggests an **upward trend in transactions** in markets for technology. Cross-country licence and royalty payments, and receipts for all types of IP, including among affiliates, increased in the OECD area by an average annual rate of 10.6% between 2000 and 2010 (Figure 2), well above the growth of OECD gross domestic product (GDP) over the same period. However, it is important to note that these figures do not capture payments internal to countries and include intra-company international payments. The latter represent more than 80% of receipts in the cases of the United States, France and Germany (OECD, 2010). Overall, Arora and Gambardella (2010) estimate the size of the global market for technology at USD 100 billion.

Another indicator of markets for technology is the amount of extra-mural business R&D, which is R&D funded by a company but implemented in another organization, including all R&D contracted out. In the United States, extra-mural business R&D showed a significant increase between 2001 and 2007, from about 4.5-5% of total company-funded and -performed R&D expenditures to almost 8% (National Science Foundation, 2009). These are still a relatively low numbers. However, the increase is significant.

**What other topics relate to markets for technology and innovative businesses?**

**Intellectual property rights and innovation in firms** and **intellectual property rights for innovative entrepreneurship**. Intellectual property rights and patents are essential to promoting markets for technology. Although it may be possible to trade unprotected technologies, patents greatly facilitate the realization of market deals, especially when knowledge is codified and hence easily imitable. It allows for both the disclosure and protection of technology.

**Interface with universities and public research institutes**. Universities and public research centres are important technology suppliers in markets for technology (Mowery et al., 2004). In the United States, for instance, the Bayh-Dole Act, by incentivizing universities to patent and license the technology they invent, has strongly contributed to the development of markets for technology. In a sense, Technology Transfer Offices are IP brokers, whose role is to favour the transfer of technology from universities to industry.

**Technological co-operation between firms**. Markets for technology, defined as transactions for the use, diffusion and creation of technology, include various types of interactions and co-operation between firms, from licensing of well-defined intellectual property to collaborative agreements that may aim at developing new technologies. Co-operation between firms in markets for technology can also take the form of cross-licensing and patent pools. Cross-licensing refers to agreements where two or more parties grant a license to each other for the exploitation of subject matter claimed in one or more of the patents each owns. Patent pools are bundles of patents held by separate holders, who come together to give each other, as well as other firms, access to the bundle. These forms of agreement are particularly important in complex technology sectors, where technologies have multiple components and thus often several patents, because they grant companies the right to sell their products (secure freedom to operate) (Grindley and Teece, 1997).

**What other topics relate to markets for technology and innovative entrepreneurship in particular?**

**Trajectories of new innovative ventures**. Markets for technology can have substantial effects on the trajectories of innovative new ventures, as they determine the extent to which innovative businesses can trade on market, generate revenue from in-house inventions and collaborate with other companies, which may encourage growth and future trade sales (defined as outright, phased or partial sales of the company to a strategic investor).

**Business support infrastructure**. Business support services, education and training programmes can improve innovative entrepreneurs’ expertise in the IP field, help them adopt a more strategic use of internally developed technologies and increase their participation in markets for technology.

**What policies relate to markets for technology and innovative businesses?**

Public policy can influence markets for technology by:

* **Raising firms’ awareness about the strategic opportunities offered by markets for technology** and intellectual property rights. Innovative firms often have only a partial perception of the benefits and costs implied by access to IP instruments. Information and training programmes could contribute to increased awareness about the “pro-active” use of IPR, as an asset around which innovative business strategies can be developed, as a tool for opening up new markets or segmenting existing ones, and as a key to accessing technology markets, gaining revenues or combining with complementary assets to generate new value. Such use of IPR can also be a positive signal of the value of a business to competitors, customers, potential partners or investors.
* **Supporting trading mechanisms that facilitate the match between supply and demand for technologies.** Examples include: licensing markets, university technology transfer offices, clearinghouses and patent auction houses.
* **Improving information in markets for technology.** This may include making licensing deals public in order to enable the identification of patent owners, advertising IP-protected inventions available for licensing by using online databases, as well as increasing patent quality and lowering the number of patents. Indeed, the proliferation of low quality patents and the fact that patent owners may remain secret create a favourable environment for troll activity, a serious threat to markets for technology.
* **Establishing standards and transparent methods for valuing patents.** The valuation of IP is a very difficult operation, especially for small entities. The lack of references hampers the existence of reliable prices, which in turn might deter the entry of potential participants.
* **Encouraging the commercialisation of IP through bigger rewards.** This can be particularly relevant in the case of universities and public research institutions. Two important steps are appropriate incentives for researchers and effective Technology Transfer Offices (TTOs) that offer services to facilitate the search for suitable private sector partners.
* **Ensuring the existence of appropriate conditions to support competitive and well-structured markets for technology.** In particular, policy makers should ensure that markets for technology allow fair and efficient access to technologies, and that the related distribution of revenues generated by the trade of technologies is fair and balanced. Several policy areas may be particularly relevant in this context, such as **IP policy** affecting the use and circulation of IP rights, **competition policy** ensuring that market mechanisms are not distorted by collusive or monopolistic behaviour, policies relating to the valuation of IP (e.g. by promoting standards), **taxation policy** affecting the flows of technologies across international boundaries, and **R&D policies** stimulating the creation and circulation of knowledge and new technologies.

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# Tneme of lecture № 4. Access to finance for innovative entrepreneurship

**Plan of lecture:**

**1. Research supports the relevance of access to finance as a key determinant of entrepreneurship**

# 2. Debt financing

**3. Venture capital**

**4. Trajectories of new innovative ventures**

**1. Research supports the relevance of access to finance as a key determinant of entrepreneurship**

**How does access to finance affect innovative entrepreneurship?**

Access to finance is a key driver in the creation, survival and growth of innovative new ventures. Lack of finance typically prevents new ventures from investing in innovative projects, improving their productivity, financing their growth, covering working capital requirement and meeting market demand.

**Research supports the relevance of access to finance as a key determinant of entrepreneurship** and clearly identifies a finance gap in many locations for new and small firms involved in the early stages of innovation, especially in the market for high risk capital.

**The importance of different types of finance varies across the stages of business development**. During the seed and start-up stages, technology-driven high-growth SMEs can obtain equity financing from entrepreneurs or from family and friends. In earlier stages, self-financing is particularly important since innovative entrepreneurs cannot overcome information asymmetry and therefore rarely find any lender or investors, even for potentially profitable projects. Subsequently, financing may be supplemented by seed capital investment from informal private investors (e.g. business angels) and, in a few cases, by seed financing funds and venture capitalists. In the expansion stage, SMEs generally require increasing amounts of equity to maintain R&D and to expand marketing and sales activities, amounts that are typically only available through other sources, such as initial public offerings on stock exchanges.

**What are the key policy dimensions regarding access to finance and innovative entrepreneurship?**

As for innovative businesses in general, common policy challenges across five policy dimensions are particularly relevant and include:

* How can governments help innovative firms finance their activities in a context of public budget constraints?
* How can credit guarantee programs reach a fair balance in terms of risk distribution among the involved parties?
* How can public support avoid crowding out private investment (i.e. situations when public support replaces, or drives down, private sector spending)?

→ Private sources of funding, which focuses on money and capital from private sources (e.g. firms, founders, family and friends).

→ Debt financing, which refers to opportunities for firms to secure public and private credit to start and develop their businesses (i.e. loans from banks and public institutions).

→ Venture capital, which deals with opportunities for early-stage businesses to obtain equity from established venture capital funds.

→ Business angels, who are people interested in helping entrepreneurs succeed by providing both funding and expertise.

→ Other types of finance, which focuses on subsidies and grants from governments and international organizations.

**What are the main rationales for policy interventions in support of access to finance?**

Several market failures imply the need for policy attention to access to finance for new and small innovative entrepreneurs:

* The main rationale is that profitable investments in innovative and entrepreneurial activities are liquidity constrained due to capital market imperfections. Small and new ventures are particularly affected by these capital market imperfections. The difficulties that innovative entrepreneurs experience stem from several sources: they typically lack collateral and a track record, they are involved in innovation processes whose outcomes are uncertain, they deal with a public good (knowledge), whose return on investment is not predictable and they own assets whose nature may be intangible and difficult to evaluate (e.g. patents). The smaller and younger the business, the more opaque the information on its business performance and financial solidity will be.
* Insufficiently developed financial markets might be a further systemic failure affecting access to finance for innovative entrepreneurs, but one that only coordinated efforts can address (e.g. by supporting the creation of financial markets where IP assets can provide access to funding).

**What are the main policies that influence access to finance in the context of innovative entrepreneurship?**

Within the context of innovative entrepreneurship, public policy can in the following ways:

**Debt financing** by:

* guaranteeing part of the losses caused by the potential default of the borrower (e.g. mutual credit guarantee programs). By guaranteeing part of the losses caused by the potential default of the borrower, they increase the incentive for banks to engage in SME lending. Generally, credit guarantees see the involvement of three parties: the bank, the borrowing firm and the public authority providing the guarantee. A variant consists in mutual guarantee schemes, where an SME association typically provides a first-level guarantee on the loan of one its members, with the public sector covering an additional share of the loan.
* offering credit mediation to companies in the case of a loan rejection
* Credit mediation occurs when governments appoint mediators to help SMEs deal with loan rejections. Through discussion, exchanging information, assistance in improving business plans and other techniques, credit mediators bridge the information gap between entrepreneurs and loan officers. This policy tool has been recently tested in France, Italy and Belgium.
* subsidising loans directly (e.g. through the intermediation of a national development bank)
* supporting alternative types of debt finance, such as convertible loans and subordinated loans (e.g. through fiscal incentives to lenders and the partial coverage of losses in case of bankruptcy)

**Venture capital** by:

* creating public funds that directly invest in start-up firms
* establishing public "fund-of-funds" that invest in private venture capital firms
* promoting co-investment funds that use public money to match private investment.

**Business angels** by:

* providing tax incentives to private individuals investing in specified types of investments and businesses (e.g. through tax relief on investment, capital gains and losses)
* promoting co-investment funds that use public money to match private investment
* supporting angel associations, networks or groups (e.g. through the provision of some financing)
* offering training to angel investors, to turn interested investors into successful angel investors.

**Private sources of funding** by:

setting the framework conditions for new sources, such as crowd funding

* establishing bankruptcy regulations so that innovative entrepreneurs will be more willing to invest in innovative businesses.

# 2. Debt financing

Access to debt financing is a critical issue for innovative businesses. It allows them to finance their growth, meet working capital requirements and invest in innovation. Yet innovative companies often experience difficulties in accessing debt financing due to several factors: they are involved in an innovation process whose outcomes are uncertain, they own assets whose nature may be intangible and difficult to measure. Financing obstacles often undermine the ability of firms to undertake innovative projects. However, data at the country level show that the percentage of enterprises requesting external financing varies considerably across countries. Access to debt financing can be influenced by bankruptcy regulation and business support infrastructure, which may enhance innovative businesses’ ability to obtain bank loans. Public policy can help innovative firms access debt financing by guaranteeing credit, subsidising loans, providing credit mediation, supporting alternative debt financing (e.g. convertible loans), and reforming the banking sector to promote competition and reduce concentration.

**What is debt financing?**

Debt financing is when a firm raises working capital or investment capital by borrowing. By this act, the firm becomes a debtor to the lender and the lender becomes a creditor of the business. Access to debt financing refers to the ability of firms to obtain any of the following types of debt: overdrafts/credit lines, trade credit, leasing, factoring, bonds and bank loans. While all these categories of debt are economically relevant, policy makers can directly influence only a few of them, primarily bank loans.

* **Overdrafts/credit lines:** this is when banks enable client firms to withdraw from their bank accounts more than they had originally deposited. Credit lines typically have a ceiling and are an expensive source of debt financing because of the high fees banks apply on overdrafts.
* **Trade credit:** when supplier companies enable buyers to pay later for their goods, so that buyers can use part of their sale revenue to pay back the suppliers. It is very common in retailing but less relevant to innovative small enterprises.
* **Leasing:** instead of purchasing equipment, machinery or vehicles, the company leases such material by paying a fee to the owner. Short-term leasing does not change the ownership of the assets, whereas long-term leasing may occasionally result in the lessee becoming owner of the assets at the end of the leasing term. Factoring: when enterprises sell their accounts receivable to a third party (the factor) at a discount rate. Firms thus shift their credit risk to the factoring company but, in turn, receive less than they would have received if they had individually collected their credit. As with overdrafts, factoring is regarded as an expensive source of debt financing and is mostly used to meet working capital requirements when other alternatives have been exhausted.
* **Bonds:** typically issued by companies (and governments) to finance operations and investment. The bondholder, who becomes creditor, receives periodic payments of the bond’s interest (i.e. coupons) and the principal on the maturity date. Since most types of bonds need to be tradable, corporate bonds primarily pertain to the sphere of large publicly-owned companies.
* **Bank loans:** the type of debt financing whose amount and access can most be influenced by policy makers. Loans can be secured or unsecured. Secured loans are guaranteed by the existence of collateral, or borrowers’ assets, that lenders have the right to seize in case of a loan default (i.e. asset-based lending). Typical collateral assets encompass machinery and equipment, real estate, merchandise, savings accounts, accounts receivable, etc. More rarely, when a company is large and has developed a long and trusted relationship with the lending institution, loans can be unsecured, i.e. provided without any material guarantee behind it. The reality for most companies is that they need to provide collateral to obtain a loan. This can become an issue for innovative firms, whose main assets may be intangible.

Bank loans can be further split into long-term and short-term loans; hence, the word “term loans” that is used in some cases. Loans where the repayment of principal is to occur within 12/24 months are generally considered short-term, and are considered long-term above this threshold. Short-term loans are often used to finance operations and working capital requirements. Long-term loans are typically used to fund investment in new premises, equipment and machinery. Innovative firms may also seek long-term loans to invest in R&D or the purchase of intangible assets, such as patents and trademarks.

##### **What is specific about debt financing when it comes to innovative entrepreneurship?**

Relevant to innovative entrepreneurs are alternative types of loans, such as convertible and subordinated loans. They are both often included in so-called “mezzanine finance”, i.e. a category of financing halfway between debt and equity financing. Convertible loans give lenders the right to convert credit into an equity participation in the company, whereas subordinated loans are junior forms of debt that, in case of insolvency, have lower priority than senior debt (e.g. asset-based lending). They are riskier but pay higher interest rates.

**How does debt financing affect innovative businesses?**

Credit markets are biased by market failures, primarily because of information asymmetries between lenders and borrowers. Firms are better informed about the financial viability of their ventures than the lending institutions expected to provide credit.

In principle, higher interest rates charged to risky borrowers, such as innovative entrepreneurs, could be an answer to information asymmetries. In reality, not only would excessive interest rates attract subprime borrowers and scare off prudent ones (i.e. adverse selection), but they would also provide an incentive for the borrower to undertake risky projects to pay off the loan and minimise the cost of default (i.e. moral hazard) (Stiglitz and Weiss, 1981). The interplay of these market failures warrants the preference of banks for asset-based lending (Evans and Jovanovic, 1989), which, however, tends to generate a gap between the supply and demand of financing in credit markets (i.e. credit rationing). Credit rationing is also compounded by technical factors: first, making loans entails fixed screening and monitoring costs, which makes small-sized loans less appealing to lending institutions; second, the diffusion of lending techniques (e.g. asset-based lending, fixed-asset lending, business credit scoring, etc.) implies that the bank’s decision to lend is increasingly based on the company’s financials and less on the viability of the business proposal.

##### **What is specific about debt financing with respect to innovative entrepreneurship?**

Credit rationing disproportionately affects SMEs and especially innovative entrepreneurs, who not only lack collateral and a track record like traditional business owners, but are involved in an innovative process whose outcomes are by definition uncertain, deal with a public good (such as knowledge) whose return on investment is not perfectly appropriable, and own assets whose nature may be intangible (e.g. patents and copyrights) (Auerswald, 2007). The business propositions of innovative entrepreneurs are also more likely to be obscure to loan officers, increasing the chances of rejection.

This explains why venture capital is generally regarded as the most appropriate source of funding for innovative enterprises. However, venture capital remains a niche phenomenon that touches a tiny share of entrepreneurs and moves a relatively small share of capital at the global level. It also typically addresses the expansion stage of business, rather than the start-up phase, and is extremely sensitive to the economic cycle (OECD, 2010).

This makes access to debt financing relevant not only to traditional entrepreneurship, but also to innovative entrepreneurship. First, access to secured bank loans to meet working capital requirements will free internal resources for longer-term investment. The majority of innovative and high-growth businesses, only a minority of which are strictly high-tech, grow by the use of retained profits and traditional borrowing (Cressey, 2006). Second, leasing will enable innovative small businesses to access expensive inputs to the production process without having to make an upfront payment. While leasing increases liabilities and thus the debt/equity ratio of the enterprise, it will also enable entrepreneurs to make investments that would otherwise hardly be possible in the early phases of business development. Third, unconventional types of debt financing, such as convertible and subordinated loans, will represent an alternative for innovative entrepreneurs who find it difficult to receive secured loans, although the supply of alternative debt financing is still rather limited.

##### **Evidence on the importance of debt financing for the success of innovative entrepreneurship**

Small and young firms are not only more likely to report higher financing obstacles than larger and older enterprises (Beck et al., 2006a), but also to suffer more from these obstacles. Financing barriers have twice the effect on the growth of small businesses than on the growth of large companies (Beck et al., 2006b). Similarly, when looking at a macro-economic level, firms are bigger on average in countries where the ratio of private credit to GDP is larger, and strong financial development within a country exerts a disproportionately positive effect on those industries where the share of small firms is larger (Beck et al., 2004) .

An OECD study (2010) has collected evidence on issues and policies affecting high-growth and innovative firms, including business financing. It confirms that only a small portion of innovative and fast-growing small enterprises access external equity to finance investment projects and that debt financing should therefore be a main source of funding for innovative entrepreneurship. Based on evidence from the UK, however (Freel, 2007), the OECD study shows that innovative and faster-growing firms are less successful than traditional and slower-growing firms in obtaining loans. There emerges a “Valley of Death” for innovative young firms, where they are too undeveloped in their early stages to pull in senior venture capital investors, and too risky and lacking in tangible assets to receive traditional bank loans.

Financing obstacles will undermine the ability of SMEs to undertake innovative projects. Evidence from Germany shows that SMEs, especially in Western regions, are financially constrained in their R&D activities due to limited internal resources and poor access to external finance. In the Eastern part of Germany, the high subsidisation of business R&D means that local SMEs are less constrained by external resources. The same study also finds that public support increases by about 60% the probability that the average SME will conduct R&D, whereas this figure drops to 24% in the western regions of Germany (Czarnitzki, 2006).

**What is the evidence on debt financing and innovation and firms?**

Debt financing is an important source of financing for companies. Yet, debt financing might be more challenging for innovation investments than for other kinds of financing. Overall, Hall and Lerner (2009) conclude from a review of empirical research that debt tends to be a disfavored source of finance for R&D investment compared to other sources of finance.

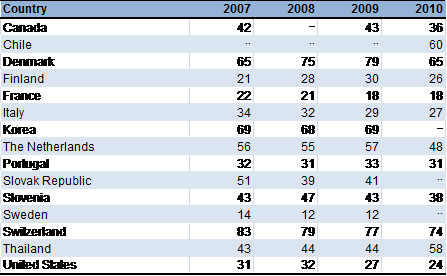
##### **What is the evidence on debt financing and innovative entrepreneurship?**

The 2010 Eurostat business survey on SME access to financing presents interesting findings on the extent to which small enterprises in the EU are successful in obtaining external funding (OECD, 2012a). First, it is noteworthy that more than half of the companies in the survey did not seek any type of external financing in the two observation periods, i.e. 2007 and 2010 , although the share of firms looking for external financing increased between 2007 and 2010, and is expected to increase further in the coming years. Second, given that 2008 was the turning point in the global crisis affecting the EU as well, it is possible to infer that demand for external finance, especially debt finance, will be sensitive to the economic cycle. Second, data at the country level show that the percentage of enterprises requesting external financing varies considerably across countries. In 2010, around 20% of companies in Luxembourg, the Netherlands and Denmark applied for loans, as opposed to 50% in Greece and the Slovak Republic. The percentage of businesses seeking bank loans is not so strongly affected by the average long-term interest rate, as shown by above EU-average interest rates in Greece and the Slovak Republic, and below EU-average interest rates in the Netherlands and Denmark.

Data confirm that innovative small and new enterprises are at a special disadvantage in receiving debt financing compared to traditional businesses. If fast growth is taken as a proxy for innovative activity, the success rate for bank loans in European countries is consistently higher for average enterprises than for enterprises experiencing high-growth. On the other hand, leasing appears equally suitable for enterprises with different growth characteristics and thus holds an important potential for the long-term investments of innovative entrepreneurs.

The prevalence of short-term loans over long-term loans could also be expected to have a detrimental effect on innovative entrepreneurship, to the extent that the former are chiefly used to deal with working capital requirements while the latter typically address investment needs. However, this will also depend on whether other sources of finance, namely equity finance, will be available in the country. Data from the OECD Financing Scoreboard shows that the share of short-term loans out of total SME loans varies greatly across countries and is not sensitive to the economic cycle (OECD, 2012b) (Tab. 1).

##### **Table 1. Share of short-term SME loans As a percentage of total SME loans**



Note: The definition of short-term loans varies across countries. Countries may consider short-term those loans whose maturity is less than 12 months, less than 18 months or still less than 24 months. Above the two years loans are generally considered medium-term, if the country envisages this category, or simply long-term.   
Source: OECD (2012), Entrepreneurship at a Glance 2012, Paris

## 

# 3. Venture capital

This section explores the role of venture capital in financing innovation and helping build innovative businesses. It provides a description of what venture capital is and how it works and its advantages and disadvantages. It then outlines the different types of policy instruments used (government funds, co-investment funds, fund-of-funds models) and provides examples of successful, and relatively less successful, interventions.

What it is. Venture capital firms are fund managers that invest in companies with high growth potential. These tend to be newer firms that need capital to grow but do not have a significant asset base, strong cash flows, or a long credit history that would allow them to raise debt finance. The distinguishing feature of investee businesses is their potential to grow exponentially in size and value if successful (Barry et al. 1990).

Venture capital funds are raised from institutional investors (for example, pension funds and insurance companies) and wealthy individual investors and are usually managed via partnerships. The VC managers of the fund are described as general partners (GPs) because they manage the fund and are liable for its legal debts and obligations. The investors are described as limited partners (LPs) because their liability for debts and obligations is limited to the amount of their investment in the fund. LPs are passive investors because they are precluded from getting actively involved in the management of portfolio companies.

Characteristics. Several factors set venture capitalists apart from other types of funds and financial intermediaries and make them particularly suitable to invest in young innovative firms with high risk but also high potential.

Before investing in a business, a VC firm conducts a thorough analysis to gain a detailed insight into the business’s strengths and weaknesses, its growth potential, and the prerequisites for achieving this growth. This includes assessing the originality of the potential intellectual property, evaluating the risks of imitation, and examining the market conditions (Florida and Kenney 1988). Because of this strict filtering process, even if venture capitalists usually receive a large number of proposals, they only invest in a small minority.

If its assessment is positive and the VC fund decides to invest in the firm, its shareholdings are typically in the form of preferred stock or convertible notes, giving additional control rights. The VC fund will generally join the investee board and participate in the decision-making process of the company, and, under certain circumstances, they may also be able to impose the replacement of the management of the firm (Kaplan and Stromberg 2003). Investment is usually provided in tranches and only when particular milestones have been met.

To have diversified portfolios and ameliorate the high-risk nature of their investments, VC funds make a number of investments. Most expect a few very successful investments to balance out the negative returns from the rest of the portfolio. They can invest in firms at several stages of the innovation cycle, although most of their recent activity has focused on later-stage investments. VC funds often co-invest with other VC funds, and, unlike in private equity investment, they usually have minority shareholdings in their investees, with founders, management, business angels, and other VC funds as the other co-investors.

VC funds have a relatively long-term focus, since they are based on a model of ten-plus-two years, which means they run for at least ten years with the possibility of extending for another two if they have not divested all their investments. The closed-end nature of most VC funds, whereby investors must commit their investments for the length of the fund and cannot redeem them early, makes this a long-term bet for investors, but it also allows investee businesses the time to develop without the threat of key investors withdrawing their liquidity at any point.

The usual investment cycle is for funds to invest over the first five to six years of the fund. New investments are not made as the focus moves to growth and exit, although follow-on investments will occur in some investees in the later years. Many viable investments require more than one round of capital raising, so funds need to divide their resources to cover both initial and follow-on investments.

Most investments are held on average between five and seven years and, given their nature, are quite illiquid (another reason the sector is riskier than others). Some are held for much shorter periods, either because it quickly becomes apparent that growth prospects are low or because an exit becomes available. Others are held for longer, either because some technology areas take a considerable time to reach the market (for example, pharmaceuticals) or because economic conditions make it difficult to realize value. The recent financial crisis lengthened the holding time of many investments because capital became very scarce, general economic conditions made it hard for new businesses to grow quickly, and the market conditions for exits were poor.

In popular culture, venture capital investees are matured to the point where they are launched via an IPO or stock market launch. In reality, IPOs are extremely rare. Many investments do not succeed and are closed down (albeit quietly and in an orderly fashion). For the minority that continue to grow, the exit strategy can be via an acquisition by a larger firm, a merger with a competitor, or a buyout by managers in the business.

Advantages and disadvantages. Venture capital funds can play a crucial role in helping firms innovate (Florida and Kenney 1988). Kortum and Lerner (2000) examined the effect of venture capital on patented inventions in the United States across twenty industries from 1965 to 1992. Controlling for R&D spending, they found venture capital funding increases patenting rates: “A dollar of VC is three times more effective in stimulating patenting than a dollar of corporate R&D.” Venture capital represented only 3 percent of corporate R&D from the late 1970s to the mid-1990s, but the funds accounted for 10–12 percent of privately funded innovation in the United States.

In addition, VC-backed firms’ patents more often lead to breakthrough innovations, as they are more frequently cited by other patents, and venture capitalists, at least in Silicon Valley, are more likely to fund innovators rather than imitators (Hellman and Puri 2000). The location of VC activity also matters when considering its benefits, however. For instance, the evidence shows the European VC industry was not as important as the U.S. industry in fostering innovation (Popov and Roosenboom 2012).

Venture capital is often described as “smart capital,” as venture capitalists can benefit their investee companies in several ways beyond the provision of capital. These benefits include assisting with business planning and strategy, mentoring the managers, providing strategic, technical, commercial, and legal advice, improving corporate governance, helping to recruit key staff, and making connections (Gans et al. 2002; Gorman and Sahlman 1989). In some cases, they will step into their investees and work for periods of time, and they usually sit on the board. They also create networks of collaboration among investors, universities, R&D centers, large and technologically oriented firms, small entrepreneurs, and skilled workers (Florida and Kenney 1988). This provides venture-backed companies an advantage over other firms, increasing their chances of success.

It is less clear that venture capital is always perfectly aligned with related policy goals of governments. Even though they are long-term investors, venture capitalists ultimately want to exit their investments on financial terms that are most advantageous to themselves and their investors. In some cases this will involve a sale and/or move of the business overseas, which may not be the option preferred by governments. Policymakers usually want to see businesses, particularly if they have received taxpayer support, growing domestically or, at least, retaining a significant amount of value-adding activity locally. Also, some argue that venture capital receives too much policy attention, given the small number of firms it funds, and that some (though not all) of this attention should be redirected toward other sources of funding, as well as toward improving the wider innovation ecosystem.

Finally, VC returns have been very low since the dotcom bubble burst (Lerner et al. 2011). Aside from some star funds, most VC funds struggle to make positive returns and, thus, raise additional funding from private investors. Consequently, the proportion of government capital as a proportion of all capital raised by VC funds is rising in most countries around the world. As an example, in 2007 government agencies accounted for less than 10 percent of investment in European venture capital, while by the first half of 2011, this had grown to over 55 percent. There is a debate on whether this underperformance relative to other asset classes is a structural issue that calls for revising the whole model or is the result of cyclical factors and thus will improve over the next couple of years as exits are made.

Policy interventions. Venture capital plays an important role in supporting risky ventures that provide a path to market for nascent technologies, until the point where they have been effectively “de-risked” and become suitable for mainstream actors. Therefore, they contribute to reaping the benefits of R&D investments that might have been supported by the state, with the potential growth benefits this entails for an economy.

Two market failures can serve as justification for government intervention to increase VC activity in an economy. The first is coordination failure. A VC industry will fail to develop in a region unless it has a good pipeline of promising startups, business angels to back them in their earlier stages, and lawyers able to negotiate VC deals and IP agreements, as well as sufficient experienced investment professionals, developed exit markets, and a supportive regulatory and fiscal environment (among other conditions). Yet many of these will not emerge without a developed venture capital industry in the first place. Given that place and history matter, building a functional market may require temporary support from government, until the “system” is fully developed and hence self-sustaining. This highlights another lesson: trying to promote a VC capital industry by providing financial support to VC funds is unlikely to be successful if measures are not also put into place to develop the whole ecosystem.

A second potential rationale for public intervention in VC is the positive externalities from the innovation activities generated by the investee companies. While this could be a justification for a permanent intervention to support VC activity, some argue the benefits from doing so may not outweigh the costs, given the existence of government failures. Another rationale often used to justify public intervention is the so-called “equity gap.” For small VC deals, the cost of the due diligence required to select which companies to invest in may be too high relative to the potential reward, so VC funds have progressively refocused toward larger and later-stage deals, creating an “equity gap” that leads to suboptimal investment in early-stage companies (see Box 8). As discussed earlier, however, this market failure arising from asymmetric information is not a sufficient rational on its own for public intervention[1](https://www.innovationpolicyplatform.org/content/venture-capital?topic-filters=12161#footnote1).

Governments can use a range of different mechanisms to support the provision of venture capital and build local capability within the sector:

1. Capacity building: Governments can try to build the capacity of the VC market with several types of measures, such as by attracting foreign experienced funds to operate in the region, building more connected networks, or supporting entrepreneurs to become investment ready.
2. Tax incentives: As with business angels, many governments have created specific tax incentives to reward individuals (or corporates) that invest in VC funds to increase the supply of investment into innovative businesses. The incentives can take a number of forms, which have been discussed in more detail in an earlier section[2](https://www.innovationpolicyplatform.org/content/venture-capital?topic-filters=12161#footnote2).
3. Government-run VC funds: Governments have directly established, financed, and managed VC funds, which in theory operate in similar fashion to private VC funds. In Europe these have often been underpinned by structural adjustment funds, and they often have a regional focus. They were often the first attempt to create a venture capital industry in many countries, but the regional focus has limited the scope and quality of deal flow, and the personnel may not have been first class. Consequently, their performance has often been poor.
4. Fund of funds: A model used in various areas of the finance industry, fund of funds involves a government establishing an overarching investment instrument with a significant allocation of capital, which then co-invests in existing or new private sector VC funds. This allows government to spread investment activity among several different funds that potentially have different business models and different investment/sectoral/geographical focus. This promotes diversity in the market and should enlarge the pool of experienced fund managers.
5. Co-investment funds: Similar to those used to encourage business angel activity, co-investment funds typically work by matching public funds with those of private VCs, investing alongside them. This approach leverages private money with public funding while keeping investments commercially focused by following the lead of private investors.

The OECD recently surveyed its members about their use of these types of equity investment measures and found the following (Wilson and Silva 2013):

* These programs have been increasing in the past five years, especially funds of funds and co-investment funds. Thirteen out of thirty-two OECD countries indicated they have direct public equity funds, twenty-one out of thirty-two have fund-of-funds programs, and twenty-one out of thirty-two also have co-investment funds in place.
* Around 45 percent of the programs have sector requirements (some targeting specific sectors—usually information and communications technology, biotech, and clean tech), while most have geographical restrictions, requiring the investee firm to be headquartered in the home country (58 percent) or, often, in a particular region within the country (37 percent).
* Half of the instruments focus on a specific stage, which is often seed (83 percent) and/or early stage (79 percent), even if they allow follow-on funding rounds (93 percent). Only a few have investee age requirements (27 percent), but investee size requirements are common (66 percent).

Several precautions should be taken when intervening in the venture capital market. First, interventions should neither be too small, since their impact is minimal, nor too large, since they may have counterproductive effects, not only crowding out current investment but also damaging the future development of the VC industry. Without additional investable propositions, more public money may only reduce the opportunities available for private venture capitalists (assuming any exist), reducing their returns and thus forcing them out of the market or making it more difficult for them to raise follow-on funds in the future.

Second, delegating to professional investors the decisions on what companies to invest in and leveraging private funding is considered a more effective approach. In other words, rather than setting up publicly owned venture capital funds, using a fund of funds (assuming the market is large enough to justify one) or a co-investment model is considered preferable, even if the design, management, and incentive structures of these instruments also play a determining role.

Governments generally need to build capability to manage any equity investment activity, and most establish specialized financial institutions to do so. The performance of any equity investment vehicle is almost completely dependent on the effectiveness of the fund managers, so the process of selecting the fund manager is the key stage of the process. But making this selection is extremely hard—early-stage equity investing is new, and most potential managers will either have poor records or no records at all. The instinct is often to fund financiers/bankers as fund managers; experience indicates, however, they can struggle to adjust to early-stage investing and often try to take their funds “back” into later-stage funding, where they are more comfortable.

The design of equity instruments is subject to policy tensions. The desire to see commercial returns (or at least some returns) from taxpayers’ investments and to build a local equity finance sector does not always align with the desire to see innovation commercialized and innovative local SMEs grow. Venture capitalists are looking for exits, and if this means selling a promising SME that is commercializing public sector research to an overseas company and seeing it move offshore, they will do so.

The ability to attract private co-investors is also highly sensitive to the incentive structure offered by fund managers in relationship to both capital returns and profit (particularly whether capital protection or preferred treatment on capital returns is offered). So policymakers are frequently called upon to allow co-investment funds to offer highly preferential treatment to private investors. This presents a policy challenge, however: how much should governments underwrite private investors’ risk? The Yozma fund (discussed in Box 9) delivered excellent returns to its investors in the 1990s, and its general model has been widely copied. As is explained in the box, though, Yozma occurred at a specific time in a specific ecosystem. Very few other co-investment schemes in the world have ever delivered the level of returns Yozma achieved.

Regardless of which particular design is chosen, policymakers must to try to ensure their domestic equity investment industry has well-developed international links, is benchmarked against international norms, and attracts international investors. This is important not only because the path to market for many innovative investees will be international, but also to ensure the local managers are operating at global standards of practice. Governments can also use multiple approaches within the same instrument to assist different elements of the ecosystem and diffuse risk. The description in Box 10 of the Tech-based SMEs Venture Capital Introductory Fund from China provides one example.

As with other forms of financial intermediation, public funding is only one contribution governments can make to the success of the industry. Venture capital is a global industry with global norms, and investors are far more comfortable operating in countries whose laws reflect these norms and whose institutions can effectively enforce them in an efficient but not burdensome manner.

**Design and implementation observations—equity investment instruments**

|  |  |
| --- | --- |
| **Instrument** | **Observations** |
| Government-run VC funds | - Introducing this instrument may be necessary if there is no history of or infrastructure for early-stage equity funding and private sector investment is unlikely.  - Policymakers need to be realistic about expected returns, given that early-stage equity investing is a learned skill and the record of investment returns of these types of funds has been poor.  - The record of regionally focused funds in particular has been bad, and new schemes should learn from these lessons. If a fund is to be regionally focused, they need to be realistic about whether deal flow is sufficient.  - It is important to establish funds on commercial lines, with commercial incentives and commercial independent management.  - Governments need to develop or buy specialized capability to manage these types of schemes rather than rely on career bureaucrats. |
| Co-investment fund | - A co-investment fund enables fund managers to leverage government funds to raise private capital, with fund managers making all the investment decisions on commercial terms.  - Robust mechanisms are needed to select potential funds. Selecting fund managers is extremely hard—early-stage equity investing is new, and potential managers will either have poor records or no records. The selection process should, then, involve extensive due diligence and expertise.  - This assessment capability is highly specialized, so governments need to develop or buy specialized capability to manage these types of schemes rather than rely on career bureaucrats.  - The instinct is often to fund financiers/bankers as fund managers; however, experience indicates they struggle to adjust to early-stage investing, as it involves a different skill set than is usual for them.  - It is important to try to ensure funds have international links and are benchmarked against global performance standards.  - The ability to attract private co-investors is highly sensitive to the incentive structure offered to them around both capital returns and profit (particularly whether capital protection or preferred treatment on capital returns is offered). This presents a policy challenge: how much are governments prepared to underwrite private investors’ risk?  - A healthy funding ecosystem has a mixture of funds with different business models. Funding is also needed at the different stages (seed/startup/growth) so innovative businesses can continue to grow.  - The traditional model of the ten-plus-two-year, closed-end fund making equity investments, with fund managers taking a 2 percent annual management fee, is being challenged by other, more flexible models. If they have some experience, policymakers should not be overly prescriptive regarding what model funds should use but should focus instead on the investment outcomes.  - Policymakers and government stakeholders need to accept that many investments will not be successful, and most will take many years to exit. |
| VC fund of funds | - See above  - A fund of funds can be a mechanism to spread the investment activity among several different groups who can have different business models and investment/sectoral/geographical focuses.  - This promotes diversity in the market and builds a larger pool of experienced fund managers.  - The goals of generating commercial returns, building a venture capital industry, building the local ecosystem, and building innovative local SMEs do not always align, which can generate policy tension. Objectives and expectations need to be clear.  - The performance of any equity investment fund is almost completely reliant on the effectiveness of the fund manager, so the process of selecting the fund manager is the key role of a fund of funds.  - A government needs to build or buy specialized capability to manage a fund of funds rather than rely on career bureaucrats.  - Countries need to have sufficient deal flow to justify multiple funds.  - Design features can include recycling returns to the government into new funds, enabling a degree of self-sustainability.  - The fund of funds is sometimes integrated into a broader finance organization (for example, a business development bank), which offers a range of financial support through a variety of instruments. |

##### **Notes**

* 1See Bravo-Biosca (2014) for further discussion.
* 2See the discussion on policy interventions in the business angels section.

# 4. Trajectories of new innovative ventures

Innovative new ventures face a variety of potential trajectories and exits, including “positive” exits (e.g. trade sales and IPO), which influence innovative entrepreneurs’ access to finance, and negative exits (e.g. failures and bankruptcies), which can free up resources and allow a shift to more valuable uses. The exit of innovative businesses will be important if the company did not prove to be profitable. If, however, the company was successful, then a positive exit can result in wider benefits for the innovations provided by these firms. The evidence points to substantial variations in exit opportunities over time. All the framework conditions affect the trajectory of innovative new ventures, as together they shape the conditions for their growth and success. However, exit may be particularly impacted by access to finance and bankruptcy regulations. Public policy can influence the trajectory of successful innovative new ventures by adjusting stock market regulations to allow smaller companies to benefit from access to public markets through initial public offerings, by supporting networking between large and smaller firms, and by developing a range of appropriate financing mechanisms to support innovative entrepreneurs at all stages of the business cycle.

**What are the trajectories of new innovative ventures?**

There are several approaches to describe the trajectories of new ventures (Hanks et al., 1993; OECD, 2010) and to define the stages of business development. In this brief, the trajectories of new innovative ventures are described by the following stages:

* Seed stage: In this stage, the developing business entity has not yet established commercial operations. The business concept and the product or service are not fully developed or tested. Business activities focus on research and product development, market research and the development of business plans.
* Start-up stage: In this stage, prototypes are being developed and fully tested. Business activities are still focused on product development but also include initial marketing.
* Expansion stage: At this stage, the product or service is being produced and sold. The main objectives of new ventures are typically to increase sales and productive capacity, and to minimize their losses in order to reach the break-even point.

During these stages innovative businesses may exit, which can take several forms:

* Positive exits refer to the transfer of the business ownership to other stakeholders. They include trade sales and an Initial Public Offerings (IPO). Trade sales are outright, phased or partial sales of the company to a strategic investor, i.e. an industrial or commercial company that seeks managerial control over the company. The target company is acquired in order to incorporate its product lines as part of the acquiring company’s business line (e.g. a pharmaceuticals company acquires a biotechnology company having attractive product lines). Initial Public Offering (IPO) refers to the first offering of stock by a company to the public.
* Negative exits refer to failure or bankruptcy; these represent the majority of exits.

**How do the trajectories of new innovative ventures affect innovative entrepreneurship?**

* The development stage of an innovative new venture affects its challenges and needs.

A first challenge for innovative, high-growth new ventures is to manage transitions in the life-cycle development of the firm. Each stage requires changes in entrepreneurial behaviour that can have significant consequences for growth and innovation. This may include, for instance, working with more staff, and changing processes and procedures to adapt them to the new venture size. How entrepreneurs approach critical transitions in their business development is important for their success (Covin and Slevin, 1997).

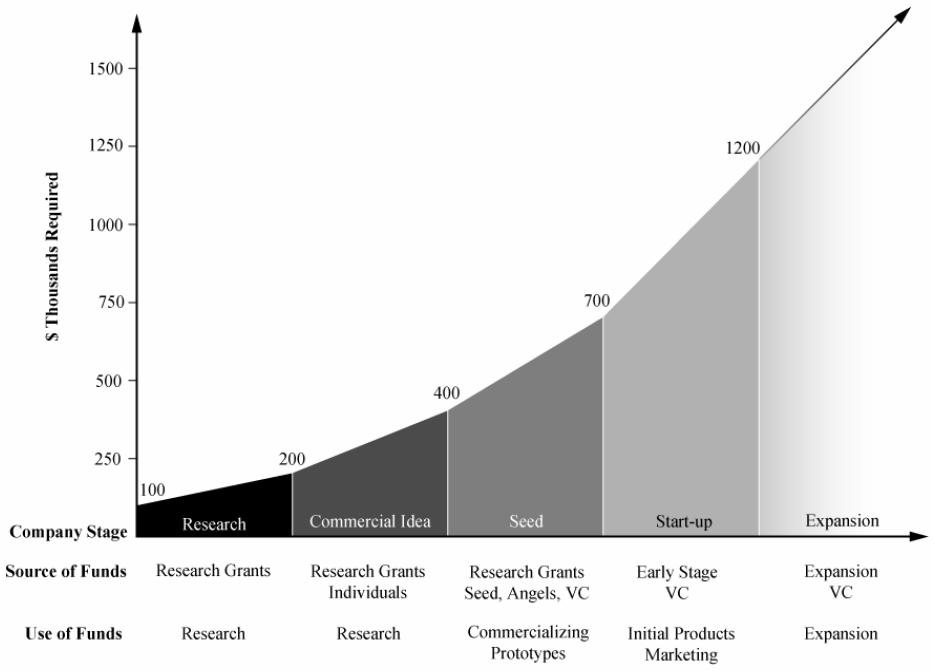
Another challenge for innovative entrepreneurs is to find the appropriate resources to finance each stage of business development. The type of finance an entrepreneur can access (e.g. personal finance, grants and subsidies, loans, venture capital) varies across the stages of business development (see Figure 1):

* During the seed and start-up stages, innovative entrepreneurs generally have difficulties finding any lenders or investors, even for potentially profitable projects, as information asymmetries are large. As a result, innovative entrepreneurs often rely on personal financial resources and financial resources from family and friends to finance initial operations, such as research and product development. Subsequently, in start-up stages, financing may be supplemented by seed capital investment from informal private investors (e.g. business angels) and, in a few cases, by seed financing funds and venture capitalists.
* In the expansion stage, innovative firms generally require increasing amounts of finance to maintain R&D and to expand marketing and sales activities, amounts that are typically only available through other sources, such as initial public offerings on stock exchanges (OECD, 2007).

##### 

##### **Figure 1. Types and amounts of risk capital financing by stage of development**

Technology-driven businesses



Source: Western Technology Seed Investment Fund cited in OECD (2007), The SME Financing Gap (Vol. II): Proceedings of the Brasilia Conference, 27-30 March 2006, OECD Publishing. <http://dx.doi.org/10.1787/9789264029453-en>

Investment at any stage of the life cycle is frequently contingent on there being some potential to advance to the next stage. Thus, providers of funding in the seed stage and start-up phases are more likely to respond positively to business plans when they believe the proposal has the capability of attracting support from business angels. Business angels, in turn, will be encouraged if they believe that the project is a good candidate for venture capital financing. This process is most explicit in the venture capital process, where it is accepted that equity will be injected into the firm in successive rounds, with the objective of realizing an exit through a trade sale or an IPO.

* The opportunities for positive exits (e.g. trade sales and IPO) affect innovative entrepreneurs’ access to finance.

The likelihood of positive exits influences investments in innovative new ventures, as positive exits provide an opportunity for investors to realize returns on their investment. Positive exits can in this way contribute to the growth of other innovative young firms, as they free up funding for further investment. In addition, both trade sales and IPOs are publicized and often attract attention to successful innovative entrepreneurs. This can contribute to setting standards of excellence and inspiring other entrepreneurs, as well as facilitating access to finance for the future ventures of successful entrepreneurs.

* Negative exits (e.g. failures and bankruptcies) also influence innovative entrepreneurship by allowing creative destruction and by affecting the conditions for entrepreneurs to rebound after failure.

An efficient process of firm entry and exit is important to the economy as a whole, as it allows the death of less productive firms and the success of more productive ones through the shift of resources to more valuable uses. That, however, depends on the process leading to the exits of non-profitable businesses and efficient resource reallocations.

Failures and bankruptcies may also inhibit innovative entrepreneurship in those countries where failure carries a stigma and where there are severe penalties for bankruptcy.

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##### **Evidence on how trajectories of new innovative ventures influence their success**

* Importance of positive exits (IPOs and acquisitions)

There is a wide consensus in the literature on the correlation between the ability to exit, either through an IPO or sale to strategic investors, and the ability of innovative new ventures to access finance (OECD, 2006).

* Importance of creative destruction and resource re-allocation

Empirical evidence suggests that the process of creative destruction tends to reallocate resources toward more productive activities. Most existing studies tend to focus on labour. For instance, firm entry and exit contributes an estimated 20% to aggregate labour productivity growth over a five-year window in some OECD countries (the estimates are higher for emerging countries), while the contribution from reallocation of labour across existing enterprises is generally much smaller (Bartelsman et al., 2004; OECD, 2003). Some studies indicate that capital also tends to flow from less productive firms to more productive firms (Eisfeldt and Rampini, 2006; Jovanovic and Rousseau, 2002). Finally, evidence suggests that resources flow toward firms that patent, at the expense of non-patenting firms (Kogan et al., 2012).

Empirical evidence highlights that some countries are more successful in channeling resources toward high productivity firms (Andrews and de Serres, 2012; Arnold et al., 2008). For example, Hsieh and Klenow (2009) estimate that if China and India were able to align their efficiency of resource allocation with that of the United States, manufacturing TFP could rise by 30-50% in China and 40-60% in India.

Cross-country differences in the efficiency of resource allocation partly reflect differences in framework policies. Results from a study by Andrews and Cingano (2012) suggest that regulations affecting product, labour and credit markets influence the efficiency of resource allocation, which in turn affects productivity. Furthermore, regulations that hinder the allocation of resources toward the most efficient firms appear to be more disruptive in sectors with greater innovation (Bartelsman et al., 2013) and in firms that are catching up to the technology frontier and are close to international best practices (Arnold et al., 2008).

**What is the evidence on the trajectories of new innovative ventures and innovative entrepreneurship?**

* Evidence on enterprise birth, death and survival

The OECD Entrepreneurship at a Glance (OECD, 2013) provides data on birth rate, death rate, churn rate and survival rate, based on the OECD Structural and Demographic Business Statistics (SDBS) Database. These data provide insight into the trajectory of firms, although they do not specifically focus on innovative high-growth entrepreneurship.

The employer enterprise birth rate corresponds to the number of births of employer enterprises as a percentage of the population of active enterprises with at least one employee. An employer enterprise birth refers to the birth of an enterprise with at least one employee. It does not include entries into the population due to mergers, break-ups, split-offs, restructuring of enterprises or a change in activity.

The employer enterprise death rate corresponds to the number of deaths of employer enterprises as a percentage of the population of active enterprises with at least one employee. An employer enterprise death occurs either as the death of an enterprise with at least one employee in the year of death, or the move of an enterprise below the threshold of one employee for at least two years.

The churn rate, defined as the sum of births and deaths of enterprises, indicates how frequently new firms are created and how often existing enterprises close down. The indicator reflects a country’s degree of creative destruction.

The survival rate of enterprises provides information on the share of enterprises surviving one or more years after birth. The number of n-year survival enterprises for a particular year t refers to the number of enterprises that had at least one employee for the first time in year t-n and have not died in year t. An enterprise is also considered to have survived if the linked legal unit(s) has (have) ceased to be active, but their activity has been taken over by a new legal unit set up specifically to take over the factors of production of that enterprise (survival by takeover). This definition of survival excludes cases in which enterprises merge or are taken over by an existing enterprise in year t-n.

* Evidence on similarities and differences across countries regarding the trajectory of firms

In most of the industrial countries, annual entry and exit rates are generally positively correlated across industries. The correlations are particularly strong when the entry and exit rates are weighted by employment (Bartelsman et al., 2004). The post-entry performance also sheds light on the market selection process that separates successful entrant firms that survive and prosper from others that stagnate and eventually exit. For most countries the rank ordering of survival is similar, whether using a two-year, four-year or seven-year horizon, suggesting that there is an important country effect that impacts the survival function (Bartelsman et al., 2004).

Firm-level empirical studies actually reveal important cross-country differences in the characteristics of firms entering and exiting the market and in ease of resource reallocation. For instance, the size of entering and exiting firms tends to be smaller in the United States than in Europe and successful young firms tend to expand relatively more quickly in the United States than elsewhere (Bartelsman et al., 2004). Institutional factors may contribute to explaining this finding. One interpretation may be that there is a greater degree of experimentation and “learning by doing” among entrants in the United States, while larger entrants and exiting firms in Europe may reflect cautious entry strategies that target more established markets (Bartelsman et al., 2008)

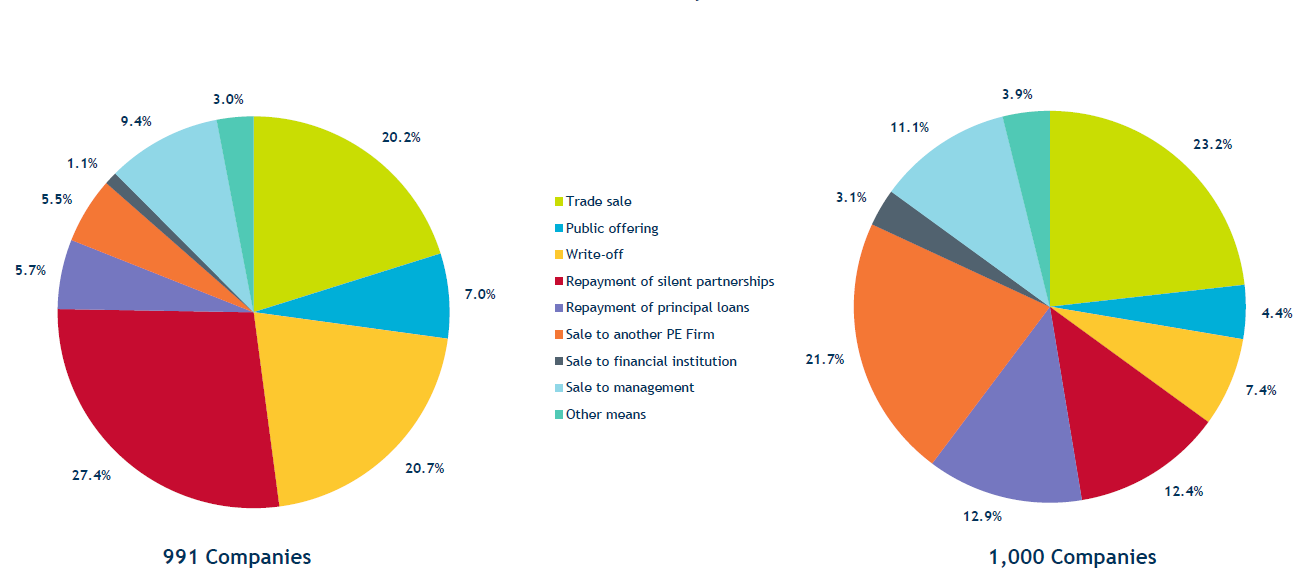
* Evidence on trade sales and IPOs

The majority of positive exits are through trade sales or mergers and acquisitions. Trade sales are much larger than IPOs in terms of volume in almost all instances and places. In Europe, trade sales accounted for 20.2% of venture capital exits (in number of companies) in 2011, while IPOs accounted for only 7% of venture capital exits (Figure 2). In the United States, the NVCA reported 449 acquisitions of venture-backed companies and 49 IPOs of venture-backed companies in 2012, which is far below the 280 IPOs in 1999 (NVCA, 2013). Indeed, the IPO markets in many countries have been heavily affected by the recent financial crisis. In Europe, for instance, the number of IPOs substantially decreased between 2007 and 2011, from 231 IPOs to 132 IPOs (Figure 3).

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##### **Figure 2. European Venture Capital divestment by exit route**

% of number of companies, 2011



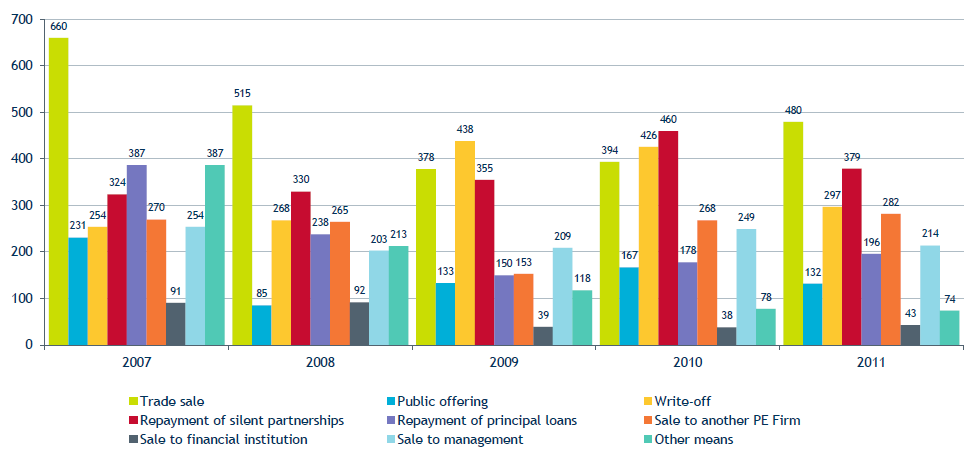
Source: EVCA / PEREP Analytics

EVCA (2012) Yearbook 2012. Activity Data on Fundraising, Investments and Divestments by Private Equity and Venture Capital Firms in Europe[http://www.evca.eu/knowledgecenter/statisticsdetail.aspx?id=6392](http://www.evca.eu/knowledgecenter/statisticsdetail.aspx?id=6392%C2%A0)

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##### **Figure 3. European Venture Capital divestment by exit route, 2007-2011**

Number of companies



Source: EVCA / PEREP Analytics

EVCA (2012) Yearbook 2012. Activity Data on Fundraising, Investments and Divestments by Private Equity and Venture Capital Firms in Europe[http://www.evca.eu/knowledgecenter/statisticsdetail.aspx?id=6392](http://www.evca.eu/knowledgecenter/statisticsdetail.aspx?id=6392%C2%A0)

In past decades, multiple countries created or modified existing marketplaces for high-growth SMEs in order to foster the development of risk capital markets and support innovative entrepreneurship. For example, in 2004 Euronext launched Alternext, a market geared to innovative SMEs. But beyond simply creating marketplaces for high-growth SME equity, other prerequisites must be fulfilled in order for the market to develop sufficient liquidity. Most fundamentally, a community of investors must exist and be willing to hold and trade the shares of newer and less well-known companies.

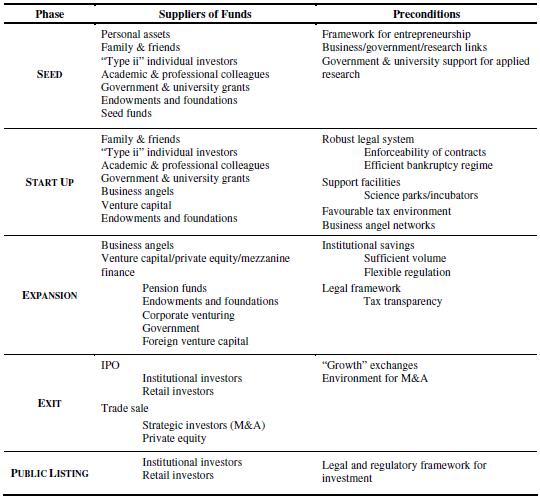
**What other topics relate to the trajectories of new innovative ventures and innovative entrepreneurship?**

All the framework conditions (i.e. [access to finance for innovative entrepreneurship](https://www.innovationpolicyplatform.org/content/innovative-entrepreneurship?topic-filters=11381), [entrepreneurial capabilities and culture](https://www.innovationpolicyplatform.org/content/entrepreneurial-capabilities-and-culture?topic-filters=12162), [regulatory framework for innovative entrepreneurship](https://www.innovationpolicyplatform.org/content/regulatory-framework-innovative-entrepreneurship?topic-filters=12029), [firms’ access to knowledge for innovative entrepreneurship](https://www.innovationpolicyplatform.org/content/firms-access-knowledge-innovative-entrepreneurship?topic-filters=12256), [market environment for innovative entrepreneurship](https://www.innovationpolicyplatform.org/content/market-environment-innovative-entrepreneurship?topic-filters=12270)) described in the IPP module affect the trajectory of new innovative ventures, as they all shape the conditions for their growth and success.

However, some preconditions may be more important at certain stages of business growth to help companies get access to finance, as shown in Table 1 (OECD, 2006). This section focuses particularly on the connection with exit.

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##### **Table 1. Funding sources for innovative SMEs and preconditions**



Source: OECD (2006), The SME Financing Gap (Vol. I): Theory and Evidence, OECD Publishing.<http://dx.doi.org/10.1787/9789264029415-en>

[Venture capital](https://www.innovationpolicyplatform.org/ipp/filters/result-page?topic-filters=12161) and [Business angels](https://www.innovationpolicyplatform.org/ipp/filters/result-page?topic-filters=12354). Strong exit markets, both in terms of vibrant stock markets for IPOs as well as trade sales, are critical for enabling access to finance for young innovative firms seeking equity investments (angels or VC). If there are no exit options in the form of viable routes to IPO and/or trade sales, equity investors will be unwilling to invest.

[Other types of finance](https://www.innovationpolicyplatform.org/ipp/filters/result-page?topic-filters=12312). Sources of finance as diverse as subsidies, loans and grants from governments, money and capital provided by family and friends, entrepreneurs’ personal financial resources and crowd funding play a key role in new ventures’ development, especially at earlier stages. New ventures can avoid an early exit by bridging the financing gaps that arise when innovative entrepreneurs cannot obtain finance from the formal financial system.

[Bankruptcy regulation](https://www.innovationpolicyplatform.org/content/bankruptcy-regulation?topic-filters=12027). Bankruptcy regulation impacts exit decisions of businesses (e.g. through the number of restrictions imposed on a debtor who files for reorganization).

**What policies relate to the trajectories of new innovative ventures and innovative entrepreneurship?**

Public policy can influence the trajectories of innovative new ventures by:

* Adjusting stock market regulations to allow smaller companies to benefit from access to public markets through initial public offerings. For example, this can involve the creation of secondary stock markets. However, these stock markets need to have sufficient critical mass to attract enough liquidity; otherwise, firms will be better off listing on a more liquid exchange.
* Facilitating the listing of new domestic innovative ventures on overseas markets
* Supporting the acquisition of entrepreneurial firms by larger companies. For instance, governments can ensure that competition and tax policies encourage networking between large and smaller firms in order to facilitate future trade sales, ensure that FDI regulations do not discourage foreign acquisition of domestic companies, and do not create unnecessary obstacles to trade sales of entrepreneurial firms.
* Taking into account the different needs of innovative entrepreneurs at various stages of the business growth cycle and developing a range of appropriate financing mechanisms to support them at all stages. Gaps at any point in the funding cycle can leave entire sectors in an undeveloped state.

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# Tneme of lecture № 5. Access to labour and social factors for innovative entrepreneurship

**Plan of lecture:**

# 1. Access to labour for innovative entrepreneurship

# 2. Costs of hiring and firing

# 3. Skilled labour

**4. Migration**

# 5. Entrepreneurial capabilities and culture

**6. Attitudes towards entrepreneurship**

# 1. Access to labour for innovative entrepreneurship

**How does access to labour affect innovative entrepreneurship?**

Access to labour and labour conditions are key determinants in the success of innovative entrepreneurs. Skilled labour, in particular, is essential for innovative businesses, since innovation is a key driver of their success. Moreover, high labour costs or cumbersome hiring and firing conditions can adversely affect innovation in firms by reducing flexibilities with regards to employment.

**The challenge of accessing to labour can be particularly difficult for innovative start-ups for the following reasons:**

* **SMEs are found to suffer disproportionately from a lack of available qualified personnel**, compared with their larger counterparts.
* **The administrative burdens of employment are relatively larger for smaller businesses**, since expansion is often riskier for new ventures. This can have distorting effects on competition and divert human and financial resources away from business activity. However, the empirical evidence on the direct effects of employment protection legislation (EPL), on type of administrative burden, on entrepreneurship is mixed.
* **Immigrants may specifically affect innovative entrepreneurship in that immigrants may contribute to the economy as entrepreneurs.**

**What are the key policy dimensions regarding access to labour and innovative entrepreneurship?**

As for innovative businesses in general, common policy challenges across three policy dimensions are particularly relevant and include:

* How to balance innovative businesses’ need for labour flexibility with job protection.

→ Costs of hiring and firing consists of the norms and procedures regulating hiring, dismissals and the costs of hiring and firing. These norms and procedures determine the efficiency of the labour market (for example, some factors discourage employment, as when companies subcontract rather than take people on as employees) and key costs related to expansion. These norms and procedures can also create barriers to entry and in this way affect market competition.

* How to encourage innovative companies to invest in training their employees.

→ Skilled labour refers to highly educated and experienced individuals in the labour market.

* How to encourage the immigration of skilled labour in the context of global competition for such labour.

→ Migration includes long-term and short-term immigration and emigration, and deals with regulation issues, such as immigration quotas, procedures and special regulations for skilled workers.

**What are the main rationales for policy interventions in support of access to labour for innovative entrepreneurship?**

As in the context of innovative businesses in general, market failures can affect access to labour, requiring policy discussions and potential interventions:

* While the social returns from employee training might be high, as society and entrepreneurship in general benefit from increased human capital, the return on investment may not be as great, since employees might join competitor firms.

A series of conditions are specific for innovative entrepreneurship:

* System failures may lead to a lack of skilled labour, and this mismatch between supply and demand can hinder innovative entrepreneurship in particular. Single entrepreneurs may find the cost of establishing adequate training facilities to be prohibitive, even though such facilities will collectively benefit all entrepreneurs. Inadequate labour regulations, including those impacting on migration, can also have a negative effect on innovative entrepreneurs.

**What are the main policies that influence access to labour in the context of innovative entrepreneurship?**

As for innovative businesses in general, public policy can influence:

**Costs of hiring and firing** by:

* Mitigating labour costs, particularly for smaller businesses and innovative start-ups (e.g. subsidies for some sectors and assistance with recruitment).
* Focusing on workers rather than jobs (e.g. by sustaining workers during periods of unemployment and job-to-job transitions).
* Minimizing the uncertainty and time delays caused by contested dismissals that are legally challenged.
* Abiding by principles of good regulation (e.g. simplifying the principles and application of regulations, and having transition periods to new regulations).
* Improving access to information regarding employment legislation (e.g. by creating a single point of contact for information).

**Skilled labour** by:

* Strengthening lifelong education and training for innovation (e.g. raising attainment levels and the general quality of education, and introducing innovative learning practices into traditional disciplines).
* Strengthening an innovation culture and raising public interest in science and technology (S&T), in order to attract young people to pursue higher education in S&T disciplines (e.g. through large public communication and joint research projects involving youth and senior scientists).
* Identifying future skill needs and ensuring the delivery of the right mix of skills through education.
* Facilitating the mobility of a highly skilled workforce to aid in the cross-fertilization of ideas and learning, and to address structural mismatches in supply and demand for highly skilled workers (e.g. by allowing transferable pension rights and providing advice and training programs to help in job transitions).

**Migration** by:

* Supporting and attracting skilled foreign students, workers and entrepreneurs (e.g. by providing education, training, guidance and mentoring, and improving their network-building capacities).
* Supporting existing migrant entrepreneurs’ businesses and already established migrant entrepreneurs in host countries by increasing their human and social capital. Measures may include providing training, guidance and mentoring, and improving their network-building capacity. Strengthening networking between entrepreneurs and intermediary agencies may contribute to improving the effectiveness of such support measures.
* Facilitating access to credit by migrant entrepreneurs. Migrant entrepreneurs face greater problems accessing financing than native entrepreneurs. One explanation is that migrant enterprises typically lack a credit history due to their shorter existence and because credit histories are often not recognized across borders. This lack of credit history makes it more difficult for banks to assess the creditworthiness of migrant entrepreneurs. To overcome this problem, governments could implement bilateral and multilateral agreements to improve the exchange of credit information at global, regional and bilateral levels.

Another obstacle is that credit institutions often lack understanding of migrant entrepreneurs, perceiving them as high-risk borrowers. Governments could mitigate this problem by promoting better understanding between credit institutions and migrant entrepreneurs through financial literacy programmes. Finally, governments could help immigrants get better access to finance by creating and supporting alternative funding sources outside regular financial channels.

# 2. Costs of hiring and firing

Costs of hiring and firing can influence innovation in firms by affecting the risks and costs associated with investments and other business strategies that involve labour decisions. There is evidence to suggest that lower costs in hiring and firing can facilitate the creation and growth of companies, and have a lesser impact on direct productivity gains. The costs of hiring/firing differ across OECD countries, notably because of differences in employment protection legislation and regulations regarding minimum wages. The costs of hiring and firing can critically affect access to skilled labour, including from abroad. It helps shape the administrative framework for entry and growth, and can therefore impact competition. Policies can influence the costs of hiring/firing in relation to innovative businesses in several ways, such as supporting workers rather than jobs and ensuring that employment legislation is as clear and simple as possible.

**What are the costs of hiring and firing?**

Firms incur hiring/firing costs through:

* **administrative burdens** (keeping records, ensuring employees are legally employed)
* **compliance with related regulations,** such as anti-discrimination legislation (which affects recruitment practices) and provision for maternity leave and pensions
* **direct costs** related to minimum wages and **obligatory social charges**
* **searching for adequate personne**l, which involves substantial costs
* **difficulties in understanding complicated and changing legislation,** including difficulties in understanding the exact limits of the law and possible sanctions for breaking it
* **employment protection legislation** (EPL), which limits the employer’s ability to dismiss workers individually or collectively. EPL consists of the s**et of norms and procedures regulating the individual or collective dismissals of redundant workers** (Boeri and Van Ours, 2008). EPL imposes extra costs when work contracts are terminated early and generally limits the situations in which dismissals are allowed. Lay-offs are often challenged in court, which add an uncertain cost factor, especially in countries that have less efficient civil justice systems.

**How does the cost of hiring and firing affect innovative businesses?**

##### **Impacts on firms’ growth**

Hiring and firing costs can influence innovative firms by affecting investment and expansion. For example, onerous regulations preventing the employment of foreign workers can make it difficult to recruit skilled people. As the size of a business increases, the costs of hiring and firing may inhibit the firm from expanding further. Changing, unclear and complex regulation can discourage companies from hiring new employees.

##### **Investment and risk-taking**

High costs in firing are likely to affect a company’s willingness to take risks and experiment with growth opportunities. In fact, firms may be less willing to expand their workforces and to enter into new markets if they cannot shrink their workforces when their strategies prove unsuccessful. An aversion to risk taking leads to more conservative growth strategies, which reduces productivity. This can be particularly detrimental for innovative industries, which tend to be more risky and volatile. As a consequence, countries with greater worker protection and thus higher firing costs may specialize in industries that are less innovative or that rely on older technologies, since more dynamic industries have to be prepared to adjust their workforce (Samaniego, 2006). Also, innovators in countries with high firing costs may tend to specialize in “secondary innovation” that improves existing products, rather than “primary innovation” that introduces new products (Saint-Paul, 2000) and requires organizational change. Furthermore, high firing costs may create additional **sunk costs**, i.e. upfront costs incurred that cannot be recovered ex post, for emerging firms; redundancy pay, for instance, increases the risk of economic losses in the event of insolvency (Kanniainen and Vesala, 2005).

##### **Job turnover and reallocation dynamics**

Stringent labour market regulations and high firing costs may prevent an efficient reallocation of human resources and reduce job turnover across firms. Therefore, strict EPL may be an obstacle to **creative destruction**, an important process through which countries create new jobs and increase their productivity (OECD, 2009; Bartelsman, Haltiwanger and Scarpetta, 2009; Bravo-Biosca, Criscuolo and Menon, 2013). Creative destruction, if it is to have a positive effect, depends on reallocating and redistributing those resources that are destroyed.

**Arguments as to why hiring/firing costs are not necessarily detrimental to innovative firms**

The negative link between innovation and EPL is controversial. Firms that invest significantly in training and share tacit knowledge may benefit from stringent EPL, as they can take advantage of lower rates of labour turnover and increase their return on investment (Acharya et al., 2010); similarly, stringent EPL, acting as an implicit insurance, may encourage workers to be more willing to engage in innovative and risky projects. Furthermore, efficiency wage theories suggest that workers may perceive EPL as an upgrade in the quality of their employment, which may lead them to increase their efforts and have a positive effect on innovation.

##### **The empirical evidence on the effects of hiring and firing costs on successful innovative firms**

**There is a general consensus in the economic literature about the negative effects of EPL on job reallocation**, with evidence available both within and across countries (Bertola, 1990; Haltiwanger et al., 2006; Gomez-Salvador et al., 2004; Kugler and Pica, 2008).

##### **Direct effects on firms’ productivity**

The direct effect on firms’ performance is more debatable. Bassanini et al. (2009) find that mandatory dismissal regulations have a depressing impact on productivity growth in industries where layoff restrictions are more likely to be binding. However, Martin and Scarpetta (2012) extensively examine recent empirical evidence to conclude that stringent EPL has a sizeable negative effect on labour flows and, in consequence, on aggregate productivity growth.

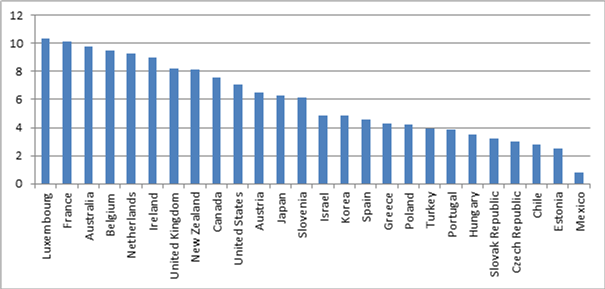
**What is the evidence on how hiring and firing costs affect innovative businesses?**

##### **Minimum wages**

The OECD publishes data on minimum wages, such as annual data on real hourly minimum wages, i.e. statutory minimum wages converted into a common hourly pay period for the 26 countries for which they are available (Figure 1). Countries such as Luxembourg, France, Australia, Belgium, the Netherlands and Ireland exhibit the highest hourly minimum wages, while Slovak Republic, Czech Republic, Chile and Estonia have the lowest hourly minimum wages among OECD countries.

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##### **Figure 1. Real hourly minimum wages (in US$ PPP), 2012**



Real hourly minimum wages are statutory minimum wages converted into a common hourly pay period for the 26 countries for which they are available. The resulting estimates are deflated by national Consumer Price Indices (CPI). The data are then converted into a common currency unit using either US $ current exchange rates or US $ Purchasing Power Parities (PPPs) for private consumption expenditures. Real hourly minimum wages are calculated first by deflating the series using the consumer price index and taking 2011 as the base year. The series are then converted into a common currency unit (USD), using Purchasing Power Parities (PPPs) for private consumption expenditures in 2011.  
Source: data extracted from OECD.Stat

##### **Indicators to assess costs of hiring and firing**

The OECD employment protection indicators cover three different aspects of employment protection:

**Individual dismissal of workers with regular contracts.** This incorporates three aspects of dismissal protection:

(i) procedural inconveniences that employers face when starting the dismissal process;

(ii) notice periods and severance pay;

(iii) difficulty of dismissal, as determined by the circumstances in which it is possible to dismiss workers, as well as the repercussions for the employer if a dismissal is found to be unfair (such as compensation and reinstatement).

* **Additional costs for collective dismissals.** Most countries impose additional delays, costs or notification procedures when an employer dismisses a large number of workers at one time.
* **Regulation of temporary contracts.** This quantifies regulation of fixed-term and temporary work agency contracts with respect to the types of work for which these contracts are allowed and their duration. This also quantifies regulation governing the establishment and operation of temporary work agencies, and requirements for agency workers to receive the same pay and/or conditions as equivalent workers in the user firm, which can increase the cost of using temporary workers relative to permanent employees.

Based on these indicators, the strictness of EPL varies widely across OECD member countries (Figure 2). The degree of variation is even larger when the different sub-components of EPL (e.g. regulation of temporary contracts or of collective dismissals) are examined individually.

The World Bank Doing Business annual reports contain a section on employing workers, which includes a number of sub-components on firing costs, along with other indicators such as indicators on difficulty of hiring, difficulty of firing. Results indicate that governments in high-income OECD economies focused on reducing redundancy costs in the past decade: 15 labour regulation reforms introduced by high-income OECD economies in the past 8 years either reduced the severance pay in cases of redundancy dismissal or shortened the required notice period for employees. In 2013, the average severance payment in high-income OECD economies is 5.83 weeks of salary (World Bank, 2013).

**What other topics relate to hiring and firing costs and innovative businesses?**

**Skilled labour**. Hiring and firing costs impact how innovative firms tap into skilled labour to develop their businesses.

**Migration**. Foreign labour can be an alternative source of particularly skilled labour, and the associated costs of hiring and firing such labour will shape conditions for innovative businesses.

**State of competition**. The costs of hiring and firing can affect the start-up and/or expansion of innovative businesses and therefore impact competition.

**Administrative framework for entry and growth**. The costs of hiring and firing are a specific and often very important type of administrative framework, which affects the start-up and growth of innovative businesses, among other factors.

**Access to labour for innovative entrepreneurship**. Innovative entrepreneurs face specific challenges to access to labour which may call for targeted policy.

**What policies relate to hiring and firing costs and innovative businesses?**

Employment protection legislation can be directly affected by policy. It is important that labour market and social protection policies **facilitate, rather than hinder,** innovative projects.

**Labour market policies targeting workers rather than jobs** can be valuable. Workers should be especially sustained during unemployment spells and job-to-job transitions, and should be helped in converting their skills. The degree of uncertainty in dismissals should be minimized by reducing cases where legal action is required and by reducing delays when such action is needed.

Labour market legislation has to cover a wide range of different situations and therefore needs to be carefully framed in order to avoid becoming a disincentive. **A single organisation responsible for information, inspection and enforcement** can be useful in that context.

**Transition periods for new legislation** and **readily available information about changes in legislation** can make it easier for companies to deal with regulations.

In order to avoid problems with a new employee, systems can be put in place to **subsidise the costs of initial employment** and possibly to **assist with recruitment.**

To avoid uncertainty for employers regarding possible claims for unfair dismissal, there can be **clear limits to compensation,** while the complaint process can be simplified and made less costly through **operation of an arbitration service**.

# 3. Skilled labour

Access to skilled labour is key for innovation in firms: skilled labour can contribute to innovation and growth by generating new knowledge, developing incremental innovations, supporting firms in the identification of business opportunities, helping companies adapt to changing environments, generating spillovers (transfer of knowledge to co-workers) within the organization and adding to social capital. Although educational attainment has risen steadily in OECD countries in past decades, innovating firms still suffer from a shortage of skilled labour, inhibiting their capacity to innovate. The question of skilled labour is related to broader questions of access to labour. Innovative businesses require specific skills and experience. The costs of hiring and firing are critical in shaping how innovative businesses tap into skilled labour. Public policy could improve innovative firms’ access to skilled labour by strengthening education about innovation, promoting an innovation culture, raising public interest in S&T, attracting young people to pursue higher education in S&T disciplines and encouraging lifelong learning to allow people to upgrade their skills throughout their adult lives.

**What is skilled labour?**

Skilled labour refers to **highly educated individuals having graduated at the tertiary level of education and experienced individuals employed in an occupation for which a high qualification is normally required.** In many studies, skills and skill levels are defined by some **combination of education, training and experience** (Machin and Van Reenan, 1998; Tether et al., 2005; Pro Inno Europe, 2007). The skills identified in the literature as contributing to innovation include basic skills (e.g. reading and writing), academic skills, technical skills, generic skills (e.g. problem solving) and “soft” skills (e.g. multicultural openness and leadership).  
  
The specific skills and competencies of innovative entrepreneurs and how they influence innovative entrepreneurship are covered in the node “[Business and entrepreneurship skills and experience](https://www.innovationpolicyplatform.org/content/business-and-entrepreneurship-skills-and-experience?topic-filters=12032)”.

# Business and entrepreneurship skills and experience

Business and entrepreneurship skills and experience affect the propensity of individuals to become entrepreneurs and the likelihood of their success. There is some evidence pointing to the importance of these skills for innovative entrepreneurship. The issue of business and entrepreneurship skills and competencies is closely related to broader questions related to skilled labour, migration and attitudes toward entrepreneurship). Suitable education programmes to help develop entrepreneurial mindsets and company training in entrepreneurship skills are considered critical.

**What are business and entrepreneurship skills and experience?**

Skills refer to the abilities and capacities of people who perform tasks demanded of them in a work environment. Skills can either be generic, referring to general transferable skills, or specific to certain work functions, such as managing people, computing, dealing with risk and uncertainty, or developing a new product or service (Tether et al., 2005).

Generally, there are three broad categories of skills: basic, advanced and converging. **Basic skills** are generic and routine skills present in most industries and organisations. **Advanced skills** require more knowledge. These can be technical skills required in some occupations and management positions, or they can be social and communication skills needed for teamwork. They can also refer to specific language and cultural skills that are of growing importance in certain multicultural working environments. **Converging skills** require a combination of basic and advanced skills, such as entrepreneurship skills (OECD, 2010).

**Entrepreneurship skills** are required for creating and running new business ventures or innovative projects in existing firms. They include **risk assessment, strategic thinking, self-confidence, the ability to make the best of personal networks, motivating others to achieve a common goal, and the ability to deal with other challenges and requirements** (OECD, 2010). More specific examples of entrepreneurship skills are provided in Table 1.

**Business and entrepreneurship skills can be acquired from the formal education system** (schools, higher education and vocational education) **and in work environments** (training or informal learning through experience). It is often argued that the work environment is where entrepreneurs learn the most, as opposed to formal education.

##### **Table 1: Skills required for entrepreneurship**

|  |  |  |
| --- | --- | --- |
| **Technical Skills** | **Business Management Skills** | **Personal Entrepreneurial Skills** |
| Written and oral communication | Planning and goal setting | Inner control/discipline |
| Monitoring environment | Decision making | Risk taking |
| Technical business management | Human Relations | Innovative |
| Technology | Marketing | Change orientated |
| Interpersonal | Finance | Persistent |
| Listening | Accounting | Visionary leader |
| Ability to organise | Management | Ability to manage change |
| Network building | Control |  |
| Management style | Negotiation |  |
| Coaching | Venture Launch |  |
| Being a team player | Managing Growth |  |

Source: Hisrich, R.D. and Peters, M.P. (1992) – Entrepreneurship: Starting, Developing, and Managing a New Enterprise – Irwin, Boston, MA

**How do business and entrepreneurship skills and experience affect innovative entrepreneurship?**

As noted in Table 1, there are a number of entrepreneurship and business skills and experience that will have a positive influence on innovative entrepreneurship. Innovative entrepreneurship will require **management skills** and the **ability to manage change**. A number of personal attributes are also critical for innovative entrepreneurship, including **the ability to be innovative, being change oriented** and **visionary leadership**.

Advanced knowledge-intensive skills and converging skills are more important to innovation than basic skills (OECD, 2010). More specifically, **entrepreneurship skills** include two components related to innovation: an active component comprising the **entrepreneur’s propensity to drive innovation**, and an absorptive component comprising the **entrepreneur’s capacity to recognize and welcome innovation** delivered by external factors (Green et al., 2007). Entrepreneurship involves the impulse to create and innovate, recognizing innovation by others, the desire to implement innovation (e.g. starting a new venture, finding new markets, introducing new organisational models) and the drive to motivate others to succeed in its implementation (OECD, 2010).

Entrepreneurship and advanced business skills and experience are important to the innovation process, and can be a more important factor than access to financing. For example, research suggests that **innovative SMEs in the United Kingdom are more constrained by a lack management skills than by financial constraints**, which hinders their development of innovation and high-growth strategies (OECD, 2010b).

**Evidence on the importance of businesses and entrepreneurship skills and experience to success**

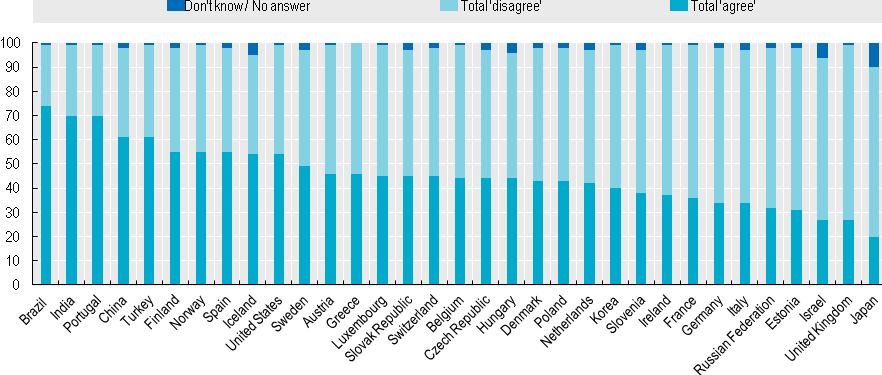
Skills and experience have a positive effect on entrepreneurship because they provide the basis for a company’s dynamic capabilities, the ability to learn and adapt to changing circumstances (Teece et al., 1997). Business and entrepreneurship skills are essential for the formation, survival and growth of a new business, as well as for the upgrading of existing SMEs. A number of recent studies underline this connection and point out that the capacity to **continually learn and acquire knowledge are essential qualities of successful entrepreneurs** (Smilor, 1997; Minniti and Byrgave, 2001; World Economic Forum, 2009). Successful entrepreneurs and small business owners/managers can be viewed as “jacks-of-all-trades” since they require a combination of horizontal and vertical skills (Lazear, 2004).

**What is the evidence on business and entrepreneurship skills and experience and innovative entrepreneurship?**

Figure 1 shows that only ten countries had a majority of people who believed that their education gave them the skills and know-how to run a business. Brazil (74%), India (70%) and Portugal (70%) had the highest level of agreement, followed by China, Finland, Norway, Spain, Iceland and the United States, where between 50% and 65% of interviewees agreed that their school education gave them the requisite skills to run a business (OECD, 2013). The share of people preferring employment because they felt they lacked the skills for self-employment also significantly varies across countries, from less than 5% in Italy and Turkey, to more than 25% in South Korea (figure 2).

##### 

##### **Figure 1. School education provided enabling skills and know-how to run a business, in percentage, 2012**



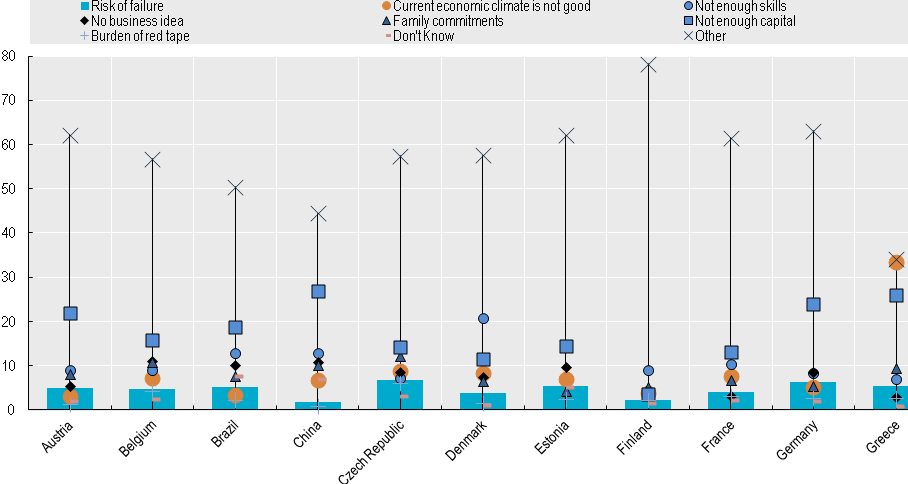
Source: Entrepreneurship at a Glance 2013 - © OECD 2013

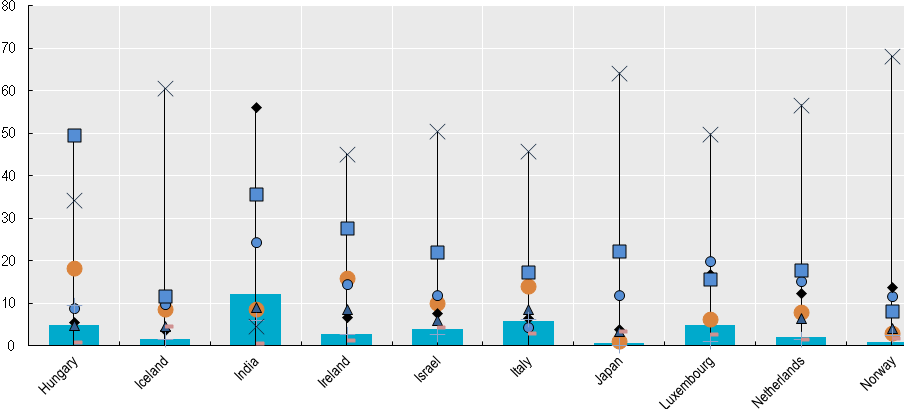
StatLink: http://dx.doi.org/10.1787/888932829457

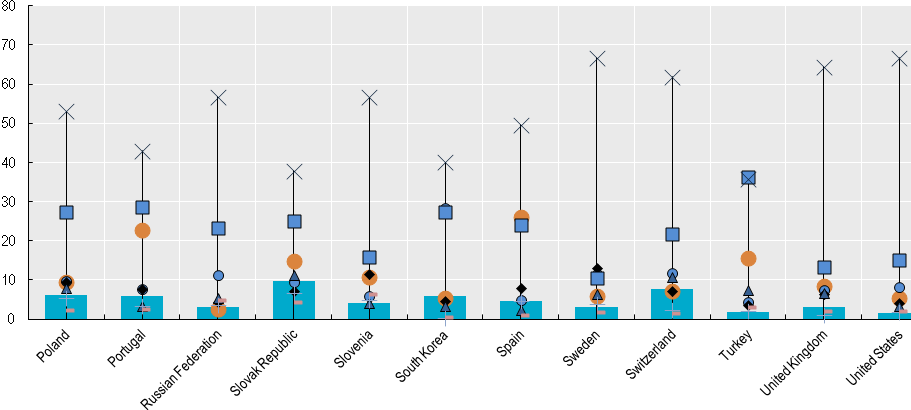
Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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##### **Figure 2. Why is it not feasible to become an entrepreneur? Percentage, 2012**





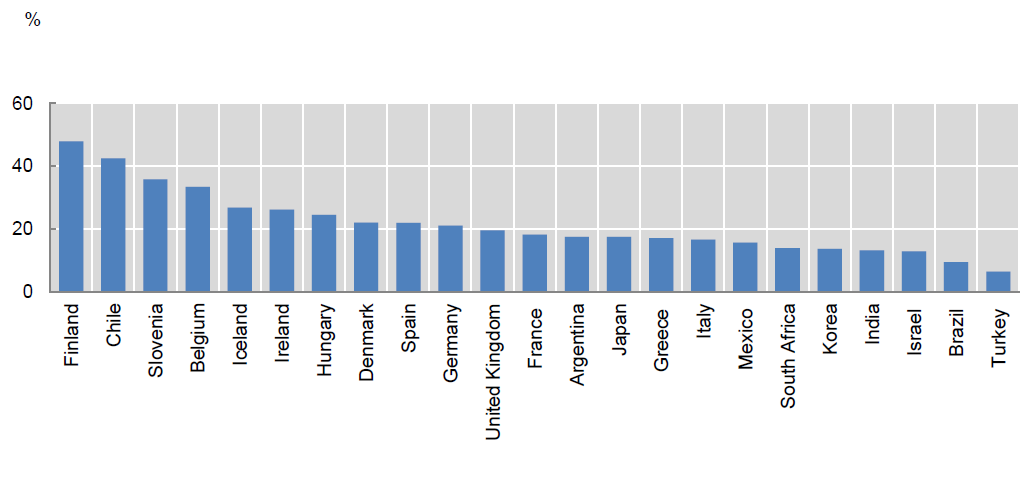


Source: Entrepreneurship at a Glance 2013 - © OECD 2013  
StatLink: http://dx.doi.org/10.1787/888932829495  
Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities.

Until recently, entrepreneurship education was very rarely provided (OECD, 2010a). In most OECD countries, less than a quarter of the population aged 18 to 64 indicated having participated in training for starting a business (OECD, 2010c), as shown in Figure 3. OECD research shows that entrepreneurship teaching activities are increasing (Potter, 2008). More universities, faculties and students are becoming involved, and the variety of content and pedagogies is growing. There are nonetheless some international differences in the extent and nature of teaching about entrepreneurship. Evidence suggests that entrepreneurship education in US universities is relatively advanced (Hoffman et al., 2008). For example, at Stanford University and Cornell University in the US, student participation in entrepreneurship programmes was 15% and 20% respectively. In comparison, the participation rate in Canadian universities was between 5% and 7%, while none of the Danish universities reported participation rates above 2.5%.

##### 

##### **Figure 3. Percentage of the population aged 18 to 64 years old who received any type of training in starting a business, during or after school, 2008.**



Source: Bosma, N., Z.J. Acs, E. Autio, A. Coduras and J. Levie (2009), Global Entrepreneurship Monitor: 2008 Executive Report, Global Entrepreneurship Research Association (GERA)  
StatLink http://dx.doi.org/10.1787/835542183283

**What other topics relate to business and entrepreneurship skills and experience and innovative entrepreneurship?**

**Skilled labour**. Business and entrepreneurship skills and competencies allow innovative entrepreneurs to better identify and pursue business opportunities. They have specific skills critical to the success of innovative entrepreneurship, as they improve the ability of innovative entrepreneurs to manage risk and best utilize their resources.

**Migration**. Immigrants can bring business and entrepreneurship skills and experience to their host country. However, the skills and competencies that migrant entrepreneurs bring from their home countries might need to be adapted to the host country’s environment. Limited language and business skills specific to the host country, and lack familiarity with the overall functioning of the host country’s markets, institutions and regulations, can be a challenge.

**Attitudes towards entrepreneurship**. On the one hand, the development of entrepreneurship and business skills (e.g. through education) can play an essential role in shaping attitudes toward entrepreneurship in a positive way (i.e. exposing students to entrepreneurship can contribute to making it a feasible and accepted career option). On the other hand, it may be more difficult to obtain relevant skills and experience in a culture that has negative views of entrepreneurship.

**What policies relate to business and entrepreneurship skills and experience and innovative entrepreneurship?**

##### **Education policies**

Some argue that entrepreneurship cannot be taught because entrepreneurial behaviour is rooted in the character and personality of the entrepreneur and success is often due to chance. However, there is a widespread view that entrepreneurship can be facilitated and that exposure to entrepreneurship can have positive effects, even if students do not become self-employed. Education policies can promote the development of business and entrepreneurship skills and experience to help potential entrepreneurs overcome common challenges.

Policy can support and implement entrepreneurship education in the school systems, higher education and in vocational education. Entrepreneurship education should have the goal of developing the entrepreneurial mindset, as well as delivering specific skills. Policy should aim to increase the number of entrepreneurship courses and participating students, where there is evidence that these courses have been successful. It is also important to ensure that entrepreneurship teaching meets high quality standards and extends across a broad range of subjects to reach a wide range of potential entrepreneurs. Teachers should be trained and supported in using interactive methods that emphasise “learning by doing.”

Policy can also support closer links between education institutions and the private sector. This is particularly important for innovative entrepreneurship and there are a number of ways to achieve this. First, policy should support more widespread use of entrepreneurs in the delivery of education through guest lectures, or through coaching and mentoring students. This could also include working with students on short-term projects through “start-up weekends.” Second, policy can encourage and support the integration of entrepreneurs into faculty and staff at universities to bring more entrepreneurship experience into higher education institutions. Third, policy can facilitate private sector funding and involvement in entrepreneurship chairs and incubation facilities at universities. Fourth, policy can support better integration between the private sector and university start-up support facilities, which can be accomplished through coaching and mentoring, and also through networking events and business competitions.

Use of the vocational education and training system requires a different approach from that commonly used for teaching more technical subjects and appropriate policies for changing teaching methodologies, and not just curricula, need to be formulated (Gibb, 2009).

##### **Training policies**

Policy should encourage a greater emphasis on the challenges of enterprise growth in training programmes, rather than business plan development and business management skills. In doing so, training should focus on opportunity identification, risk taking, strategy making, leadership, negotiation, networking, building strategic alliances and intellectual property protection.

Training policies can also support the development of entrepreneurship and business skills in the staff of new small enterprises to help facilitate the development of business and management skills. These skills are needed during a company’s growth and having staff equipped with these skills can help businesses deal with pressures as they arise. Training could be used to develop team leaders, impart entrepreneurship skills across occupations involved in product and process development, and increase project management skills.

In addition, policy could support increasing the number of apprenticeships in SMEs, since apprenticeships are ideal for developing entrepreneurship skills among students.

# 4. Migration

Migrants can contribute to innovative entrepreneurship in their host countries in many ways: by bringing new skills and competencies, helping domestic innovative SMEs overcome labour shortages, founding innovative high-growth companies, and supporting the diffusion and creation of knowledge. Evidence confirms the contributions of migrants. Over the past decade, specific policies designed to attract and select foreign entrepreneurs and highly educated immigrants have been adopted in most OECD countries. Migration can critically affect firms’ access to skilled labour and to business and entrepreneurship skills and experience. It can also facilitate access to foreign markets. Public policy can influence migration within the context of innovative businesses by adopting measures to not only attract but retain foreign entrepreneurs, skilled workers and students (e.g. simplified family reunification conditions).

**What is migration?**

Migrants are long-term and short-term immigrants (or emigrants) and returning (or departing) nationals (OECD, 2008). This node focuses mainly on access to foreign human capital by innovative firms and how it affects innovative businesses. It also focuses on regulation issues, such as immigration quotas, procedures and special regulations for skilled workers.

**How does migration affect innovative businesses?**

Immigration law may encourage innovative businesses by helping domestic innovative firms in **overcoming labour shortages**. In particular, the immigration of skilled workers enables innovative firms to obtain access to management resources and technological competencies that may be lacking in the domestic market.

Immigration contributes to the **diffusion of knowledge.** The resulting combination of diverse sources of knowledge, including codified information and contextual understanding, can provide “sparks” that lead to innovation and advances in science and technology.

##### **Evidence on the importance of migration to innovative businesses for their success**

**In many OECD countries, migrants contribute significantly to the supply of skilled labour**. In the United States in 2003, foreign-born people accounted for 26% of college-educated workers in science and engineering, and for 40% of science and engineering doctorate holders.

**Skilled migrants can contribute to innovation in the host country**. Evidence shows that they have higher rates of patenting, commercializing patents and publishing than natives in the United States (Hunt and Gauthier-Loiselle, 2010). More generally, Hunt (2008) and Kerr and Lincoln (2008) found a positive correlation between the pace of innovation and skilled immigrants in the United States.

**What is the evidence on migration and innovative businesses?**

##### **Migration in general**

In 2010, immigrants accounted on average for 13% of the populations in OECD countries (Figures 1 and 2). The largest share of immigrants was in Luxembourg, Switzerland, Australia and Israel, where they comprised a quarter or more of the population. In contrast, immigrants accounted for less than 5% of the population in Mexico, Chile, Hungary and Finland. Between 2000 and 2010, the immigrant population has increased on average by more than two percentage points in the OECD. In the European OECD countries, a large part of the increase in immigration over the past decade has been due to simplified migration regulations.

Globally, however, Asia is increasingly dominating immigration trends; in particular, China and India together account for 14% of new migrants to the OECD area. China and India notably account for 25% of international students (OECD, 2012).

##### **Migration of skilled labour**

The percentage of highly educated among the immigrant population has been growing over the past decade in most OECD countries. The number of highly educated is now greatest in Canada, where over 50% of the immigrant population have a tertiary education, followed by the United Kingdom and Ireland. In the OECD, about 30% of immigrants now have a tertiary education, compared with less than 25% in 2000 (OECD, 2012). In 16 out of 28 economies, the share of international and foreign students enrolled in science and engineering surpasses that of national students (OECD, 2011).

Recognizing the importance of skilled migration for the economy, OECD countries have adopted a wide range of measures to attract skilled migrants, including scholarships and financial support, simplification of visa procedures, legislation regarding recognition of foreign professional qualifications, and acquisition of social welfare entitlements by foreign researchers (OECD, 2012)

# 5. Entrepreneurial capabilities and culture

**How do entrepreneurial capabilities and culture affect innovative entrepreneurship?**

Entrepreneurial capabilities and culture play a critical role in market entry and in the success of new ventures. They determine the capacity to identify opportunities, run new businesses, drive innovations and learn from and adapt to changing circumstances. Culture may also affect innovative entrepreneurship by influencing the propensity of individuals to become entrepreneurs, the degree to which interested individuals take risks with regard to establishing a new enterprise and the degree of support that entrepreneurs receive when setting up a new enterprise.

**What are key policy dimensions regarding entrepreneurial capabilities and culture, and innovative entrepreneurship?**

Common challenges across three policy dimensions are particularly relevant and include the following:

* How can entrepreneurship skills be taught most effectively to encourage innovative entrepreneurship?

→ Business and entrepreneurship skills and experience, which deal with the teaching of entrepreneurship and the provision of vocational training by universities and other educational institutions.

* What cooperative approaches with the private sector are most effective in providing a business support infrastructure that will be useful to businesses?

→ Business support infrastructure, which includes the public and private provision of knowledge-intensive business services, such as consulting (business, legal and accounting) and R&D services, and focuses, in particular, on business incubators, science parks and accelerator programs.

* How can governments evaluate policies targeting attitudes towards entrepreneurship, given the slow rate at which attitudes change and difficulties in creating a control group?

→ Attitudes towards entrepreneurship, which refers to society’s perception of entrepreneurial activity (e.g. the desirability of establishing new companies and how entrepreneurs are viewed by society).

**What are the main rationales for policy interventions in support of entrepreneurial capabilities and culture?**

Several factors justify policy intervention regarding entrepreneurial capabilities and culture:

* A lack of entrepreneurial skills and a negative attitude towards entrepreneurial activity within a society (e.g. when an entrepreneur’s failure is seen as negative and something to fear) can affect the creation and success of innovative new ventures.
* Markets may fail to supply appropriate services, advice and incentives to entrepreneurs. These failures reveal the need for policy intervention to enhance entrepreneurial capabilities and culture. For example, a firm’s training program may result in a low return on investment if employees leave to join competitor firms. Thus, firms may not always gain from their investment in training despite the overall increase in human capital for society. This calls for policy interventions to address this disincentive.

**What are the main policies that influence entrepreneurial capabilities and culture in the context of innovative entrepreneurship?**

Within the context of innovative entrepreneurship, public policy can influence:

**Business and entrepreneurship skills and experience** by:

* Supporting and implementing high-quality entrepreneurship education in school systems, higher education and in vocational education across a broad range of subjects (including technical and scientific fields).
* Encouraging closer links between education institutions and the private sector (e.g. involving entrepreneurs in coaching and mentoring students and giving guest lectures, or through apprenticeships in companies).
* Providing training targeted at entrepreneurs.

**Business support infrastructure** by:

* Improving the support infrastructure for local businesses (e.g. through financial assistance to incubators and science parks).
* Subsidizing advice and training that may or may not be connected with a particular location (e.g. through a system of vouchers that would enable businesses to get advice from approved consultants/advisors).

**Attitudes towards entrepreneurship** by:

* Ensuring that all high school students are exposed to the concept of entrepreneurship (e.g. inclusion of entrepreneurship in the curriculum as a compulsory subject).
* Promoting entrepreneurship through events (e.g. organizing an “entrepreneurship week” in schools and communities, and/or co-financing TV and radio programmes on successful entrepreneurs).

# 6. Attitudes towards entrepreneurship

A country’s attitudes toward entrepreneurship affect the propensity of individuals to become entrepreneurs, their ability to rebound from business setbacks and the support that entrepreneurs receive (e.g. from family and relatives) when setting up a new enterprise. Although the effects of these attitudes are difficult to measure, positive attitudes toward entrepreneurship are found to correlate with high levels of entrepreneurship. The evidence also points to substantial differences in attitude across countries. Attitudes toward entrepreneurship may be affected by the level of business and entrepreneurship skills and experience in a country, an economy’s administrative framework for entry and growth, and bankruptcy regulations, as they shape perceived barriers and risks to business start-ups. Public policy can encourage positive attitudes toward entrepreneurs by ensuring that all high school students are exposed to the concept of entrepreneurship, by organizing global and local events on entrepreneurship, and by using multiple channels to promote entrepreneurship (e.g. advertising, TV and radio programmes, social media).

**What are attitudes towards entrepreneurship?**

This section describes society’s perception of entrepreneurial activity, innovation and growth.

Attitudes toward entrepreneurship are affected by a variety of factors, not just those directly related to business but also those that relate to the acceptability of various actions and the values attached to them. Such attitudes and perceptions include the following categories:

The society’s attitude toward entrepreneurs. For example:

* Whether entrepreneurs are seen to create wealth and growth that will benefit all.
* Whether entrepreneurs have a high status in society.
* Whether entrepreneurs are perceived to create jobs.
* Whether entrepreneurship is seen as a good career option.
* Whether the society perceives that there are opportunities for entrepreneurship.

The perception of the difficulty of being an entrepreneur, including:

* Whether individuals believe that they have the right skills to become entrepreneurs.
* To what degree failure is seen as something to fear.
* Whether individuals perceive barriers to starting up businesses.

While some of these factors are difficult to measure, comparisons can be made to show that attitudes do vary between countries.

**How do attitudes toward entrepreneurship affect innovative entrepreneurship?**

Attitudes toward innovative entrepreneurship (as well as entrepreneurship in general, as well as attitudes toward change, innovation and growth) have an impact in several different ways:

* Attitudes toward entrepreneurship and toward innovation and growth affect the propensity of individuals to become entrepreneurs and establish new enterprises. If entrepreneurs have high status in a society, entrepreneurship can be aspirational; if entrepreneurship is recognized as a good career option with positive incentives, then more people are likely to try it.
* Attitudes toward entrepreneurship affect the degree to which interested individuals will take risks, particularly with regard to establishing a new enterprise. If it is perceived that entrepreneurship requires exceptional capabilities, then less people will be attracted to it. If great stigma is attached to failure, fewer people will be inclined to take risks.
* Attitudes toward entrepreneurship affect the degree of support that entrepreneurs receive when setting up a new enterprise. If entrepreneurs are seen in a positive light and are perceived to create wealth and jobs, then it is more likely that they will receive support from the general population than if they are perceived negatively. If attitudes towards change and innovation are negative, fewer individuals will want to engage in such activities.

**Evidence on how attitudes influence successful entrepreneurship**

Although attitudes can be difficult to quantify and to compare between countries, there is good evidence (see below) that shows a positive correlation between attitudes toward entrepreneurship and high levels of entrepreneurship and economic growth. In particular, attitudes about failure and about entrepreneurship in general are different in the United States than in European countries, and the United States also has higher levels of entrepreneurship. However, there is some difficulty in determining whether this is a causative relation (i.e. that positive attitudes toward entrepreneurship create higher levels of entrepreneurship) or rather that higher levels of entrepreneurship create better attitudes, or that both are symptoms of some other factor. We can suppose that other cultural and historical factors have an effect on levels of enterprise and attitudes toward entrepreneurship, and that these to some degree disguise any direct effects that changes in attitudes might cause.

**What is the evidence on attitudes towards entrepreneurship and innovative entrepreneurship?**

Statistics provided by the Global Entrepreneurship Monitor and reported in OECD (2012a) show a wide range of perceptions and attitudes related to entrepreneurship in different OECD countries. With the exception of Japan, the perception that individuals have entrepreneurial opportunities and the capability of starting up a business appear largely distinct from their attitudes toward entrepreneurship (i.e. the image of entrepreneurs and entrepreneurship as a career choice). In particular, the perception of opportunity is likely to be affected by the economic cycle.

A survey by the European Commission shows similarly diverse views of entrepreneurs and the way in which education has affected these views. There are significant cross-country differences in the way people perceive entrepreneurs. The highest percentage of people who have a favourable image of entrepreneurs is found in a group of Nordic countries and the US, while in Eastern European and Asian countries only one third or less of the population has a positive image of entrepreneurs. Opinions on the role of education in forming attitudes toward entrepreneurs are also very diverse from country to country. Interestingly, the ranking of countries according to the perceived role of school in helping students understand the role of entrepreneurs is quite different from the ranking based on the share of adults having a favourable image of entrepreneurs.

##### Surveys on the characteristics of entrepreneurs, such as Wadhwa et al. (2009), which describes the backgrounds of 549 entrepreneurs in the US, give some idea of the most important perceptions and attitudes. In this survey, entrepreneurs tended to be middle-aged and well-educated, but nonetheless 52% had some interest in becoming an entrepreneur when they were in college, and of the 24.5% who indicated that they were extremely interested at that time, almost half went on to start more than two companies. This shows the importance of education in forming perceptions of entrepreneurship. Three quarters of entrepreneurs indicated that building wealth was an important motivation, so attitudes on this topic have some impact. Finally, more than third of respondents stated that the role played by an entrepreneurial friend or family member was important, again showing that more general attitudes will affect individuals in establishing new enterprises.

**What other topics relate to attitudes towards entrepreneurship and innovative entrepreneurship?**

**Business and entrepreneurship skills and experience**. The development of entrepreneurship and business skills (e.g. through education) can play an essential role in shaping attitudes towards entrepreneurship in a positive way (e.g. exposing students to entrepreneurship can help make it a feasible and accepted career option).

**Administrative framework for entry and growth**. The administrative framework can affect attitudes toward entrepreneurship by influencing the ease of starting and running a new company, and by shaping perceived barriers to business start-ups.

**Bankruptcy regulation**. Bankruptcy regulations that severely penalise “failed” entrepreneurs may critically affect attitudes toward entrepreneurship.

**Trajectories of innovative new ventures**. In countries where failure is stigmatized and entrepreneurial culture is weak, entrepreneurs might face difficulties in rebounding after a setback. This might discourage individuals from leaving salaried jobs to set up their own businesses or to start new companies after an initial failure. This in turn can shape attitudes towards entrepreneurship.

**What policies relate to attitudes towards entrepreneurship and innovative entrepreneurship?**

Determining which policies are effective causes some methodological issues, including the difficulty of measurement and comparison between countries, the slow rate at which attitudes change and the inability to create a control group. Martinez et al. (2010) shows some evidence of impact, at least in innovation-driven economies. OECD (2009a) notes the difficulties of proper evaluation and outlines the need for further research. A second question is whether it is possible to change attitudes through policy actions. Policy approaches have focused mostly on enterprise in education and training. Policies improving framework conditions (e.g. taxation) may also encourage innovative entrepreneurship and promote positive attitudes towards entrepreneurship.

##### **Entrepreneurship in Education**

To ensure that all high school students are exposed to the concept of entrepreneurship, different countries have taken different approaches, but some general approaches include:

* Inclusion of entrepreneurship in the curriculum as a compulsory subject or as part of the syllabus in a number of subjects.
* Competitions between schools for new ideas. This can be highly structured and give individual teams the chance to compete nationally or at the local level.
* Inviting entrepreneurs to come into schools to talk and discuss their work.
* Educating career advisors about entrepreneurship as a career option and the skills and experience that it requires.

Students in higher education should also be targeted and here tools can be integrated into direct support for spin-outs and setting up new enterprises. Again, it is important to include entrepreneurship as a module in non-business oriented courses to expose all students to it. This does not necessarily need to be formal learning but can be attained through simulation and competitions.

##### **Global Events and Direct Promotion**

Global events could include a designated week where a large number of events take place to promote entrepreneurship. This allows national advertising and organisations to be complemented by local actions, which can then enjoy greater visibility. Examples include Entrepreneurship Week (<http://www.entrepreneurweek.net/>), which seeks to coordinate individual actions across different countries and Global Entrepreneurship Week (<http://www.unleashingideas.org/>).

Direct promotion can take many forms but may include advertising, promotion of successful entrepreneurs as role models, co-financing TV and radio programmes, promotion through social media and granting awards to the most successful or promising entrepreneurs.

Entrepreneurship Week, mentioned above, advertises through Facebook and Twitter and has its own LinkedIn group. More generally, policies that specifically focus on innovative entrepreneurs (e.g. R&D tax credits for small businesses) may affect the perception of whether entrepreneurs create wealth and growth that benefit all, and influence society’s attitude toward entrepreneurs.

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# Tneme of lecture № 5. Access to labour and social factors for innovative entrepreneurship

**Plan of lecture:**

# 1. Access to labour for innovative entrepreneurship

# 2. Costs of hiring and firing

# 3. Skilled labour

**4. Migration**

# 5. Entrepreneurial capabilities and culture

**6. Attitudes towards entrepreneurship**

# 1. Access to labour for innovative entrepreneurship

**How does access to labour affect innovative entrepreneurship?**

Access to labour and labour conditions are key determinants in the success of innovative entrepreneurs. Skilled labour, in particular, is essential for innovative businesses, since innovation is a key driver of their success. Moreover, high labour costs or cumbersome hiring and firing conditions can adversely affect innovation in firms by reducing flexibilities with regards to employment.

**The challenge of accessing to labour can be particularly difficult for innovative start-ups for the following reasons:**

* **SMEs are found to suffer disproportionately from a lack of available qualified personnel**, compared with their larger counterparts.
* **The administrative burdens of employment are relatively larger for smaller businesses**, since expansion is often riskier for new ventures. This can have distorting effects on competition and divert human and financial resources away from business activity. However, the empirical evidence on the direct effects of employment protection legislation (EPL), on type of administrative burden, on entrepreneurship is mixed.
* **Immigrants may specifically affect innovative entrepreneurship in that immigrants may contribute to the economy as entrepreneurs.**

**What are the key policy dimensions regarding access to labour and innovative entrepreneurship?**

As for innovative businesses in general, common policy challenges across three policy dimensions are particularly relevant and include:

* How to balance innovative businesses’ need for labour flexibility with job protection.

→ Costs of hiring and firing consists of the norms and procedures regulating hiring, dismissals and the costs of hiring and firing. These norms and procedures determine the efficiency of the labour market (for example, some factors discourage employment, as when companies subcontract rather than take people on as employees) and key costs related to expansion. These norms and procedures can also create barriers to entry and in this way affect market competition.

* How to encourage innovative companies to invest in training their employees.

→ Skilled labour refers to highly educated and experienced individuals in the labour market.

* How to encourage the immigration of skilled labour in the context of global competition for such labour .

→ Migration includes long-term and short-term immigration and emigration, and deals with regulation issues, such as immigration quotas, procedures and special regulations for skilled workers.

**What are the main rationales for policy interventions in support of access to labour for innovative entrepreneurship?**

As in the context of innovative businesses in general, market failures can affect access to labour, requiring policy discussions and potential interventions:

* While the social returns from employee training might be high, as society and entrepreneurship in general benefit from increased human capital, the return on investment may not be as great, since employees might join competitor firms.

A series of conditions are specific for innovative entrepreneurship:

* System failures may lead to a lack of skilled labour, and this mismatch between supply and demand can hinder innovative entrepreneurship in particular. Single entrepreneurs may find the cost of establishing adequate training facilities to be prohibitive, even though such facilities will collectively benefit all entrepreneurs. Inadequate labour regulations, including those impacting on migration, can also have a negative effect on innovative entrepreneurs.

**What are the main policies that influence access to labour in the context of innovative entrepreneurship?**

As for innovative businesses in general, public policy can influence:

**Costs of hiring and firing** by:

* Mitigating labour costs, particularly for smaller businesses and innovative start-ups (e.g. subsidies for some sectors and assistance with recruitment).
* Focusing on workers rather than jobs (e.g. by sustaining workers during periods of unemployment and job-to-job transitions).
* Minimizing the uncertainty and time delays caused by contested dismissals that are legally challenged.
* Abiding by principles of good regulation (e.g. simplifying the principles and application of regulations, and having transition periods to new regulations).
* Improving access to information regarding employment legislation (e.g. by creating a single point of contact for information).

**Skilled labour** by:

* Strengthening lifelong education and training for innovation (e.g. raising attainment levels and the general quality of education, and introducing innovative learning practices into traditional disciplines).
* Strengthening an innovation culture and raising public interest in science and technology (S&T), in order to attract young people to pursue higher education in S&T disciplines (e.g. through large public communication and joint research projects involving youth and senior scientists).
* Identifying future skill needs and ensuring the delivery of the right mix of skills through education.
* Facilitating the mobility of a highly skilled workforce to aid in the cross-fertilization of ideas and learning, and to address structural mismatches in supply and demand for highly skilled workers (e.g. by allowing transferable pension rights and providing advice and training programs to help in job transitions).

**Migration** by:

* Supporting and attracting skilled foreign students, workers and entrepreneurs (e.g. by providing education, training, guidance and mentoring, and improving their network-building capacities).
* Supporting existing migrant entrepreneurs’ businesses and already established migrant entrepreneurs in host countries by increasing their human and social capital. Measures may include providing training, guidance and mentoring, and improving their network-building capacity. Strengthening networking between entrepreneurs and intermediary agencies may contribute to improving the effectiveness of such support measures.
* Facilitating access to credit by migrant entrepreneurs. Migrant entrepreneurs face greater problems accessing financing than native entrepreneurs. One explanation is that migrant enterprises typically lack a credit history due to their shorter existence and because credit histories are often not recognized across borders. This lack of credit history makes it more difficult for banks to assess the creditworthiness of migrant entrepreneurs. To overcome this problem, governments could implement bilateral and multilateral agreements to improve the exchange of credit information at global, regional and bilateral levels.

Another obstacle is that credit institutions often lack understanding of migrant entrepreneurs, perceiving them as high-risk borrowers. Governments could mitigate this problem by promoting better understanding between credit institutions and migrant entrepreneurs through financial literacy programmes. Finally, governments could help immigrants get better access to finance by creating and supporting alternative funding sources outside regular financial channels.

# 2. Costs of hiring and firing

Costs of hiring and firing can influence innovation in firms by affecting the risks and costs associated with investments and other business strategies that involve labour decisions. There is evidence to suggest that lower costs in hiring and firing can facilitate the creation and growth of companies, and have a lesser impact on direct productivity gains. The costs of hiring/firing differ across OECD countries, notably because of differences in employment protection legislation and regulations regarding minimum wages. The costs of hiring and firing can critically affect access to skilled labour, including from abroad. It helps shape the administrative framework for entry and growth, and can therefore impact competition. Policies can influence the costs of hiring/firing in relation to innovative businesses in several ways, such as supporting workers rather than jobs and ensuring that employment legislation is as clear and simple as possible.

**What are the costs of hiring and firing?**

Firms incur hiring/firing costs through:

* **administrative burdens** (keeping records, ensuring employees are legally employed)
* **compliance with related regulations,** such as anti-discrimination legislation (which affects recruitment practices) and provision for maternity leave and pensions
* **direct costs** related to minimum wages and **obligatory social charges**
* **searching for adequate personne**l, which involves substantial costs
* **difficulties in understanding complicated and changing legislation,** including difficulties in understanding the exact limits of the law and possible sanctions for breaking it
* **employment protection legislation** (EPL), which limits the employer’s ability to dismiss workers individually or collectively. EPL consists of the s**et of norms and procedures regulating the individual or collective dismissals of redundant workers** (Boeri and Van Ours, 2008). EPL imposes extra costs when work contracts are terminated early and generally limits the situations in which dismissals are allowed. Lay-offs are often challenged in court, which add an uncertain cost factor, especially in countries that have less efficient civil justice systems.

**How does the cost of hiring and firing affect innovative businesses?**

##### **Impacts on firms’ growth**

Hiring and firing costs can influence innovative firms by affecting investment and expansion. For example, onerous regulations preventing the employment of foreign workers can make it difficult to recruit skilled people. As the size of a business increases, the costs of hiring and firing may inhibit the firm from expanding further. Changing, unclear and complex regulation can discourage companies from hiring new employees.

##### **Investment and risk-taking**

High costs in firing are likely to affect a company’s willingness to take risks and experiment with growth opportunities. In fact, firms may be less willing to expand their workforces and to enter into new markets if they cannot shrink their workforces when their strategies prove unsuccessful. An aversion to risk taking leads to more conservative growth strategies, which reduces productivity. This can be particularly detrimental for innovative industries, which tend to be more risky and volatile. As a consequence, countries with greater worker protection and thus higher firing costs may specialize in industries that are less innovative or that rely on older technologies, since more dynamic industries have to be prepared to adjust their workforce (Samaniego, 2006). Also, innovators in countries with high firing costs may tend to specialize in “secondary innovation” that improves existing products, rather than “primary innovation” that introduces new products (Saint-Paul, 2000) and requires organizational change. Furthermore, high firing costs may create additional **sunk costs**, i.e. upfront costs incurred that cannot be recovered ex post, for emerging firms; redundancy pay, for instance, increases the risk of economic losses in the event of insolvency (Kanniainen and Vesala, 2005).

##### **Job turnover and reallocation dynamics**

Stringent labour market regulations and high firing costs may prevent an efficient reallocation of human resources and reduce job turnover across firms. Therefore, strict EPL may be an obstacle to **creative destruction**, an important process through which countries create new jobs and increase their productivity (OECD, 2009; Bartelsman, Haltiwanger and Scarpetta, 2009; Bravo-Biosca, Criscuolo and Menon, 2013). Creative destruction, if it is to have a positive effect, depends on reallocating and redistributing those resources that are destroyed.

**Arguments as to why hiring/firing costs are not necessarily detrimental to innovative firms**

The negative link between innovation and EPL is controversial. Firms that invest significantly in training and share tacit knowledge may benefit from stringent EPL, as they can take advantage of lower rates of labour turnover and increase their return on investment (Acharya et al., 2010); similarly, stringent EPL, acting as an implicit insurance, may encourage workers to be more willing to engage in innovative and risky projects. Furthermore, efficiency wage theories suggest that workers may perceive EPL as an upgrade in the quality of their employment, which may lead them to increase their efforts and have a positive effect on innovation.

##### **The empirical evidence on the effects of hiring and firing costs on successful innovative firms**

**There is a general consensus in the economic literature about the negative effects of EPL on job reallocation**, with evidence available both within and across countries (Bertola, 1990; Haltiwanger et al., 2006; Gomez-Salvador et al., 2004; Kugler and Pica, 2008).

##### **Direct effects on firms’ productivity**

The direct effect on firms’ performance is more debatable. Bassanini et al. (2009) find that mandatory dismissal regulations have a depressing impact on productivity growth in industries where layoff restrictions are more likely to be binding. However, Martin and Scarpetta (2012) extensively examine recent empirical evidence to conclude that stringent EPL has a sizeable negative effect on labour flows and, in consequence, on aggregate productivity growth.

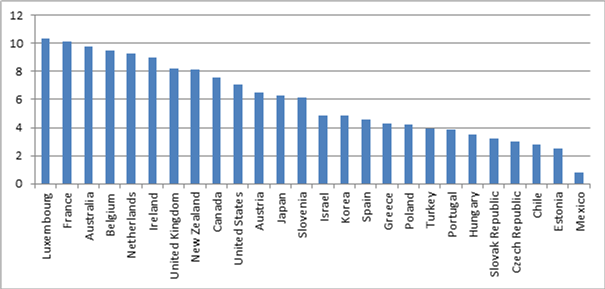
**What is the evidence on how hiring and firing costs affect innovative businesses?**

##### **Minimum wages**

The OECD publishes data on minimum wages, such as annual data on real hourly minimum wages, i.e. statutory minimum wages converted into a common hourly pay period for the 26 countries for which they are available (Figure 1). Countries such as Luxembourg, France, Australia, Belgium, the Netherlands and Ireland exhibit the highest hourly minimum wages, while Slovak Republic, Czech Republic, Chile and Estonia have the lowest hourly minimum wages among OECD countries.

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##### **Figure 1. Real hourly minimum wages (in US$ PPP), 2012**



Real hourly minimum wages are statutory minimum wages converted into a common hourly pay period for the 26 countries for which they are available. The resulting estimates are deflated by national Consumer Price Indices (CPI). The data are then converted into a common currency unit using either US $ current exchange rates or US $ Purchasing Power Parities (PPPs) for private consumption expenditures. Real hourly minimum wages are calculated first by deflating the series using the consumer price index and taking 2011 as the base year. The series are then converted into a common currency unit (USD), using Purchasing Power Parities (PPPs) for private consumption expenditures in 2011.  
Source: data extracted from OECD.Stat

##### **Indicators to assess costs of hiring and firing**

The OECD employment protection indicators cover three different aspects of employment protection:

**Individual dismissal of workers with regular contracts.** This incorporates three aspects of dismissal protection:

(i) procedural inconveniences that employers face when starting the dismissal process;

(ii) notice periods and severance pay;

(iii) difficulty of dismissal, as determined by the circumstances in which it is possible to dismiss workers, as well as the repercussions for the employer if a dismissal is found to be unfair (such as compensation and reinstatement).

* **Additional costs for collective dismissals.** Most countries impose additional delays, costs or notification procedures when an employer dismisses a large number of workers at one time.
* **Regulation of temporary contracts.** This quantifies regulation of fixed-term and temporary work agency contracts with respect to the types of work for which these contracts are allowed and their duration. This also quantifies regulation governing the establishment and operation of temporary work agencies, and requirements for agency workers to receive the same pay and/or conditions as equivalent workers in the user firm, which can increase the cost of using temporary workers relative to permanent employees.

Based on these indicators, the strictness of EPL varies widely across OECD member countries (Figure 2). The degree of variation is even larger when the different sub-components of EPL (e.g. regulation of temporary contracts or of collective dismissals) are examined individually.

The World Bank Doing Business annual reports contain a section on employing workers, which includes a number of sub-components on firing costs, along with other indicators such as indicators on difficulty of hiring, difficulty of firing. Results indicate that governments in high-income OECD economies focused on reducing redundancy costs in the past decade: 15 labour regulation reforms introduced by high-income OECD economies in the past 8 years either reduced the severance pay in cases of redundancy dismissal or shortened the required notice period for employees. In 2013, the average severance payment in high-income OECD economies is 5.83 weeks of salary (World Bank, 2013).

**What other topics relate to hiring and firing costs and innovative businesses?**

**Skilled labour**. Hiring and firing costs impact how innovative firms tap into skilled labour to develop their businesses.

**Migration**. Foreign labour can be an alternative source of particularly skilled labour, and the associated costs of hiring and firing such labour will shape conditions for innovative businesses.

**State of competition**. The costs of hiring and firing can affect the start-up and/or expansion of innovative businesses and therefore impact competition.

**Administrative framework for entry and growth**. The costs of hiring and firing are a specific and often very important type of administrative framework, which affects the start-up and growth of innovative businesses, among other factors.

**Access to labour for innovative entrepreneurship**. Innovative entrepreneurs face specific challenges to access to labour which may call for targeted policy.

**What policies relate to hiring and firing costs and innovative businesses?**

Employment protection legislation can be directly affected by policy. It is important that labour market and social protection policies **facilitate, rather than hinder,** innovative projects.

**Labour market policies targeting workers rather than jobs** can be valuable. Workers should be especially sustained during unemployment spells and job-to-job transitions, and should be helped in converting their skills. The degree of uncertainty in dismissals should be minimized by reducing cases where legal action is required and by reducing delays when such action is needed.

Labour market legislation has to cover a wide range of different situations and therefore needs to be carefully framed in order to avoid becoming a disincentive. **A single organisation responsible for information, inspection and enforcement** can be useful in that context.

**Transition periods for new legislation** and **readily available information about changes in legislation** can make it easier for companies to deal with regulations.

In order to avoid problems with a new employee, systems can be put in place to **subsidise the costs of initial employment** and possibly to **assist with recruitment.**

To avoid uncertainty for employers regarding possible claims for unfair dismissal, there can be **clear limits to compensation,** while the complaint process can be simplified and made less costly through **operation of an arbitration service**.

# 3. Skilled labour

Access to skilled labour is key for innovation in firms: skilled labour can contribute to innovation and growth by generating new knowledge, developing incremental innovations, supporting firms in the identification of business opportunities, helping companies adapt to changing environments, generating spillovers (transfer of knowledge to co-workers) within the organization and adding to social capital. Although educational attainment has risen steadily in OECD countries in past decades, innovating firms still suffer from a shortage of skilled labour, inhibiting their capacity to innovate. The question of skilled labour is related to broader questions of access to labour. Innovative businesses require specific skills and experience. The costs of hiring and firing are critical in shaping how innovative businesses tap into skilled labour. Public policy could improve innovative firms’ access to skilled labour by strengthening education about innovation, promoting an innovation culture, raising public interest in S&T, attracting young people to pursue higher education in S&T disciplines and encouraging lifelong learning to allow people to upgrade their skills throughout their adult lives.

**What is skilled labour?**

Skilled labour refers to **highly educated individuals having graduated at the tertiary level of education and experienced individuals employed in an occupation for which a high qualification is normally required.** In many studies, skills and skill levels are defined by some **combination of education, training and experience** (Machin and Van Reenan, 1998; Tether et al., 2005; Pro Inno Europe, 2007). The skills identified in the literature as contributing to innovation include basic skills (e.g. reading and writing), academic skills, technical skills, generic skills (e.g. problem solving) and “soft” skills (e.g. multicultural openness and leadership).  
  
The specific skills and competencies of innovative entrepreneurs and how they influence innovative entrepreneurship are covered in the node “[Business and entrepreneurship skills and experience](https://www.innovationpolicyplatform.org/content/business-and-entrepreneurship-skills-and-experience?topic-filters=12032)”.

# Business and entrepreneurship skills and experience

Business and entrepreneurship skills and experience affect the propensity of individuals to become entrepreneurs and the likelihood of their success. There is some evidence pointing to the importance of these skills for innovative entrepreneurship. The issue of business and entrepreneurship skills and competencies is closely related to broader questions related to skilled labour, migration and attitudes toward entrepreneurship). Suitable education programmes to help develop entrepreneurial mindsets and company training in entrepreneurship skills are considered critical.

**What are business and entrepreneurship skills and experience?**

Skills refer to the abilities and capacities of people who perform tasks demanded of them in a work environment. Skills can either be generic, referring to general transferable skills, or specific to certain work functions, such as managing people, computing, dealing with risk and uncertainty, or developing a new product or service (Tether et al., 2005).

Generally, there are three broad categories of skills: basic, advanced and converging. **Basic skills** are generic and routine skills present in most industries and organisations. **Advanced skills** require more knowledge. These can be technical skills required in some occupations and management positions, or they can be social and communication skills needed for teamwork. They can also refer to specific language and cultural skills that are of growing importance in certain multicultural working environments. **Converging skills** require a combination of basic and advanced skills, such as entrepreneurship skills (OECD, 2010).

**Entrepreneurship skills** are required for creating and running new business ventures or innovative projects in existing firms. They include **risk assessment, strategic thinking, self-confidence, the ability to make the best of personal networks, motivating others to achieve a common goal, and the ability to deal with other challenges and requirements** (OECD, 2010). More specific examples of entrepreneurship skills are provided in Table 1.

**Business and entrepreneurship skills can be acquired from the formal education system** (schools, higher education and vocational education) **and in work environments** (training or informal learning through experience). It is often argued that the work environment is where entrepreneurs learn the most, as opposed to formal education.

##### **Table 1: Skills required for entrepreneurship**

|  |  |  |
| --- | --- | --- |
| **Technical Skills** | **Business Management Skills** | **Personal Entrepreneurial Skills** |
| Written and oral communication | Planning and goal setting | Inner control/discipline |
| Monitoring environment | Decision making | Risk taking |
| Technical business management | Human Relations | Innovative |
| Technology | Marketing | Change orientated |
| Interpersonal | Finance | Persistent |
| Listening | Accounting | Visionary leader |
| Ability to organise | Management | Ability to manage change |
| Network building | Control |  |
| Management style | Negotiation |  |
| Coaching | Venture Launch |  |
| Being a team player | Managing Growth |  |

Source: Hisrich, R.D. and Peters, M.P. (1992) – Entrepreneurship: Starting, Developing, and Managing a New Enterprise – Irwin, Boston, MA

**How do business and entrepreneurship skills and experience affect innovative entrepreneurship?**

As noted in Table 1, there are a number of entrepreneurship and business skills and experience that will have a positive influence on innovative entrepreneurship. Innovative entrepreneurship will require **management skills** and the **ability to manage change**. A number of personal attributes are also critical for innovative entrepreneurship, including **the ability to be innovative, being change oriented** and **visionary leadership**.

Advanced knowledge-intensive skills and converging skills are more important to innovation than basic skills (OECD, 2010). More specifically, **entrepreneurship skills** include two components related to innovation: an active component comprising the **entrepreneur’s propensity to drive innovation**, and an absorptive component comprising the **entrepreneur’s capacity to recognize and welcome innovation** delivered by external factors (Green et al., 2007). Entrepreneurship involves the impulse to create and innovate, recognizing innovation by others, the desire to implement innovation (e.g. starting a new venture, finding new markets, introducing new organisational models) and the drive to motivate others to succeed in its implementation (OECD, 2010).

Entrepreneurship and advanced business skills and experience are important to the innovation process, and can be a more important factor than access to financing. For example, research suggests that **innovative SMEs in the United Kingdom are more constrained by a lack management skills than by financial constraints**, which hinders their development of innovation and high-growth strategies (OECD, 2010b).

**Evidence on the importance of businesses and entrepreneurship skills and experience to success**

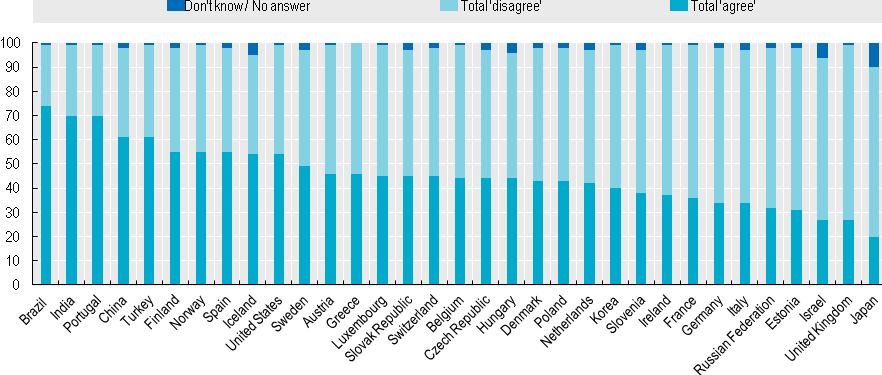
Skills and experience have a positive effect on entrepreneurship because they provide the basis for a company’s dynamic capabilities, the ability to learn and adapt to changing circumstances (Teece et al., 1997). Business and entrepreneurship skills are essential for the formation, survival and growth of a new business, as well as for the upgrading of existing SMEs. A number of recent studies underline this connection and point out that the capacity to **continually learn and acquire knowledge are essential qualities of successful entrepreneurs** (Smilor, 1997; Minniti and Byrgave, 2001; World Economic Forum, 2009). Successful entrepreneurs and small business owners/managers can be viewed as “jacks-of-all-trades” since they require a combination of horizontal and vertical skills (Lazear, 2004).

**What is the evidence on business and entrepreneurship skills and experience and innovative entrepreneurship?**

Figure 1 shows that only ten countries had a majority of people who believed that their education gave them the skills and know-how to run a business. Brazil (74%), India (70%) and Portugal (70%) had the highest level of agreement, followed by China, Finland, Norway, Spain, Iceland and the United States, where between 50% and 65% of interviewees agreed that their school education gave them the requisite skills to run a business (OECD, 2013). The share of people preferring employment because they felt they lacked the skills for self-employment also significantly varies across countries, from less than 5% in Italy and Turkey, to more than 25% in South Korea (figure 2).

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##### **Figure 1. School education provided enabling skills and know-how to run a business, in percentage, 2012**



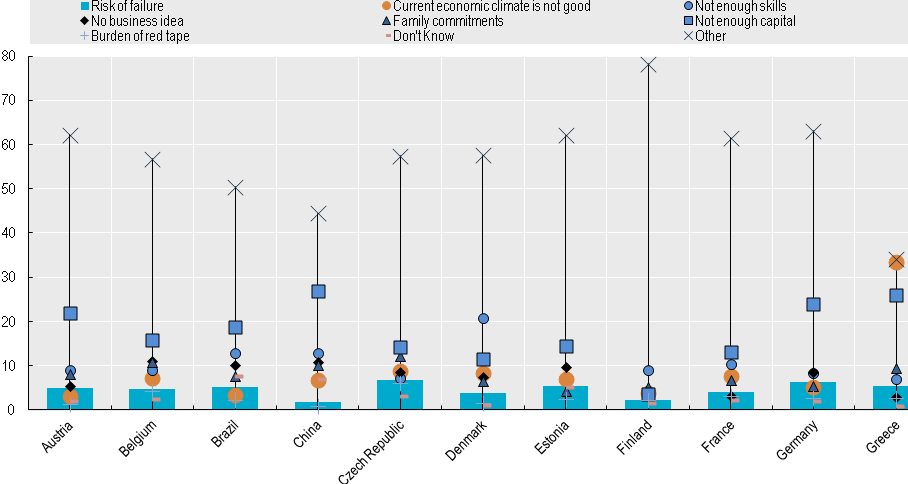
Source: Entrepreneurship at a Glance 2013 - © OECD 2013

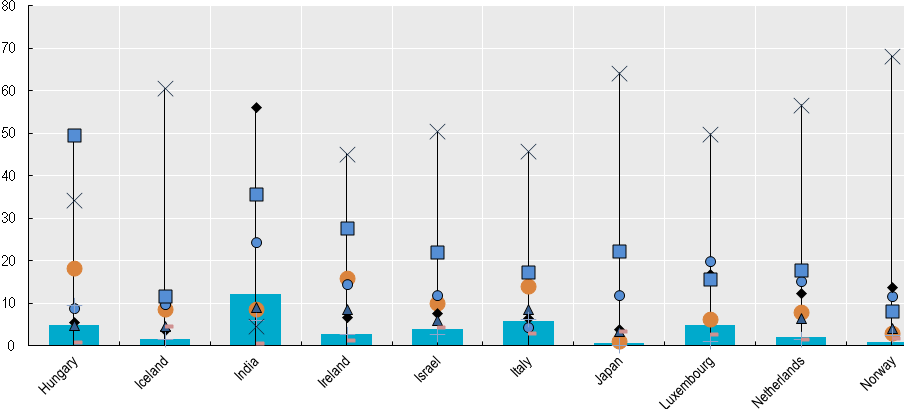
StatLink: http://dx.doi.org/10.1787/888932829457

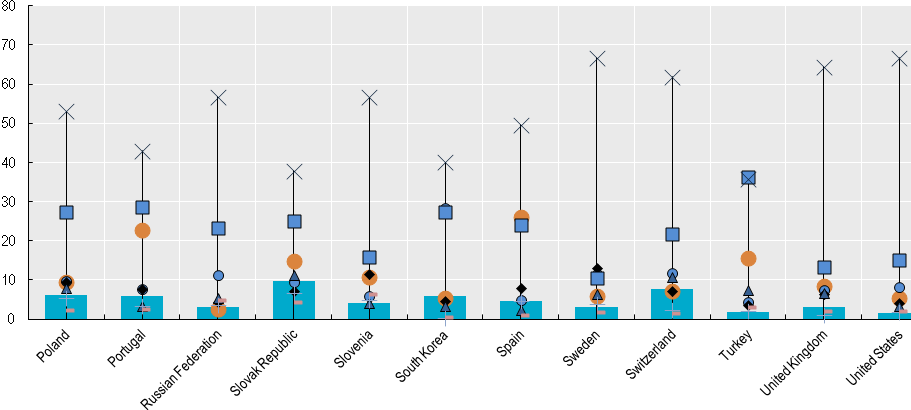
Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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##### **Figure 2. Why is it not feasible to become an entrepreneur? Percentage, 2012**





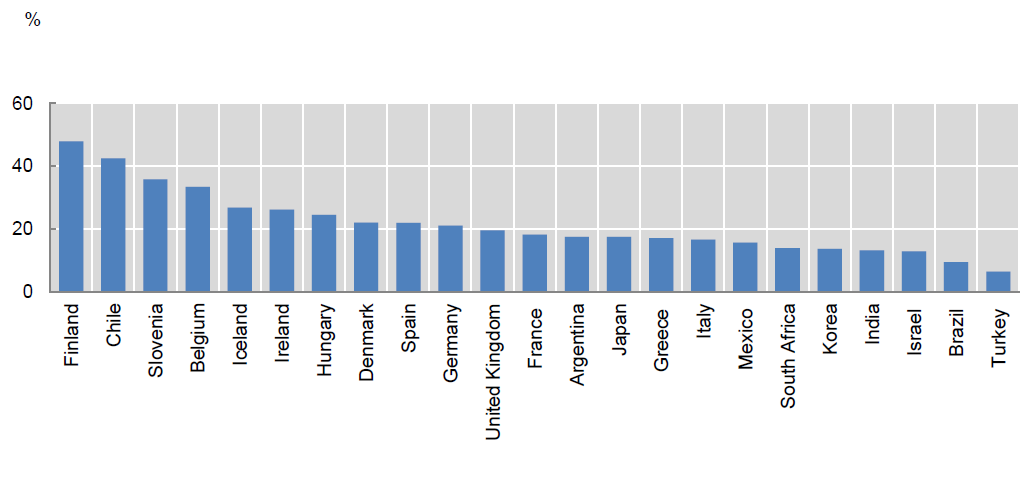


Source: Entrepreneurship at a Glance 2013 - © OECD 2013  
StatLink: http://dx.doi.org/10.1787/888932829495  
Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities.

Until recently, entrepreneurship education was very rarely provided (OECD, 2010a). In most OECD countries, less than a quarter of the population aged 18 to 64 indicated having participated in training for starting a business (OECD, 2010c), as shown in Figure 3. OECD research shows that entrepreneurship teaching activities are increasing (Potter, 2008). More universities, faculties and students are becoming involved, and the variety of content and pedagogies is growing. There are nonetheless some international differences in the extent and nature of teaching about entrepreneurship. Evidence suggests that entrepreneurship education in US universities is relatively advanced (Hoffman et al., 2008). For example, at Stanford University and Cornell University in the US, student participation in entrepreneurship programmes was 15% and 20% respectively. In comparison, the participation rate in Canadian universities was between 5% and 7%, while none of the Danish universities reported participation rates above 2.5%.

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##### **Figure 3. Percentage of the population aged 18 to 64 years old who received any type of training in starting a business, during or after school, 2008.**



Source: Bosma, N., Z.J. Acs, E. Autio, A. Coduras and J. Levie (2009), Global Entrepreneurship Monitor: 2008 Executive Report, Global Entrepreneurship Research Association (GERA)  
StatLink http://dx.doi.org/10.1787/835542183283

**What other topics relate to business and entrepreneurship skills and experience and innovative entrepreneurship?**

**Skilled labour**. Business and entrepreneurship skills and competencies allow innovative entrepreneurs to better identify and pursue business opportunities. They have specific skills critical to the success of innovative entrepreneurship, as they improve the ability of innovative entrepreneurs to manage risk and best utilize their resources.

**Migration**. Immigrants can bring business and entrepreneurship skills and experience to their host country. However, the skills and competencies that migrant entrepreneurs bring from their home countries might need to be adapted to the host country’s environment. Limited language and business skills specific to the host country, and lack familiarity with the overall functioning of the host country’s markets, institutions and regulations, can be a challenge.

**Attitudes towards entrepreneurship**. On the one hand, the development of entrepreneurship and business skills (e.g. through education) can play an essential role in shaping attitudes toward entrepreneurship in a positive way (i.e. exposing students to entrepreneurship can contribute to making it a feasible and accepted career option). On the other hand, it may be more difficult to obtain relevant skills and experience in a culture that has negative views of entrepreneurship.

**What policies relate to business and entrepreneurship skills and experience and innovative entrepreneurship?**

##### **Education policies**

Some argue that entrepreneurship cannot be taught because entrepreneurial behaviour is rooted in the character and personality of the entrepreneur and success is often due to chance. However, there is a widespread view that entrepreneurship can be facilitated and that exposure to entrepreneurship can have positive effects, even if students do not become self-employed. Education policies can promote the development of business and entrepreneurship skills and experience to help potential entrepreneurs overcome common challenges.

Policy can support and implement entrepreneurship education in the school systems, higher education and in vocational education. Entrepreneurship education should have the goal of developing the entrepreneurial mindset, as well as delivering specific skills. Policy should aim to increase the number of entrepreneurship courses and participating students, where there is evidence that these courses have been successful. It is also important to ensure that entrepreneurship teaching meets high quality standards and extends across a broad range of subjects to reach a wide range of potential entrepreneurs. Teachers should be trained and supported in using interactive methods that emphasise “learning by doing.”

Policy can also support closer links between education institutions and the private sector. This is particularly important for innovative entrepreneurship and there are a number of ways to achieve this. First, policy should support more widespread use of entrepreneurs in the delivery of education through guest lectures, or through coaching and mentoring students. This could also include working with students on short-term projects through “start-up weekends.” Second, policy can encourage and support the integration of entrepreneurs into faculty and staff at universities to bring more entrepreneurship experience into higher education institutions. Third, policy can facilitate private sector funding and involvement in entrepreneurship chairs and incubation facilities at universities. Fourth, policy can support better integration between the private sector and university start-up support facilities, which can be accomplished through coaching and mentoring, and also through networking events and business competitions.

Use of the vocational education and training system requires a different approach from that commonly used for teaching more technical subjects and appropriate policies for changing teaching methodologies, and not just curricula, need to be formulated (Gibb, 2009).

##### **Training policies**

Policy should encourage a greater emphasis on the challenges of enterprise growth in training programmes, rather than business plan development and business management skills. In doing so, training should focus on opportunity identification, risk taking, strategy making, leadership, negotiation, networking, building strategic alliances and intellectual property protection.

Training policies can also support the development of entrepreneurship and business skills in the staff of new small enterprises to help facilitate the development of business and management skills. These skills are needed during a company’s growth and having staff equipped with these skills can help businesses deal with pressures as they arise. Training could be used to develop team leaders, impart entrepreneurship skills across occupations involved in product and process development, and increase project management skills.

In addition, policy could support increasing the number of apprenticeships in SMEs, since apprenticeships are ideal for developing entrepreneurship skills among students.

# 4. Migration

Migrants can contribute to innovative entrepreneurship in their host countries in many ways: by bringing new skills and competencies, helping domestic innovative SMEs overcome labour shortages, founding innovative high-growth companies, and supporting the diffusion and creation of knowledge. Evidence confirms the contributions of migrants. Over the past decade, specific policies designed to attract and select foreign entrepreneurs and highly educated immigrants have been adopted in most OECD countries. Migration can critically affect firms’ access to skilled labour and to business and entrepreneurship skills and experience. It can also facilitate access to foreign markets. Public policy can influence migration within the context of innovative businesses by adopting measures to not only attract but retain foreign entrepreneurs, skilled workers and students (e.g. simplified family reunification conditions).

**What is migration?**

Migrants are long-term and short-term immigrants (or emigrants) and returning (or departing) nationals (OECD, 2008). This node focuses mainly on access to foreign human capital by innovative firms and how it affects innovative businesses. It also focuses on regulation issues, such as immigration quotas, procedures and special regulations for skilled workers.

**How does migration affect innovative businesses?**

Immigration law may encourage innovative businesses by helping domestic innovative firms in **overcoming labour shortages**. In particular, the immigration of skilled workers enables innovative firms to obtain access to management resources and technological competencies that may be lacking in the domestic market.

Immigration contributes to the **diffusion of knowledge.** The resulting combination of diverse sources of knowledge, including codified information and contextual understanding, can provide “sparks” that lead to innovation and advances in science and technology.

##### **Evidence on the importance of migration to innovative businesses for their success**

**In many OECD countries, migrants contribute significantly to the supply of skilled labour**. In the United States in 2003, foreign-born people accounted for 26% of college-educated workers in science and engineering, and for 40% of science and engineering doctorate holders.

**Skilled migrants can contribute to innovation in the host country**. Evidence shows that they have higher rates of patenting, commercializing patents and publishing than natives in the United States (Hunt and Gauthier-Loiselle, 2010). More generally, Hunt (2008) and Kerr and Lincoln (2008) found a positive correlation between the pace of innovation and skilled immigrants in the United States.

**What is the evidence on migration and innovative businesses?**

##### **Migration in general**

In 2010, immigrants accounted on average for 13% of the populations in OECD countries (Figures 1 and 2). The largest share of immigrants was in Luxembourg, Switzerland, Australia and Israel, where they comprised a quarter or more of the population. In contrast, immigrants accounted for less than 5% of the population in Mexico, Chile, Hungary and Finland. Between 2000 and 2010, the immigrant population has increased on average by more than two percentage points in the OECD. In the European OECD countries, a large part of the increase in immigration over the past decade has been due to simplified migration regulations.

Globally, however, Asia is increasingly dominating immigration trends; in particular, China and India together account for 14% of new migrants to the OECD area. China and India notably account for 25% of international students (OECD, 2012).

##### **Migration of skilled labour**

The percentage of highly educated among the immigrant population has been growing over the past decade in most OECD countries. The number of highly educated is now greatest in Canada, where over 50% of the immigrant population have a tertiary education, followed by the United Kingdom and Ireland. In the OECD, about 30% of immigrants now have a tertiary education, compared with less than 25% in 2000 (OECD, 2012). In 16 out of 28 economies, the share of international and foreign students enrolled in science and engineering surpasses that of national students (OECD, 2011).

Recognizing the importance of skilled migration for the economy, OECD countries have adopted a wide range of measures to attract skilled migrants, including scholarships and financial support, simplification of visa procedures, legislation regarding recognition of foreign professional qualifications, and acquisition of social welfare entitlements by foreign researchers (OECD, 2012)

# 5. Entrepreneurial capabilities and culture

**How do entrepreneurial capabilities and culture affect innovative entrepreneurship?**

Entrepreneurial capabilities and culture play a critical role in market entry and in the success of new ventures. They determine the capacity to identify opportunities, run new businesses, drive innovations and learn from and adapt to changing circumstances. Culture may also affect innovative entrepreneurship by influencing the propensity of individuals to become entrepreneurs, the degree to which interested individuals take risks with regard to establishing a new enterprise and the degree of support that entrepreneurs receive when setting up a new enterprise.

**What are key policy dimensions regarding entrepreneurial capabilities and culture, and innovative entrepreneurship?**

Common challenges across three policy dimensions are particularly relevant and include the following:

* How can entrepreneurship skills be taught most effectively to encourage innovative entrepreneurship?

→ Business and entrepreneurship skills and experience, which deal with the teaching of entrepreneurship and the provision of vocational training by universities and other educational institutions.

* What cooperative approaches with the private sector are most effective in providing a business support infrastructure that will be useful to businesses?

→ Business support infrastructure, which includes the public and private provision of knowledge-intensive business services, such as consulting (business, legal and accounting) and R&D services, and focuses, in particular, on business incubators, science parks and accelerator programs.

* How can governments evaluate policies targeting attitudes towards entrepreneurship, given the slow rate at which attitudes change and difficulties in creating a control group?

→ Attitudes towards entrepreneurship, which refers to society’s perception of entrepreneurial activity (e.g. the desirability of establishing new companies and how entrepreneurs are viewed by society).

**What are the main rationales for policy interventions in support of entrepreneurial capabilities and culture?**

Several factors justify policy intervention regarding entrepreneurial capabilities and culture:

* A lack of entrepreneurial skills and a negative attitude towards entrepreneurial activity within a society (e.g. when an entrepreneur’s failure is seen as negative and something to fear) can affect the creation and success of innovative new ventures.
* Markets may fail to supply appropriate services, advice and incentives to entrepreneurs. These failures reveal the need for policy intervention to enhance entrepreneurial capabilities and culture. For example, a firm’s training program may result in a low return on investment if employees leave to join competitor firms. Thus, firms may not always gain from their investment in training despite the overall increase in human capital for society. This calls for policy interventions to address this disincentive.

**What are the main policies that influence entrepreneurial capabilities and culture in the context of innovative entrepreneurship?**

Within the context of innovative entrepreneurship, public policy can influence:

**Business and entrepreneurship skills and experience** by:

* Supporting and implementing high-quality entrepreneurship education in school systems, higher education and in vocational education across a broad range of subjects (including technical and scientific fields).
* Encouraging closer links between education institutions and the private sector (e.g. involving entrepreneurs in coaching and mentoring students and giving guest lectures, or through apprenticeships in companies).
* Providing training targeted at entrepreneurs.

**Business support infrastructure** by:

* Improving the support infrastructure for local businesses (e.g. through financial assistance to incubators and science parks).
* Subsidizing advice and training that may or may not be connected with a particular location (e.g. through a system of vouchers that would enable businesses to get advice from approved consultants/advisors).

**Attitudes towards entrepreneurship** by:

* Ensuring that all high school students are exposed to the concept of entrepreneurship (e.g. inclusion of entrepreneurship in the curriculum as a compulsory subject).
* Promoting entrepreneurship through events (e.g. organizing an “entrepreneurship week” in schools and communities, and/or co-financing TV and radio programmes on successful entrepreneurs).

# 6. Attitudes towards entrepreneurship

A country’s attitudes toward entrepreneurship affect the propensity of individuals to become entrepreneurs, their ability to rebound from business setbacks and the support that entrepreneurs receive (e.g. from family and relatives) when setting up a new enterprise. Although the effects of these attitudes are difficult to measure, positive attitudes toward entrepreneurship are found to correlate with high levels of entrepreneurship. The evidence also points to substantial differences in attitude across countries. Attitudes toward entrepreneurship may be affected by the level of business and entrepreneurship skills and experience in a country, an economy’s administrative framework for entry and growth, and bankruptcy regulations, as they shape perceived barriers and risks to business start-ups. Public policy can encourage positive attitudes toward entrepreneurs by ensuring that all high school students are exposed to the concept of entrepreneurship, by organizing global and local events on entrepreneurship, and by using multiple channels to promote entrepreneurship (e.g. advertising, TV and radio programmes, social media).

**What are attitudes towards entrepreneurship?**

This section describes society’s perception of entrepreneurial activity, innovation and growth.

Attitudes toward entrepreneurship are affected by a variety of factors, not just those directly related to business but also those that relate to the acceptability of various actions and the values attached to them. Such attitudes and perceptions include the following categories:

The society’s attitude toward entrepreneurs. For example:

* Whether entrepreneurs are seen to create wealth and growth that will benefit all.
* Whether entrepreneurs have a high status in society.
* Whether entrepreneurs are perceived to create jobs.
* Whether entrepreneurship is seen as a good career option.
* Whether the society perceives that there are opportunities for entrepreneurship.

The perception of the difficulty of being an entrepreneur, including:

* Whether individuals believe that they have the right skills to become entrepreneurs.
* To what degree failure is seen as something to fear.
* Whether individuals perceive barriers to starting up businesses.

While some of these factors are difficult to measure, comparisons can be made to show that attitudes do vary between countries.

**How do attitudes toward entrepreneurship affect innovative entrepreneurship?**

Attitudes toward innovative entrepreneurship (as well as entrepreneurship in general, as well as attitudes toward change, innovation and growth) have an impact in several different ways:

* Attitudes toward entrepreneurship and toward innovation and growth affect the propensity of individuals to become entrepreneurs and establish new enterprises. If entrepreneurs have high status in a society, entrepreneurship can be aspirational; if entrepreneurship is recognized as a good career option with positive incentives, then more people are likely to try it.
* Attitudes toward entrepreneurship affect the degree to which interested individuals will take risks, particularly with regard to establishing a new enterprise. If it is perceived that entrepreneurship requires exceptional capabilities, then less people will be attracted to it. If great stigma is attached to failure, fewer people will be inclined to take risks.
* Attitudes toward entrepreneurship affect the degree of support that entrepreneurs receive when setting up a new enterprise. If entrepreneurs are seen in a positive light and are perceived to create wealth and jobs, then it is more likely that they will receive support from the general population than if they are perceived negatively. If attitudes towards change and innovation are negative, fewer individuals will want to engage in such activities.

**Evidence on how attitudes influence successful entrepreneurship**

Although attitudes can be difficult to quantify and to compare between countries, there is good evidence (see below) that shows a positive correlation between attitudes toward entrepreneurship and high levels of entrepreneurship and economic growth. In particular, attitudes about failure and about entrepreneurship in general are different in the United States than in European countries, and the United States also has higher levels of entrepreneurship. However, there is some difficulty in determining whether this is a causative relation (i.e. that positive attitudes toward entrepreneurship create higher levels of entrepreneurship) or rather that higher levels of entrepreneurship create better attitudes, or that both are symptoms of some other factor. We can suppose that other cultural and historical factors have an effect on levels of enterprise and attitudes toward entrepreneurship, and that these to some degree disguise any direct effects that changes in attitudes might cause.

**What is the evidence on attitudes towards entrepreneurship and innovative entrepreneurship?**

Statistics provided by the Global Entrepreneurship Monitor and reported in OECD (2012a) show a wide range of perceptions and attitudes related to entrepreneurship in different OECD countries. With the exception of Japan, the perception that individuals have entrepreneurial opportunities and the capability of starting up a business appear largely distinct from their attitudes toward entrepreneurship (i.e. the image of entrepreneurs and entrepreneurship as a career choice). In particular, the perception of opportunity is likely to be affected by the economic cycle.

A survey by the European Commission shows similarly diverse views of entrepreneurs and the way in which education has affected these views. There are significant cross-country differences in the way people perceive entrepreneurs. The highest percentage of people who have a favourable image of entrepreneurs is found in a group of Nordic countries and the US, while in Eastern European and Asian countries only one third or less of the population has a positive image of entrepreneurs. Opinions on the role of education in forming attitudes toward entrepreneurs are also very diverse from country to country. Interestingly, the ranking of countries according to the perceived role of school in helping students understand the role of entrepreneurs is quite different from the ranking based on the share of adults having a favourable image of entrepreneurs.

##### Surveys on the characteristics of entrepreneurs, such as Wadhwa et al. (2009), which describes the backgrounds of 549 entrepreneurs in the US, give some idea of the most important perceptions and attitudes. In this survey, entrepreneurs tended to be middle-aged and well-educated, but nonetheless 52% had some interest in becoming an entrepreneur when they were in college, and of the 24.5% who indicated that they were extremely interested at that time, almost half went on to start more than two companies. This shows the importance of education in forming perceptions of entrepreneurship. Three quarters of entrepreneurs indicated that building wealth was an important motivation, so attitudes on this topic have some impact. Finally, more than third of respondents stated that the role played by an entrepreneurial friend or family member was important, again showing that more general attitudes will affect individuals in establishing new enterprises.

**What other topics relate to attitudes towards entrepreneurship and innovative entrepreneurship?**

**Business and entrepreneurship skills and experience**. The development of entrepreneurship and business skills (e.g. through education) can play an essential role in shaping attitudes towards entrepreneurship in a positive way (e.g. exposing students to entrepreneurship can help make it a feasible and accepted career option).

**Administrative framework for entry and growth**. The administrative framework can affect attitudes toward entrepreneurship by influencing the ease of starting and running a new company, and by shaping perceived barriers to business start-ups.

**Bankruptcy regulation**. Bankruptcy regulations that severely penalise “failed” entrepreneurs may critically affect attitudes toward entrepreneurship.

**Trajectories of innovative new ventures**. In countries where failure is stigmatized and entrepreneurial culture is weak, entrepreneurs might face difficulties in rebounding after a setback. This might discourage individuals from leaving salaried jobs to set up their own businesses or to start new companies after an initial failure. This in turn can shape attitudes towards entrepreneurship.

**What policies relate to attitudes towards entrepreneurship and innovative entrepreneurship?**

Determining which policies are effective causes some methodological issues, including the difficulty of measurement and comparison between countries, the slow rate at which attitudes change and the inability to create a control group. Martinez et al. (2010) shows some evidence of impact, at least in innovation-driven economies. OECD (2009a) notes the difficulties of proper evaluation and outlines the need for further research. A second question is whether it is possible to change attitudes through policy actions. Policy approaches have focused mostly on enterprise in education and training. Policies improving framework conditions (e.g. taxation) may also encourage innovative entrepreneurship and promote positive attitudes towards entrepreneurship.

##### **Entrepreneurship in Education**

To ensure that all high school students are exposed to the concept of entrepreneurship, different countries have taken different approaches, but some general approaches include:

* Inclusion of entrepreneurship in the curriculum as a compulsory subject or as part of the syllabus in a number of subjects.
* Competitions between schools for new ideas. This can be highly structured and give individual teams the chance to compete nationally or at the local level.
* Inviting entrepreneurs to come into schools to talk and discuss their work.
* Educating career advisors about entrepreneurship as a career option and the skills and experience that it requires.

Students in higher education should also be targeted and here tools can be integrated into direct support for spin-outs and setting up new enterprises. Again, it is important to include entrepreneurship as a module in non-business oriented courses to expose all students to it. This does not necessarily need to be formal learning but can be attained through simulation and competitions.

##### **Global Events and Direct Promotion**

Global events could include a designated week where a large number of events take place to promote entrepreneurship. This allows national advertising and organisations to be complemented by local actions, which can then enjoy greater visibility. Examples include Entrepreneurship Week (<http://www.entrepreneurweek.net/>), which seeks to coordinate individual actions across different countries and Global Entrepreneurship Week (<http://www.unleashingideas.org/>).

Direct promotion can take many forms but may include advertising, promotion of successful entrepreneurs as role models, co-financing TV and radio programmes, promotion through social media and granting awards to the most successful or promising entrepreneurs.

Entrepreneurship Week, mentioned above, advertises through Facebook and Twitter and has its own LinkedIn group. More generally, policies that specifically focus on innovative entrepreneurs (e.g. R&D tax credits for small businesses) may affect the perception of whether entrepreneurs create wealth and growth that benefit all, and influence society’s attitude toward entrepreneurs.

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# Tneme of lecture № 7. Тhe administrative framework for entry and growth affect innovative businesses

**Plan of lecture:**

# 1. Administrative framework for entry and growth

# 2. Business support infrastructure

# 3. Technological co-operation between firms

# 4. Regulatory framework for innovative entrepreneurship

# 5. Bankruptcy regulation

# 6. Product market regulation

# 1. Administrative framework for entry and growth

The administrative framework can significantly affect the success of innovative businesses when they seek to enter markets and also to grow. High barriers to entry can effectively discourage the creation and expansion of new companies. Substantial resources can be diverted to dealing with administrative issues instead of being invested in innovation. Moreover, such barriers can negatively affect markets by reducing competition and inhibiting innovative business activities. Evidence confirms the positive effects on firm entry and performance of lowering various administrative burdens. Over the past decade, many countries have invested substantially in reducing the administrative burdens their businesses face. Yet, substantial differences continue to exist across countries. Simplifying the administrative framework for entry and growth can also affect innovative firms indirectly by influencing the state of competition and access to foreign and domestic markets. Public policy can help innovative businesses by simplifying the administrative framework or offering more services utilizing information and communication technologies.

**What is the administrative framework for entry and growth?**

The administrative framework for entry and growth refers to the monetary requirements and the level of “red tape” (defined as the collection of rules and formalities) for starting a new company (including the cost and time required to start a business, the number of procedures, and capital requirements), and for firms at early growth and high growth stages (including the cost and time required for enforcing contracts).

**How does the administrative framework for entry and growth affect innovative businesses?**

* Administrative compliance costs associated with business activities (e.g. regulatory costs in the form of asking for permits, filling out forms and reporting and notification requirements) can also be an important **barrier to the development of innovative businesses**. They may hinder firms from shifting resources to new and productive uses, engaging in innovation and adopting new technologies (Scarpetta et al., 2002). They may create barriers to trade, investment and economic efficiency.
* Lengthy and costly company registration procedures **divert human and financial resources away from business activity.** These resources will not be invested in innovation-related activities.
* Particularly in environments where the legal context is weak, burdensome entry regulations may lead entrepreneurs to conduct their business activities in the **informal sector.** The consequence is that entrepreneurs are deprived of access to opportunities and protections that the law provides, which might be detrimental for their business expansion.
* If the administrative framework is a barrier to entry, it will **decrease competition**, giving existing firms less incentive to innovate and negatively affecting innovation performance in markets.

**Evidence on the impact of administrative framework on the success of innovative firms**

##### **Impact on firm entry rate**

The evidence uniformly shows that simpler entry regulations encourage the creation of new firms. In countries with excessive entry regulations, industries tend to respond to growth opportunities through the expansion of existing firms, while in countries with fewer entry regulations the response is primarily through the creation of new firms (Fisman and Sarria-Allenden, 2004). Studies show that reforms in the business registration process led to increases of 5% to 17% in the number of newly registered businesses in Mexico and Portugal (Branstetter et al., 2010; Bruhn, 2011). In contrast, a single extra procedure for business entry can reduce the entry rate by 0.32% (Djankov et al., 2008).

The impact of entry regulation on the creation of new firms depends on the specific industry. Klapper, Laeven and Rajan (2006) find that entry regulations particularly hamper entrepreneurship in industries that would naturally have high entry regulations.

Overall, the positive impact of simpler entry regulations on new firm registration is two-fold: 1) the opening of new business due to lower entry costs, and 2) simpler entry regulation encourages businesses that previously operated informally to formalize.

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##### **Impact on innovation and productivity**

Evidence shows that cumbersome entry regulations may impact innovation. Aghion et al. (2006) show that such regulations encourage innovation in sectors close to the technological frontier, as successful innovation allows incumbents to prevent entry by new firms. In laggard sectors, however, increased entry threat discourages innovation, since it reduces incumbents’ expected rents from innovating.

In addition, studies show that an increase in entry costs decreases total factor productivity (Banerjee and Duflo, 2005; Barseghyan, 2008). Based on a sample of 157 countries, Barseghyan (2008) finds that an increase in entry costs by 80% of per capita income decreases total factor productivity by 22%.

**What is the evidence for the impact of administrative framework on the entry and growth of innovative businesses?**

##### **Measures**

The World Bank’s indicators, published in the annual Doing Business report, measure the regulations that apply to domestic small and medium sized companies. There are two types of indicators: those related to the strength of legal institutions relevant to business regulation, and indicators related to the complexity and cost of regulatory processes. Based on time-and-motion case studies from the perspective of the business, the indicators measure the procedures, time and cost required to complete a transaction in accordance with relevant regulations. The referenced business is a limited liability company (or its legal equivalent), 100% domestically owned, located in the largest business city of the economy, has between 10 and 50 employees, and its start-up capital is 10 times the gross national per capita income.

The indicators encompass multiple areas in the SMEs’ life cycle, such as starting the business, dealing with construction permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. The ease of doing business indicator summarizes the findings in these areas. Economies that rank highest in ease of doing business are not those with no regulation but those where governments have managed to create rules that facilitate interactions in the marketplace without needlessly hindering the development of the private sector. Higher scores are given for simplified ways of applying regulation that keep compliance costs low (e.g. by allowing firms to comply with start-up formalities through a one-stop shop or a single online portal). The scores also reward risk-based approaches to regulation that addresses social and environmental concerns, such as policies imposing a greater regulatory burden on activities that pose a high risk to the population.

In addition to the ease of doing business indicators, the World Bank computes the distance of each economy to the “frontier,” which represents the best performance since 2005 on each of the Doing Business indicators across all economies. The measure is normalized to range between 0 and 100, with 100 representing the frontier. A higher score therefore indicates a more efficient business regulatory system. Figures 1 to 3 show a selection of those indicators.

# 2. Business support infrastructure

Business support infrastructure encompasses a variety of different institutions, including business incubators, science parks and accelerator programs. It can play a critical role in the success of innovative new ventures, as it may provide a wide range of support in the form of advice, networking, finance and accommodation. Yet evidence related to the impact of business support infrastructure is rare and often ambiguous. The concentration of specific types of business infrastructure varies widely between different countries. The success of such infrastructure critically depends on a good administrative framework for entry and growth, the existence of markets for technology and a suitable intellectual property (IP) system that can strengthen the infrastructure’s contributions to the successful performance of innovators. Public policy can help innovative entrepreneurs by providing financing for business support infrastructure.

**What is business support infrastructure?**

Business support infrastructure includes the provision of business services to entrepreneurs, such as consulting and R&D services. In principle this could encompass a wide variety of activities and institutions, but here the focus is on infrastructure that relates to innovation (as opposed to more general business support activities) and on integrated activities based around a specific location (as opposed to, for example, specific consultancy services). In this context, we concentrate on business incubators, science parks and accelerator programmes. We define these as follows:

Business incubation is a systematic way to support the establishment and growth of a new company that has applied to and been selected by a business incubator. **A business incubator** is an institution that provides physical space and services to start-ups, helping them through the early stages of their development. In addition to business prospect assessment, due diligence process management and expert pooling, the incubation process may also include coaching and mentoring of managers, advice on financing and marketing issues, and facilitation of networking with industry experts. The goal of business incubation is to enable a start-up to begin generating revenue and thus attract external investment for future development.

**Science parks,** research parks or technology parks (technoparks) are organisations that seek to increase the wealth of the community by promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions. Compared to business incubators, science and technology parks tend to be larger in size, often spanning large territories and housing various entities, ranging from corporate, government and university laboratories to private companies. Science parks do not necessarily offer a full range of business support services, but some may host a business incubator for early stage innovation-based ventures. Typically, however, science and technology parks provide services to companies at post-incubator stages of their life cycle or provide a launch pad for companies that are "spun out" from a university or company.

**Accelerator programmes** are a more recent phenomenon. While there is no clear definition, the following features usually distinguish them from more conventional business incubation:

* An application process that is open to all, yet highly competitive. Generally, a much larger proportion of applicants are turned down than in conventional business incubation.
* Provision of pre-seed investment, usually in exchange for equity. Most accelerator programmes are directly linked to seed finance.
* A focus on small teams, not individual founders.
* Time-limited support comprising programmed events and intensive mentoring. Accelerator programme support typically lasts a number of months, compared to conventional business incubation where start-up companies stay in the incubator for a number of years.
* A process that is designed for cohorts or “classes” of start-ups, rather than individual companies. Start-ups are accepted and supported in cohort batches or classes. The peer support and feedback that the classes provide are considered important for the success of these programs.

**How does business support infrastructure affect innovative entrepreneurship?**

Business support infrastructure addresses a number of key problem areas that inhibit the establishment of new innovative enterprises. It seeks to do this most efficiently by co-locating a number of different services so that the enterprise can source them efficiently. In many cases such services are subsidised, but there are advantages to co-location even if they are not.

Specific areas of support include:

* **Advice:** Sources of advice are particularly important in innovation, since there may be a need for technical advice related to licensing and patents, as well as connections with universities and research institutions. Business support infrastructure may provide such advice or help entrepreneurs locate it. There is also a need for more basic business advice and support. Services may also include directing entrepreneurs to specific sources of expertise.
* **Networking:** Co-location of similar companies allows them to share ideas and perhaps trade with each other. It is easier to succeed if complementary companies are within a short distance. In addition, this allows staff to transfer between small (and large) companies.
* **Finance:** All start-up businesses have difficulties with finance and especially innovative companies, since they appear more risky and could put investment at risk if the enterprise fails. The capital investment required by innovative start-ups may be higher than that required by non-innovative start-ups, since the former typically need to invest in R&D and in other innovation-related activities. Business support infrastructure can provide assistance by locating sources of financ, through actual investment and through indirect subsidies (e.g. reduced rents).
* **Accommodation:** Innovative enterprises may well require accommodations for specialised equipment, which may not be easy to find in local property markets. Science parks and incubators typically have accommodation designed for new enterprises in a specific sector, and therefore help reduce the costs of finding, adapting and renting suitable premises.

Based on these factors, business support infrastructure aims to provide collective solutions for innovative entrepreneurs in the form of advice, finance, access to research and specialists, and specially designed accommodations.

**Evidence for the impact of business support infrastructure on entrepreneurial success**

Evidence related to the impact of business support infrastructure and business support services is ambiguous and often lacking. This reflects on the one hand the wide heterogeneity of services and infrastructure, and on the other hand the lack of rigorous independent evaluation and the difficulties of avoiding self-selection bias. Nonetheless, a number of studies endorse the general approach, suggesting that there is a real impact on client enterprises.

Mole et al. (2009) suggests that intensive support of selected firms is beneficial (particularly in relation to more general untargeted support). Batra and Mahmood (2003) show that there is some success in direct support, although they raise some qualifications. Zouhaïer M’Chirgui (2012) gives a comprehensive review of recent French incubators and shows that they have some degree of self-sufficiency, though they need to adapt to changing circumstances. Phan et al. (2005) reviews literature and shows that there is evidence for their positive effect, even if much more research needs to be done.

Although individual incubators claim a great deal of success, many of the studies do not account for self-selection and do not determine what happened to clients over the long term. Amezcua (2010), through a large study that sought to make comparisons using a large public database and to find out what happened to post-incubation firms, shows that while incubated companies have higher growth rates, they also fail sooner (suggesting that the sheltered environment of the incubator does not adequately prepare all firms to function on their own). In general, we can conclude that the incubator concept is sound and adds value but does not have as significant an impact as some of its proponents would suggest. Little is known about survival rates.

Accelerator programmes are much more novel and therefore there is less evaluation. Also, the final results of such programmes are likely to be several years in the future. High profile programmes in the United States claim very high rates of success. For example, Techstars (which publishes full data on its website) claims that 76% of its clients are still active, 10.5% have been acquired by others and only 13.5% have failed. Average funding per company was more than USD 1.5 million. However, since the programme started in 2007, most of the companies have not had time to fail, while the selection process may be as important in the success rate as the actual quality of support given.

**What is the evidence on business support infrastructure and innovative entrepreneurship?**

The concentration of specific types of business infrastructure varies widely between different countries, perhaps showing the heterogeneity of business support strategies. In addition, different approaches have been popular for longer in some countries than in others; for example, business incubators have been in existence in the UK for some time but are seen as a relatively new idea in many countries. A survey of European business incubators in 2006 (Goddard et al. [2006] quoted in UN [2012]) showed that they exhibited the following characteristics:

* The average number of employees in an incubator was six and the median number was four. A small staff of one to three employees ran half of the existing business incubators and 90% of them employed less than ten people.
* The average number of tenant start-up firms in an incubator was 25 and the median number was 18. The large majority of incubators supported less than 30 tenant firms.
* Some 48% of the existing incubators were publicly sponsored, 12% were privately sponsored and 38% had mixed sponsorship. In addition, 70% of business incubators were non-profit institutions while 30% were for profit.
* The bulk of incubator tenant firms (76%) were based at the incubator facilities. The rest were located off-site in rented space or in industrial or science parks. The minimum incubator space required for efficient operation was estimated at around 3,000m².
* The study showed that 70% of the incubators offered all or most of the services and business support required by start-ups, while 50% of incubators also hired external business service providers. In addition to business services proper, many business incubators assisted tenant firms in raising early stage financing from external sources.
* Start-ups obtained public support both through the incubator itself and independently. According to the survey, 64% of incubator-based SMEs enjoyed support from the national programmes for SMEs, 58-59% from regional development agencies and national programmes for innovative firms, and 45% benefited from the support of local authorities.
* Most incubators (73%) applied standardised entry criteria and procedures, while 43% used such criteria for exit. It is generally considered that tenant firms should not need more than four years in the incubator to graduate (some firms graduate earlier). The incubators estimated the survival rate of firms reared in their environment at 80-90%, which was significantly higher than the average survival rate for start-up firms operating in an open market environment.

In 2007, the International Association of Science Parks (IASP) conducted a survey of its members (including parks from all over the world) and identified the following main characteristics of science and technology parks (quoted in UN [2012]):

Science and technology parks were situated mostly in urban environments, and 36% of the parks were located on a university campus or adjacent to one.

* Some 45% of parks had relatively small territories (less than 200,000 square metres). On the other hand, 33% of parks had territories exceeding 600,000 square metres, of which 22% occupied territories of over 1 million square metres.
* Nearly 60% of parks reported having hosted up to 100 resident companies, and 23% more than 200 companies. Middle-size parks (101 to 200 companies) represented 19% of the total number.
* Publicly owned science and technology parks prevailed (54% of the total), while 16% of parks were entirely private and 30% reported mixed (public-private) ownership.
* Most science parks received public financial support of some sort. The most widespread forms of such support were grants (45.4% of parks), subsidies (40.3%), tax incentives (27.3%) and subsidized loans from governments and public administrations at the national, regional and local levels (20.8% of parks).

There is much less information on accelerator programmes, with most of them launched since 2009. Miller and Bound (2011) gives a good qualitative review of the current state of the art. Their paper describes some of the ongoing criticism of the model (that it works to the detriment of other high growth start-ups and that it exploits start-up founders, for example) and the difficulties of measuring success (particularly when there is strong selection bias, and where different accelerators have very different objectives). The paper also shows how the accelerator concept has started to be used in more conventional economic development contexts and considers whether the model could usefully be transferred to wider sectors.

**What other topics relate to business support infrastructure and innovative entrepreneurship?**

**Access to finance for innovative entrepreneurship**. Most business support infrastructure has some degree of support for **access to finance**. This ranges from implicit subsidies (i.e. through lower rents), to assistance in finding finance, to accelerator programmes where an actual investment is made in all participants.

**Administrative framework for entry and growth**. The extent to which business support infrastructure can be effective depends on the overall administrative framework innovative entrepreneurs face, which can raise substantial barriers to entry and growth, thereby affecting their performance.

**Technological co-operation between firms**. Business support infrastructures can notably play the critical role of facilitating co-operation between businesses, including co-operation between innovative entrepreneurs and established firms or other innovative businesses.

**Interface with universities and public research institutes**. Business support infrastructures can also help enhance the relationship of innovative entrepreneurs with universities and PRIs.

**Intellectual property rights for innovative entrepreneurship**. The functioning of the IP system will shape opportunities for innovative entrepreneurs, including the way it impacts on commercialisation efforts by universities and public research organisations.

**Markets for technology**. The extent to which innovative entrepreneurs have opportunities to trade technology facilitates the extent to which business support infrastructure can help their business performance.

**What policies relate to business support infrastructure and innovative entrepreneurship?**

While it is possible that business support infrastructure can be directly planned and financed by government, in practice this is rarely the case. Nonetheless, public financing is important as almost all business infrastructures have some public subsidy. Depending on the exact targeting, this can be related to building the infrastructure itself, the level of rents and charges for services (which would normally slowly increase as an incentive for firms to move out), and the provision of services (free or subsidised business support services often operate within business incubators or similar establishments). Actual policies depend on local or national strategies for business support and the way in which infrastructure fits into them.

Typically, the following situations arise:

* Business incubators are established by local authorities and regional development agencies as part of their economic development activities. Normally this would be part of a local development strategy. Finance may come from national sources.
* Universities establish science parks as part of their policy for encouraging spin-outs, developing better linkages with industry and as a revenue stream. Again, finance may come from national sources.
* Business incubators are established by non-profit organisations typically through some local or national subsidy. Such non-profit organisations usually have social objectives (e.g. combating unemployment and poverty) and therefore may establish incubators in locations which would not be seen as optimal from an economic point of view. National policy may be to subsidise such organisations . Some business incubators work on a purely commercial basis, based on the idea that defining a building as an incubator will make it more attractive to rent. In general, such projects offer minimal business support services.
* Accelerator programmes are likely to be private-sector dominated, with funding coming from potential investors. Objectives will be keenly commercial and related to return on investment rather than job creation and social objectives.

As a complement to business support infrastructure, many countries provide some subsidised advice and training, which may or may not be connected with a particular location. Delivery of these services varies; they can be provided through a defined organisation or through a system of vouchers, whereby advice from approved consultants/advisors is subsidised subject to appropriate criteria.

# 3. Technological co-operation between firms

Technological co-operation between firms can be essential to boosting successful innovative businesses by creating networks of knowledge flows. Another contribution is pooling competencies to enable firms to overcome barriers, such as limited funding and lack of management resources and technological competencies. That is, technological collaboration can help innovative businesses get access to complementary assets, including labour and finance. Technological collaboration critically depends on effective IP systems and developed markets for technology. The extent to which firms collaborate differs across countries but also across types of firms. Several factors, including market conditions and firms’ access to knowledge and finance, impact on the extent of collaborations.

**What is technological co-operation between firms?**

This brief discusses various types and dimensions of collaboration between firms:

* Partners in such collaborations can be at the horizontal level, with businesses working together on research, technology licensing, or cross-sales and marketing agreements. At the vertical level, buyers and suppliers can collaborate in product or process innovation or in outsourcing specialised inputs.
* There are many types of technology collaborations, such as formal arrangements (**e.g. joint ventures, strategic alliances and sponsored research agreements**) but also more informal yet relevant arrangements (**e.g. collaborations of regionally close firms**).
* There are several dimensions here worth considering:

**Local technology collaborations**, i.e. regional proximities between firms, including firms in clusters, and their impact, whether through formal or more informal types of relations.

**Global technology collaborations** that, in contrast, involve businesses located not only in different regions but also in wider zones. Cross-border alliances contribute to knowledge inflows and outflows by involving firms and organisations in activities, such as international product licensing or joint agreements for product or process development. Global knowledge transfers can also take place through the attraction of Foreign Direct Investment (FDI) and the development of business linkages with local suppliers, as well as through the attraction of a foreign skilled labour force.

**How does technological cooperation between firms affect innovation in firms?**

Technological collaborations between firms can be essential for the success of innovative businesses by creating a **network of knowledge flows**. Beyond the simple knowledge connection, strategic alliances are also important in that **by pooling competencies, they enable companies to overcome other types of barriers, such as limited funding, lack of management resources and insufficient technological competencies.**

**Evidence on the importance of technological co-operation for the success of innovative businesses**

**There is evidence to highlight the importance of technology collaboration for innovative businesses**. For instance, Winters and Stam (2007), in an analysis of high-tech enterprises, show that innovation networks positively affect both product and process innovation. Regarding **global collaboration**, participation in global value chains contributes positively to the efficiency and innovative potential of firms (OECD, 2008b). This is particularly true in knowledge-intensive sectors, where cutting-edge suppliers are unlikely to be locally available and strategic alliances are crucial to launching new products and exploring new markets.

There are some factors that seem particularly important for technology collaborations to work: **knowledge spillovers and spatial proximity.** Cognitive proximity is important and knowledge spillovers will be possible only if both parties involved in the exchange share some technical commonalities. Knowledge from one industry will spill over more easily to another related industry and major innovations are more likely to occur when knowledge spillovers take place between sectors that share competencies, rather than within one specific sector. As a result, industries that rely on a common science base tend to cluster geographically and a related variety of local industries are deemed to further economic development (OECD, 2008a, 2009). For instance, Feldman and Audretsch (1999) find that diversity among complementary economic activities with a common science base is more conducive to innovation in terms of returns on R&D investments than narrow sector specialisation. Similarly, Fritsch and Slavtchev (2007) find an inverse U-shaped relationship between industrial diversity and regional economic performance, which implies the existence of an optimum degree of industrial diversity, beyond which both broader diversification and narrower specialisation will have a negative effect on local innovation (measured through patent applications disclosed by regional inventors). Specifically, firms that are located nearby have been identified as important for SMEs (OECD, 2005).

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##### **What is specific about technological cooperation between firms and innovative entrepreneurship?**

The often smaller scale of start-ups may require a greater reliance on technological co-operation to overcome competitive disadvantages with larger businesses. Due to limited assets and resources, SMEs invest less in R&D than large companies, in both absolute and relative terms, and are more prone to innovate by drawing on collaboration.

Knowledge untapped by existing enterprises may also provide the basis for innovative start-ups, such as in the case of corporate spinouts. Indeed, knowledge spillovers have been increasingly associated with the entrepreneurial process (Acs et al., 2006).

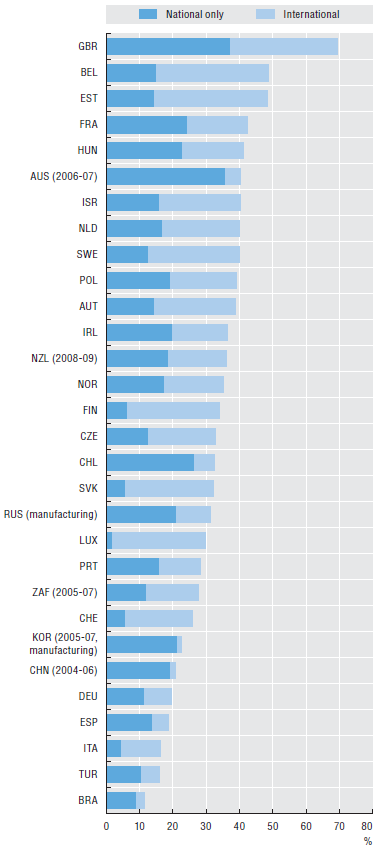
**What is the evidence on technological cooperation between firms and innovative businesses?**

##### **International collaboration on innovation**

Collaboration with foreign partners can play an important role in the innovation process by allowing firms to gain access to a broader pool of resources and knowledge at lower cost and to share risk. It can take a variety of forms and levels of interaction, ranging from simple one-way information flows to highly interactive and formal arrangements.

Among European firms, intra-European collaboration remains the predominant form of cross-country collaboration on innovation. In terms of collaboration outside Europe, European firms tend to partner mainly with US firms, although Sweden, Finland and Belgium have significant collaboration with firms in China and India.

##### **Figure 1. National and international collaboration on innovation by firms, 2006-08 (as a percentage of innovative firms)**

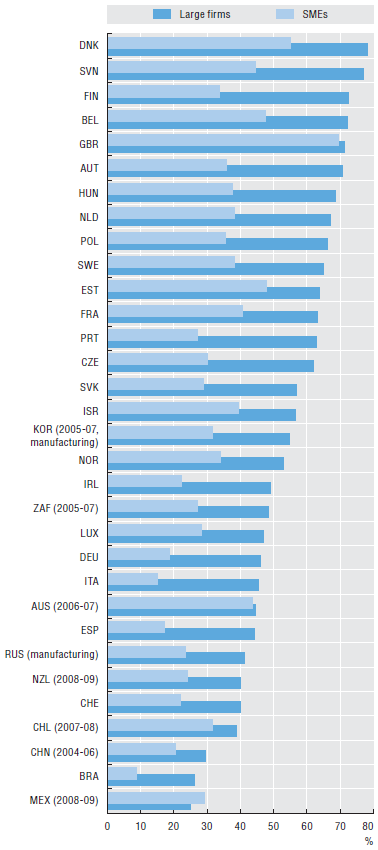


Source: OECD Science, Technology and Industry Scoreboard (OECD/STI, 2009 & 2011)

##### **Evidence on technological co-operation and innovative entrepreneurship**

Figure 2 shows that during 2006-08, in the great majority of countries, large firms were significantly more likely to collaborate on innovation than small and medium-sized enterprises (SMEs). Among innovative SMEs, the rate of collaboration is between 25% and 40% in half of the countries surveyed, but it varies widely for large firms. More than 70% of large innovative firms collaborated on innovation in Denmark, Slovenia, Finland, Belgium, the United Kingdom and Austria, while less than one-third did so in China, Brazil and Mexico.

##### **Figure 2. Firms collaborating on innovation activities, by size, 2006-08 (As a percentage of innovative firms).**

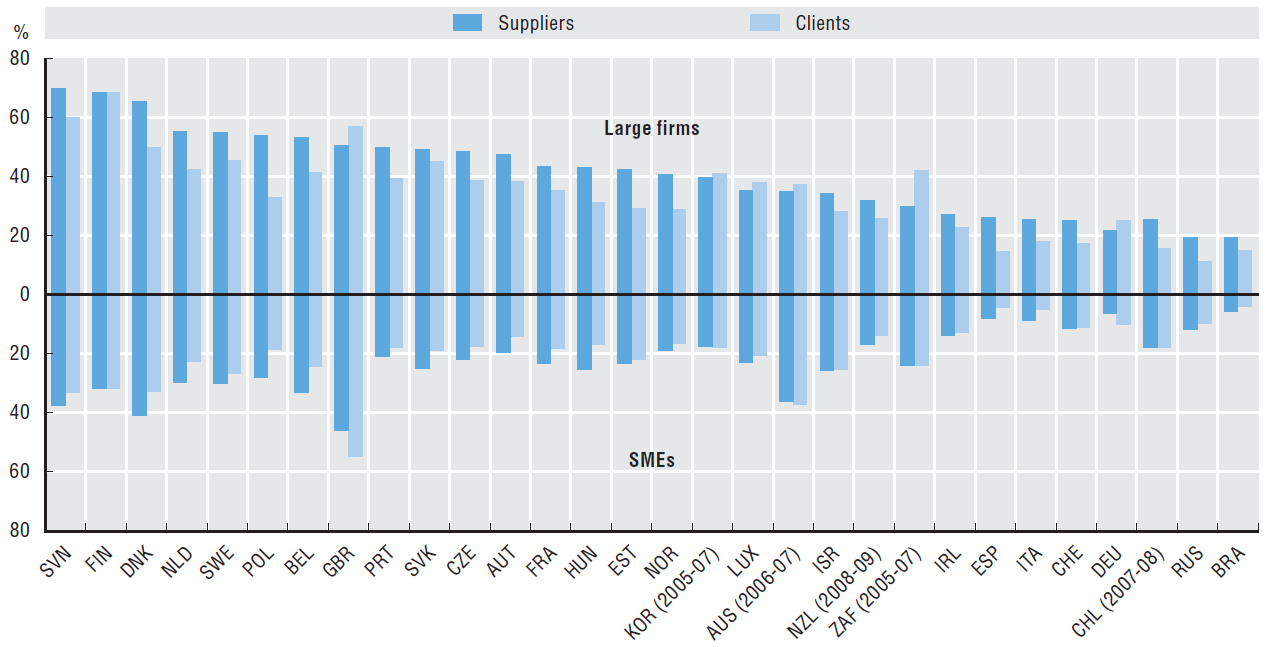


Source: OECD, based on Eurostat (CIS-2008) and national data sources, June 2011.

Note: The classification of firms by size follows the recommendations of the Oslo Manual. It is calculated on the basis of the number of employees. SMEs are firms with 10-250 employees, with some exceptions: New Zealand: 6+; the Russian Federation: 15+; China: at least CNY 5 million in turnover. For South Africa, firm size is based on turnover. Collaboration refers to active participation even if both parties do not benefit commercially and excludes pure contracting out. For Switzerland it only includes collaboration on R&D.

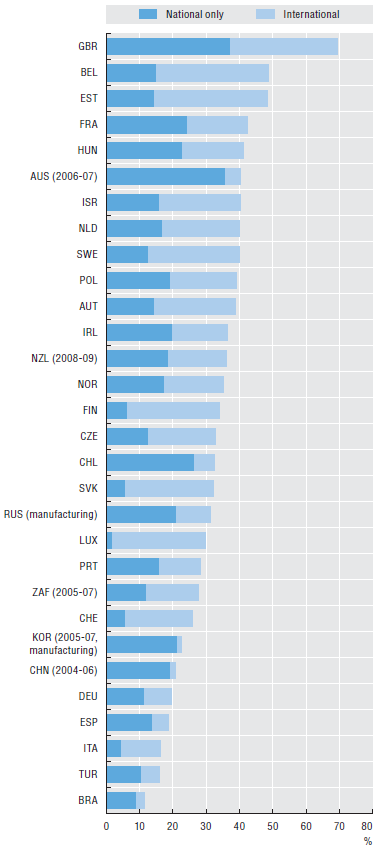
Figures 3 shows how size is a strong determinant of firm collaboration with suppliers and clients. Moreover, Figure 4 shows how the level of firm collaboration on innovation varies across countries. There are also differences with regards to international partners. Among European firms, intra-European collaboration remains the predominant form of cross-country collaboration on innovation. In terms of collaboration outside Europe, European firms tend to partner mainly with US firms, although Sweden, Finland and Belgium have significant collaboration with firms in China and India.

##### **Figure 3. Firms collaborating on innovation activities with suppliers and clients, by firm size, 2006-08 (as a percentage of innovative firms)**



Source: OECD, based on Eurostat (CIS-2008) and national data sources, June 2011.

##### **Figure 4. National and international collaboration on innovation by firms, 2006-08 (as a percentage of innovative firms)**



Source: OECD Science, Technology and Industry Scoreboard (OECD/STI, 2009 & 2011)

**What other topics relate to technological cooperation between firms and innovative businesses?**

**Intellectual property rights and innovation in firms** and Intellectual property rights for innovative entrepreneurship. Patents greatly facilitate the realization of market deals, especially when knowledge is codified and hence easily imitable. It allows both the disclosure and protection of technology. Effective IP systems can also be critical for technology collaborations, as IP reduces concerns related to opportunistic behaviour by partners.

**Markets for technology**. Markets for technology, defined as transactions for the use, diffusion and creation of technology, include various types of interaction and co-operation between firms, from licensing of well-defined intellectual property, to collaborative agreements that may aim at developing new technologies.

**Business support infrastructure**. Business support infrastructure can play a critical role in facilitating cooperation between businesses, including that of innovative entrepreneurs with established firms or other innovative businesses (e.g. by facilitating connections).

**Access to labour for innovative entrepreneurship** and Firms’ access to labour for innovation Innovative firms can draw on technology collaborations to get access to complementary assets, including labour. The success of technology collaborations will, however, depend on sufficient skills on the side of innovative firms.

**Access to finance for innovative entrepreneurship**. Collaboration with companies can be particularly important for innovative entrepreneurs, since it may help them compensate for limited internal resources and difficulties accessing finance, which can constrain their activity and growth. Yet lack of financing can also be a barrier to collaboration if firms cannot engage in necessary investments to make such co-operation happen.

**What policies relate to technological cooperation between firms and innovative businesses?**

There are several barriers that may hamper technological co-operation. Concerns about disclosing proprietary knowledge and substantial transaction costs in the process of finding the right partners and negotiating collaboration deals are examples. Policies can address opportunities for cooperation in the following ways:

##### **Cluster policies**

A range of cluster policies will have an impact on collaboration at regional levels.

##### **Strengthen the Awareness and Capabilities of Businesses**

Clear barriers exist to the emergence of international networks of innovative businesses. Firms may not be aware of overseas opportunities or may be too inward looking to search for knowledge sources abroad. Similarly, they may also be unaware of the steps and procedures needed to enter into formal agreements with a foreign partner or may be discouraged by the high costs and risks involved in the internationalisation process (OECD, 2008b). As a result, public policy has a key role to play in helping to address information barriers and ensuring that the risks and costs of international networking are minimised for participating businesses (i.e. through the provision of loans and guarantees). Chambers of Commerce and Business Associations can play an important role in both the design and delivery of effective support instruments at the local level.

##### **Promote cross-fertilising technologies with multiple industrial applications**

This will favour cross-sectoral knowledge flows and the possible emergence of new industries, rather than only strengthening existing sectors. Programmes that promote the overall commercial use of biotechnologies, nanotechnologies or material sciences go in this direction, though they require a strong knowledge base at the university level. The United States has traditionally been at the forefront in the promotion of cutting-edge and cross-fertilising technologies, through a comprehensive approach in which two key programmes are Small Business Innovation Research (SBIR) and the Technology Innovation Programme (TIP). The two programmes are complementary: the large awards granted by TIP focus on next-stage commercialisation and help advance the commercialisation potential of successful prototypes funded by SBIR.

##### **Other Policies with Implications for Collaboration**

###### **Encourage openness to global sources of knowledge**

External sources of knowledge are key to eschewing technology lock-ins and economic slowdowns. Policy makers can help businesses cope with information barriers and the risks and costs associated with international networking by setting up legal services or guarantee schemes, or by organising study visits and business forums for entrepreneurs. Inward FDI is also an important – although sometimes overlooked – source of new knowledge for the local economy, and policies should strive to embed it by developing linkages between foreign ventures and local firms, such as supplier development programmes.

###### **Financing policies**

Financing can be a barrier, so policies aimed at facilitating funding for collaborative ventures are another direct policy dimension.

###### **IP policies**

IP policies, particularly as they relate to collaboration, can have an impact on formal arrangements and, therefore, on collaboration between firms.

# 4. Regulatory framework for innovative entrepreneurship

**How does the regulatory framework affect innovative entrepreneurship?**

As for innovative businesses in general, administrative framework, government regulations and public policies that impact the operation of firms can influence the growth of innovative companies.**Innovative new ventures are specifically affected by the administrative framework for entry and growth**:

* A simplified administrative framework can encourage business entrepreneurship by reducing barriers. In contrast, substantial costs and complex registration processes can **discourage entrepreneurial activity**.
* Lengthy and costly company registration procedures **divert human and financial resources away from business activity, just when the company is the most fragile**
* Burdensome entry regulations may also encourage entrepreneurs to conduct their business activities in the **informal sector**, particularly in environments where the legal context is weak, as is often the case in less developed economies. The consequence is that entrepreneurs are deprived of access to opportunities and protections that the law provides, which might be detrimental for their business expansion.

**What are the key policy dimensions regarding regulatory framework and innovative entrepreneurship?**

As for innovative businesses in general, common challenges across three policy dimensions are particularly relevant and include:

* How can bankruptcy legislation meet the objectives of i) protecting creditor rights; ii) discouraging premature liquidation of sustainable businesses; iii) avoiding the permanence on the market of unproductive companies, while at the same time not discouraging innovative businesses?

→ Bankruptcy regulation is defined as the set of norms and regulations that govern, for individuals and companies, financial distress, administration, insolvency and liquidation.

* How can governments reduce administrative burdens for innovative businesses without compromising the social objectives of particular regulations and the need for consistent regulation of the market?

→ Administrative framework for entry and growth refers to the monetary requirements and the level of “red tape”, or the collection of rules and formalities for starting a new company and for firms at early-stage growth.

* What are the key aspects of product market regulation needed to support competitive markets for innovative businesses?

→ Product market regulation includes regulations that promote or inhibit competition in areas of the product market where competition is viable.

* How can intellectual property systems be strengthened to foster knowledge diffusion for innovative entrepreneurship?

→ Intellectual property rights includes the regulations and enforcement of intellectual property rights.

**What are the main rationales for policy interventions in support of regulatory framework?**

As in the context of innovative businesses in general, several market and systemic failures imply a need for policy attention to administrative framework. These notably include the following:

* Burdensome administrative framework for entry and growth, and inappropriate bankruptcy legislation may block innovation, hinder the flow of knowledge and technology, and, as a result, reduce the overall efficiency of system-wide R&D and innovation efforts.
* Demand-side innovation policies based on product standards and regulations can be used to stimulate innovation in areas where societal needs are pressing (e.g. health, environment).
* Government action in the area of technical standards is somewhat different, corresponding to the “public good” characteristics of such standards. The development of standards is likely to create some degree of market failure. By itself, the market may provide too few standards. Creating standards entails fixed costs, while the gains may not be attainable by individual firms.

**What are the main policies that influence regulatory framework in the context of innovative entrepreneurship?**

As for innovative businesses in general, public policy can influence:

**Administrative framework for entry and growth** by:

* Achieving administrative simplification by re-engineering and streamlining processes (e.g. reviewing and optimizing information transactions required by government formalities, or creating one-stop shops that supply a high variety of services).
* Using information and communication technologies to further reduce administrative burdens (e.g. web-portals, on-line one-stop shops, and web-based experts systems that enterprises can consult in order to better understand and comply with regulations).
* Integrating and coordinating administrative simplification with other activities in the area of regulatory reform (e.g. including a focus on administrative burdens in ex ante impact assessments of new regulations).
* Quantifying administrative burdens for innovative entrepreneurs and setting quantitative targets for their reduction. Qualitative methods, especially those assessing the burdens of regulation, should complement quantitative methods, to better target these efforts.
* Introducing special procedural measures to assess the impact of new regulation on early stage firms and small businesses. This includes, for example, requiring agencies to prepare special impact statements for proposed regulations that affect small businesses. These small business impact statements can contain a description of any significant alternatives that accomplish the stated objectives, while minimizing any significant economic impacts on small businesses by the proposed rule.
* Considering implementation approaches that limit the burden for smaller businesses. This includes: exemptions to some regulations for the smallest businesses, combining regulations to minimize the number of inspections and forms, instituting a system of “presumed consent” (i.e. that a business is assumed to have registered/complied with a regulation if the relevant authority does not object in a certain time, and that lack of response can be interpreted as assent), and seeking to have consistent approaches and times for processing particular procedures (since uncertainty can be more damaging than the actual length of a procedure).

**Bankruptcy regulation** by:

* Striking a fair balance between the sometimes divergent objectives of bankruptcy legislation.
* Ensuring an efficient judicial system that provides timely and predictable sentences in fraudulent bankruptcy cases and adequately protects investors’ rights.

**Product market regulation** by:

* Integrating regulatory impact analysis within the process of creating new laws and regulations, thus allowing regulators and legislators to understand the effects of new regulations on smaller enterprises and innovative entrepreneurs.
* Creating one-stop shops for regulatory advice and registration, so that entrepreneurs can pass through administrative regulations with a minimum expenditure of time and resources.
* Organising public information campaigns for necessary regulations, in order to ensure that firms have time to plan for regulatory changes.

# 5. Bankruptcy regulation

Bankruptcy regulation may significantly affect innovative businesses by shaping the perceived risk of innovating and the conditions for access to finance. Evidence shows that countries with poorer investor protections tend to have smaller and narrower capital markets, which may make access to finance more difficult. Public policy can support innovative businesses by achieving the right balance in bankruptcy legislation to fit both firms’ and creditors’ interests. An efficient judicial system is also important to ensure that the targets of bankruptcy law are met (e.g. by assuring timely and predictable sentences on fraudulent bankruptcy cases).

**What are bankruptcy regulations?**

##### **Definition**

Bankruptcy regulations can be broadly defined as the **full set of norms and regulations that govern individual and corporate distress, administration, insolvency and liquidation.**

Well-designed bankruptcy legislation should meet a number of different, and sometimes divergent, objectives:

* preserving firms’ repayment incentives
* protecting creditor rights
* maximizing the total value of the recovered debt
* balancing conflicting stakeholders’ interests
* encouraging entrepreneurship and risk taking
* discouraging premature liquidation of sustainable businesses but at the same time not allowing unproductive companies to remain permanently on the market
* solving bankruptcy and insolvency cases in inexpensive, timely and predictable ways.

##### **Differences across economies**

**Bankruptcy laws are complex,** and significant differences exist across national legislations.

* In the treatment of **personal bankruptcy,** countries differ in terms of discharge, in the extent to which assets owned by the debtor at the beginning of the bankruptcy procedure might be withheld from creditors, in disabilities (i.e. restrictions on the debtor’s civil and economic rights during bankruptcy), and composition (i.e. the achievement of a discharge by agreement with creditors).
* In **corporate bankruptcy,** countries differ in the amount of restrictions on a debtor who wants to file for reorganisation. They also differ in the extent to which secured creditors are able to seize collateral after a reorganisation petition is approved (due to procedures of "automatic stay", i.e. injunctions that halt actions by creditors or "asset freezes").

The recent international financial crisis generated a sharp increase in the number of bankruptcy or insolvency cases and highlighted the need for reforms in the field. **Since the onset of the crisis in late 2008, no fewer than 65 economies have amended their bankruptcy legislation** (World Bank, 2012).

**How do bankruptcy regulations affect innovative firms?**

##### **Effects on capital markets**

**More lenient bankruptcy regulations may reduce self-selection, leading to lower quality projects, increased expenses, and ethical dilemmas.** The risk can be only partially addressed with additional screening and monitoring, since such activity is costly and information is asymmetric. As a consequence, **access to credit might be more difficult and costly** (Armour and Cumming, 2008; Stiglitz and Weiss, 1981). A lax bankruptcy regime is therefore likely to increase the cost of raising external finance to fund innovative projects or will increase the cost of new investments.

At the same time, La Porta et al. (1997) find that **countries with poorer investor protections have smaller and narrower capital markets.** Rodano, Serrano-Velarde and Tarantino (2012) study two bankruptcy reforms in Italy, finding that the introduction of a reorganization procedure increased the interest rates on loan financing for firms by up to 0.2 percentage points (thus more punitive repayment incentives outweigh efficiency gains), while the reform that accelerated liquidation procedures decreased the cost of finance and relaxed credit constraints. Bravo-Biosca, Criscuolo and Menon (2012) find that in sectors that are highly dependent on external finance, stronger creditor rights are associated with a more dispersed growth distribution, with a higher number of growing and shrinking firms, and a lower number of stable firms.

##### **What are specific impacts of bankruptcy regulation on innovative entrepreneurship?**

Bankruptcy legislation may affect innovative entrepreneurship directly, through the perceived risk of being an entrepreneur, or indirectly, through the credit market. The two mechanisms may have opposite effects: pro-creditor legislation, for instance, generally increases the perception of risk and lowers the cost of credit.

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##### **Effect on entrepreneurship rates**

**Regimes that severely penalise “failed” entrepreneurs,** whether by forcing liquidation or limiting entrepreneurs’ ability to start new businesses in the future, are likely to **reduce their willingness to take risks**.

**Strict regimes may also discourage individuals from leaving salaried jobs to set up their own business,** especially when legislation contains severe personal liabilities, and limitations on civic and economic rights following a bankruptcy. In addition, entrepreneurs may suffer from psychological and social costs (such as stigma) when filing for bankruptcy (Shepherd, 2003).

**Therefore, strict (pro-creditor) bankruptcy legislation may have a direct negative effect on entrepreneurship.** To the extent that innovative ventures are riskier than traditional businesses, pro-creditor bankruptcy regimes may disproportionately discourage the former, thus shifting the economy toward a more conservative growth path.

**Recent evidence suggests that in countries with less forgiving bankruptcy regimes, entrepreneurship rates are lower** (Peng, Yamakawa and Lee, 2010; Armour and Cumming, 2008). The impact of stringent bankruptcy laws is also amplified by restrictions on access to limited liabilities, such as high minimum capital requirements for incorporation (Armour and Cumming, 2008). Furthermore, De Serres et al. (2006) show that **policies improving the efficiency of bankruptcy procedures are found to foster labour productivity and value-added growth**, notably in sectors most dependent on external finance.

**What is the evidence on bankruptcy regulations and innovative businesses?**

Comparing bankruptcy legislation across countries is not straightforward. Available indicators from the World Bank Doing Business reports are good proxies for the overall efficiency of the insolvency regulatory framework. One of these indicators is the “recovery rate in case of liquidation, foreclosure or reorganization”, expressed as a percentage of the cost the estate acting as collateral. The indicator shows a large variation across economies; high-income countries have higher recovery rates than developing or emerging economies (Figure 1).

The Doing Business indicators, however, cannot be interpreted as a direct measure of unfavorable conditions for entrepreneurs. Armour and Cumming (2008) develop five indices assessing the impact of personal bankruptcy legislation in fifteen countries from the 1990 to 2005. Figure 2 shows a snapshot of one of these indicators, which illustrate cross-country differences in the scope and range of legal disabilities.

# 6. Product market regulation

Product market regulation (PMR), the degree to which policies promote or inhibit competition can substantially affect innovative entrepreneurship by creating barriers to business entry and growth so as to reduce the optimal size of businesses. The evidence suggests that the level of product market restrictiveness varies substantially across countries. PMR can also affect the state of competition and access to foreign and domestic markets for innovative businesses. Several policy approaches, including the creation of one-stop shops for regulatory advice, can help address challenges.

**What is product market regulation?**

Product market regulation (PMR) is the degree to which policies promote or inhibit competition in areas of the product market where competition is viable. Formal regulations that affect the degree of product market competition include state control of business enterprises, legal and administrative barriers to entrepreneurship, and barriers to international trade and investment.

**How does product market regulation affect innovative businesses?**

Product market regulation influences the entry and exit processes of firms, i.e. the process of creative destruction, which is an important element of a country’s aggregate employment and productivity growth (OECD, 2009; Bartelsman et al., 2009; Bravo-Biosca, Criscuolo and Menon, 2012). Market selection leads to the exit of less productive firms and the success of the more productive. Young firms play a crucial role in these dynamics, which shape aggregate productivity growth (Link to section 132, State of Competition).

Experimentation, learning and selection underlie young firms’ dynamics, which are characterised by high rates of gross job creation and destruction. Young firms are more likely to exit and have high levels of job turnover, but those that survive grow more rapidly than mature firms. This “up or out” dynamics (Bartelsman, et al., 2009; OECD, 2009) has been found in several countries and suggests that firm creation and the dynamics of new firms are important for understanding and quantifying the processes underlying differences between countries in aggregate employment and productivity growth.

The extent to which creative destruction contributes to growth differs across countries, however, even when taking into account differences in the composition of economies. Existing evidence highlights large differences in entry rates (and size of firms at entry) but also in the post-entry performance of young firms. Such differences reflect the role of regulatory and institutional frameworks and market structure, which will affect reallocation dynamics in various ways. For example, high barriers to entry, subsidies to incumbents or policy measures that can delay the exit of failing firms may stifle competition and slow the reallocation process relative to an economy without barriers (Bartelsman et al., 2009). Local regulations, agreements between incumbent market players (suppliers or distributors), limited access to local input resources, bankruptcy laws and labour market regulations also contribute to reducing the rate of entry of new firms (i.e. entrepreneurship). These barriers affect competition and entrepreneurial activities in a given sector and hence have a strong influence on industrial renewal and innovation (Aghion et al., 2005).  
OECD analysis of these PMR indicators finds a correlation between pro-competitive policies and growth (Wölfl, et al., 2010), which is mainly driven by measures that lower barriers to entrepreneurship and competition, whose link with growth is found to be robust across different empirical for whole sets of countries. An improvement in the barriers to entrepreneurship indicator by ½ index point, corresponding roughly to the difference between the value of the barriers to entrepreneurship indicator of countries such as Brazil, China, India, Indonesia, South Africa and that of the average OECD country, would translate into an approximately 0.4% higher average annual rate of GDP per capita growth over the subsequent decade.

**What are specific impacts of product market regulation on innovative entrepreneurship?**

* **PMR and administrative burdens on starting a business are costly, both in terms of monetary loss and lost opportunities for the entrepreneur**. **They may lower the entry rates of innovative entrepreneurs.** Studies show that both the monetary costs incurred by the entrepreneur to open up a business (Fisman and Sarria-Allende, 2009; Klapper, Laeven and Rajan, 2006) and the time delay caused by entry regulations (Ciccone and Papaioannou, 2007) are associated with lower entry rates. There is a negative correlation between the number of days that it takes to open a business and the entry rate of businesses, measured by the number of newly registered limited liability corporations divided by the total number of registered corporations (Figure 1). Evidence from single country and cross-country industry level studies shows that employment and business creation are lower in highly regulated countries (Djankov, Lopez-de-Silanes and Shleifer, 2002; Bertrand and Kramarz, 2002). On the other hand, countries where the legal status to operate firms can be obtained more cheaply and quickly see significantly more entry in industries that should naturally have more entry, i.e. those that experience expansionary global demand and technology shifts (Klapper, Laeve and Rajan, 2006; Ciccone and Papaioannou, 2007).

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* **Cumbersome PMR also have an impact on the average size of entrants and the growth of young firms**: they cause new entrants to be larger and incumbent firms in high-growth industries to grow more slowly (Klapper et al., 2006). In developing countries, official licensing procedures are an important constraint on entrepreneurial activity (e.g. De Soto, 1990). In fact, recent evidence from developing countries shows that regulatory reforms and the introduction of electronic business registers that reduce the cost and time of business registration are accompanied by a switch from the informal to the formal economy, which enables businesses to avoid bribes and fines and to have easier access to credit (Mullainathan and Schnabl, 2009; Klapper, Amit and Guillen, 2009).

**What is the evidence on product market regulation and innovative businesses?**

**The strictness of PMR varies widely across countries and sectors** (Figure 2; OECD, 2012). The degree of variation is even larger when the different sub-components of the PMR (e.g. by sector or aspect of regulation) are examined individually (OECD, 2012).

The **economic effects of PMR** are heterogeneous and complex. Inappropriate product market regulations can impose substantial costs and inefficiencies on firms, sectors and the economy as a whole. These costs can arise in several ways. First, firms can have less incentive to economise on resources. This can take the form of over-investment in capital or employing excess labour, or of inefficient internal organisation of production. Second, a lack of competition can lead to higher profits and/or wages than would be the case under competitive conditions. Third, regulations on service and product type can prevent firms from taking advantage of economies of scale. Finally, there is increasing evidence that lack of competition tends to provide little incentive for firms to pursue technological innovations in production, to create new goods and services, and to adapt the quality and mix of goods and services to changing consumer needs. In sum, the direct results of inappropriate regulation in a particular sector are likely to be higher costs, higher prices, misallocation of resources, a lack of product innovation and poor service quality.

Since the end of the 1990s, the OECD has been constructing a system of indicators, termed PMR indicators, to document the state of product market regulation in OECD countries (see Wölfl, et al., 2010). The basic goal of PMR indicators is to turn qualitative information, as concerns laws and regulations that may affect competition, into quantitative indicators. They aim at measuring regulations that are potentially anti-competitive in areas where competition is viable and focus on policy settings instead of market outcomes.

The economy-wide PMR indicator covers both general and sector regulatory issues in the domains of “state control”, “barriers to entrepreneurship” and “barriers to trade and investment” (Wölfl et al., 2009). These indicators are built in a bottom-up approach that makes it possible to trace the indicator scores back to individual policies. The qualitative information on which the indicators are based is mainly derived from answers to a questionnaire by national administrations, the results of which are subject to peer review, thereby guaranteeing a high level of comparability across countries. This information is coded by assigning a numerical value to each of the possible responses to a given question. The coded information is normalised over a scale of zero to six, reflecting increasing restrictiveness of regulatory provisions for competition and aggregated into low-level indicators at the bottom of the indicator tree. At each step up the indicator tree, higher-level (composite) indicators are calculated as weighted averages of their lower-level indicators, using equal weights for aggregation.

In 2008, the indicator system was substantially revised to preserve its policy relevance in light of evolving regulatory and competition issues in OECD countries. The "integrated PMR indicator", on which comparisons between accession countries and OECD countries are based, integrates previously separate sectoral indicators and thus embodies to a much larger extent than in the past information on sector-specific regulation. This enables and facilitates the analysis of changes in individual (economy-wide or sectoral) regulatory policies in OECD countries and their impact on the overall regulatory stance.

**What other topics relate to product market regulation and innovative businesses?**

PMR, with regard to the **regulatory framework for innovative entrepreneurship** , can create restrictions on entry and growth. PMR can also affect the **state of competition** and **access to foreign and domestic markets** for innovative companies.

**What policies relate to product market regulation and innovative businesses?**

Product market regulation can be directly affected by policy. Governments can reduce, reform or abolish regulations, which enhances competition, in particular when combined with other measures to enhance competition in an industry, such as measures to enhance access to networks or a strong competition stance from the competition authority.

Specific policies include the following:

* The creation of a task force for administrative simplification and deregulation, enabling dialogue between the public and private sectors.
* For necessary regulations, the creation of public information campaigns (and telephone helplines and support) in order to ensure firms have time to plan for regulatory changes and that they understand the purpose behind specific regulations.

##### **What policies related to product market regulation could specifically support innovative entrepreneurship?**

Within the context of innovative entrepreneurship, policy could:

* Institute regulatory impact analysis within the process of creating new laws and regulations, allowing regulators and legislators to understand the effects of new regulations on smaller enterprises and innovative entrepreneurs.
* Create one-stop shops for regulatory advice and registration so entrepreneurs can pass through administrative regulations with a minimum of time and travel, and with all available sources of advice and assistance.

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