Destination:
Growth and innovation

The impact of innovation on the economic and financial performance of SMEs and on their growth

Executive summary

Introduction
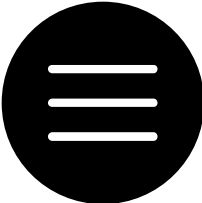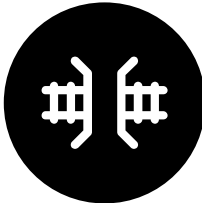
The aim of this study is to present a set of potential measures that can be taken to stimulate SME growth and innovation: the terms "sample total", "top performers", "mid-cap" and "missing middle", and "graduation" recur, so a clear understanding of these concepts is essential for an understanding of the analyses and conclusions contained in the report.

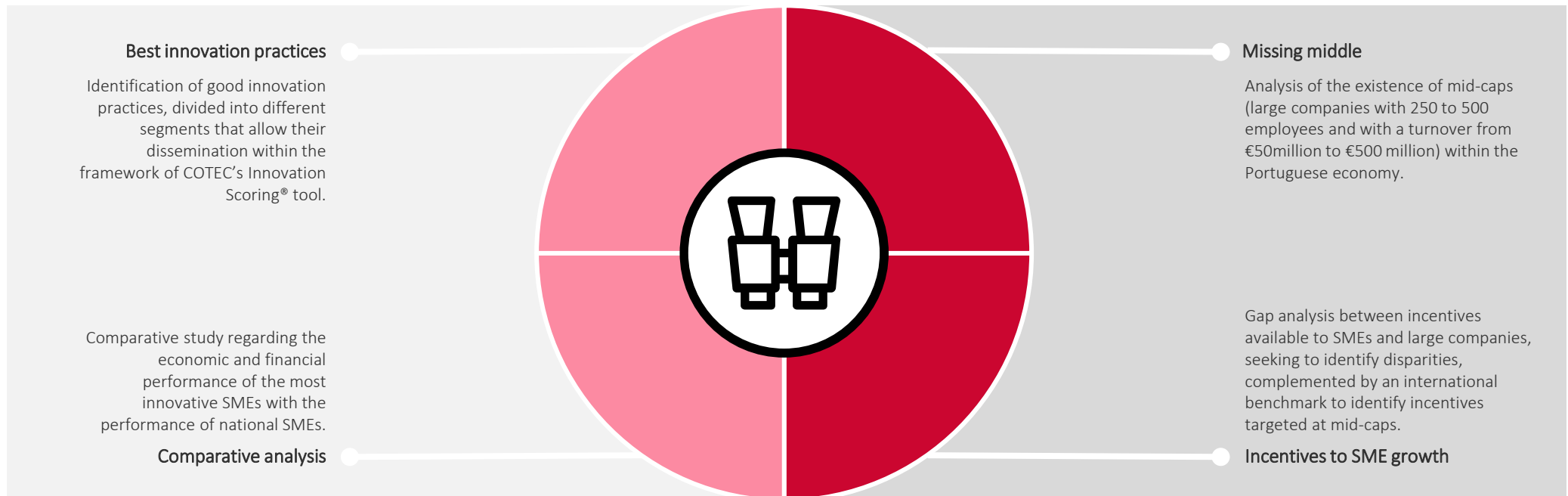**Basic concepts of the "Destination: Growth and Innovation" study**

Sample total	Top performers	Adjusted mid-cap	Missing middle	Graduation
• The "sample total" includes a set of 203 companies with Innovation Scoring® (a tool provided by COTEC for assessing innovation practices) results higher than 400 points, with the most recent results obtained between 2013 and 2015. This segment is also referred to in the study as the "sample SMEs".	• The top performers are the 50 companies in the top quartile of the overall sample, based on the audited Innovation Scoring® results. The reader may find throughout this study that this group of companies has been given different names, such as: "top quartile of the sample", "most-innovative companies" and "most innovative SMEs".	• These are companies with 250-500 employees and a turnover from €50 million to €500 million. This definition assumes an adjustment to the EMCE definition (still under analysis) in order to support the projections made in Chapter 5, as described in the methodological note.	• This is the designation the project team gave to the small presence of mid-caps in the total of national companies and large companies. Representing the "empty space" for businesses at the first stage of large company size.	• The process by which a medium-sized company becomes a mid-cap. That is to say, the transformation from a medium-sized company, or a group of medium-sized companies, to the first-stage as a large company.

There were four components that allowed us to leverage the findings of this report: "Destination: Growth and innovation" which brings together the detailed knowledge of a sample of innovative companies, their characteristic and economic-financial performance, as well as the growth constraints on medium-sized companies with the potential to occupy an empty space (henceforth missing middle) within a first-stage as a large company (mid-caps).

Components of the "Destination: Growth and Innovation" study

The performance of innovative SMEs   **SME growth: Challenges and constraints**

Best innovation practices   Missing middle

Identification of good innovation practices, divided into different segments that allow their dissemination within the framework of COTEC's Innovation Scoring® tool.

Analysis of the existence of mid-caps (large companies with 250 to 500 employees and with a turnover from €50million to €500 million) within the Portuguese economy.

Comparative study regarding the economic and financial performance of the most innovative SMEs with the performance of national SMEs.

Gap analysis between incentives available to SMEs and large companies, seeking to identify disparities, complemented by an international benchmark to identify incentives targeted at mid-caps.

Comparative analysis   Incentives to SME growth

In order to compare the economic and financial performance of the sample's innovative companies, we (1) identified and characterised the "most-innovative companies" and (2) carried out comparative analyses with national SMEs.

The performance of innovative SMEs

This study focused on the comparison of the SMEs' performance, based on the composition of the sample in question.

1 Compare the economic and financial performance of SME top performers within the framework of their innovation practices with those presented by the national SMEs.

2 Identify whether there are significant disparities between the economic and financial ratios of the top performers in the sample and the values presented by the sample of companies responding to the Innovation Scoring®.

+ Compare the economic and financial performance of the SME top performers within the framework of their innovation practices with SMEs regarding the more representative sectors of which they are part. This analysis is not part of this executive summary.

The Innovation Scoring® reports for these companies were analysed and reinforced by a questionnaire sent to a wide range of companies as a means of identifying best practice within the framework of innovation management.

COMPILATION OF BEST PRACTICES

We also developed a study with the following aims: (1) to analyse the difference between incentives available to SMEs and large companies; (2) to assess the representativeness of mid-caps within the Portuguese business landscape; and (3) to identify, via benchmarking, the incentives available in other countries to promote business growth and innovation.

SME growth: Challenges and constraints

1 — Gather information about public incentives for business growth and innovation that are available to micro, SMEs, mid-caps and large companies, focusing on the more important financial and fiscal incentives within the Portuguese business landscape.

Identify whether the inequity in the distribution of incentives to SMEs and large companies contributes to the predominance of SMEs, and use the questionnaire to identify other constraints regarding the growth of this companies' business.

2 — Breakdown of the Portuguese business landscape (by company size – micro, SME, mid-caps and large companies), in order to assess the representativeness of mid-caps.

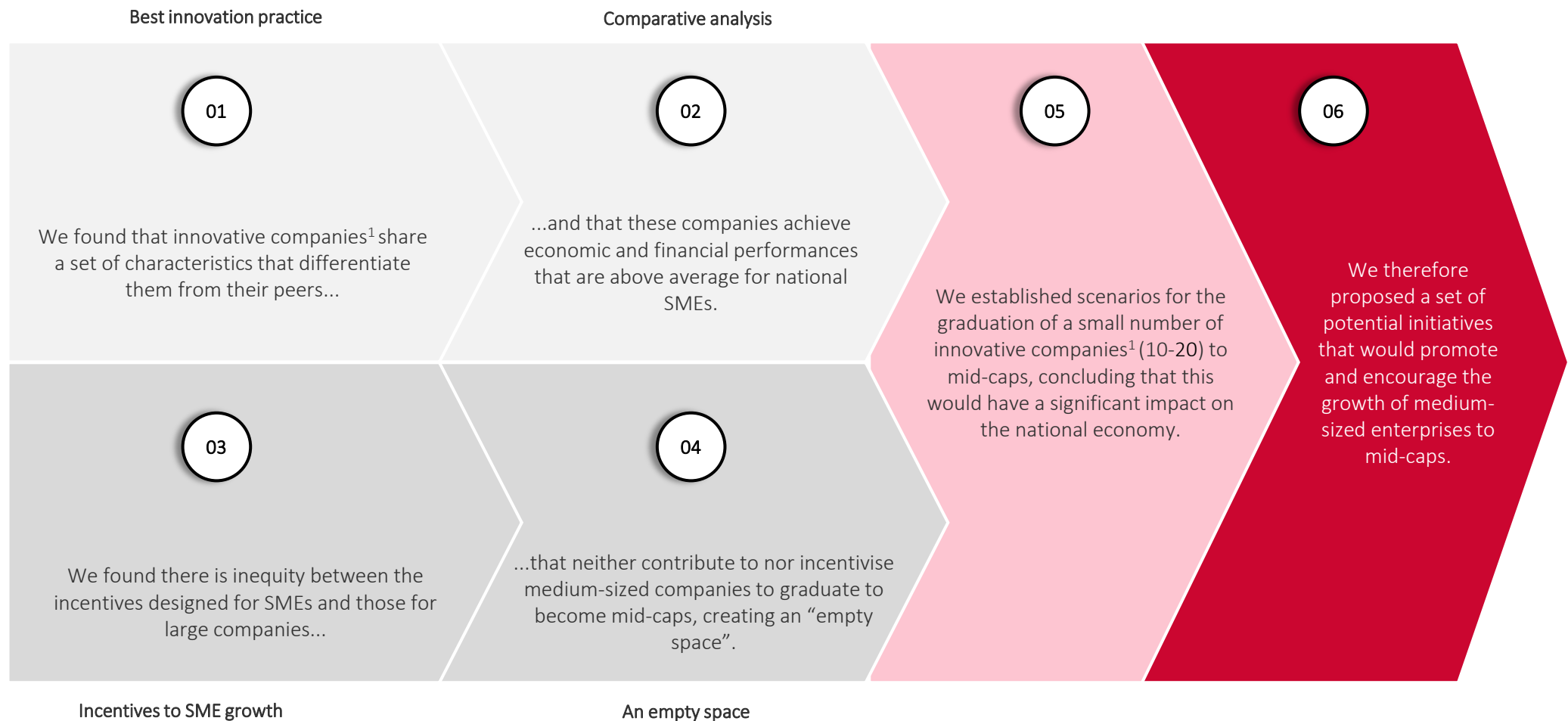Identifying potential solutions for SME growth and innovation.

3 — International benchmarks (considering the funds made available by the European Commission and the incentives available in Germany, Spain, Poland, Norway and Finland) of public incentives available to mid-caps, with the goal of identifying differentiated measures that could provide national SMEs with incentives to innovate and grow.

Despite following parallel approaches, the components presented allowed us to leverage the projections and recommendations of this study: what is the impact of the graduation of medium-sized enterprises to mid-caps and what potential measures can be taken to stimulate SME growth and innovation?

Structure of conclusions

Best innovation practice

Comparative analysis

01

We found that innovative companies[1] share a set of characteristics that differentiate them from their peers...

02

...and that these companies achieve economic and financial performances that are above average for national SMEs.

05

We established scenarios for the graduation of a small number of innovative companies[1] (10-20) to mid-caps, concluding that this would have a significant impact on the national economy.

06

We therefore proposed a set of potential initiatives that would promote and encourage the growth of medium-sized enterprises to mid-caps.

03

We found there is inequity between the incentives designed for SMEs and those for large companies...

04

...that neither contribute to nor incentivise medium-sized companies to graduate to become mid-caps, creating an "empty space".

Incentives to SME growth

An empty space

[1] Based on 203 companies with audited Innovation Scoring® scores of more than 400 points.

Findings

01

The most innovative SMEs share a set of characteristics differentiating them from their peers.

The analysis of the Innovation Scoring® self-diagnosis reports shows that top performers share a set of characteristics that can be split into the four segments on the right:

The key characteristics of the most innovative SMEs

They have a clear, sustained and compelling **innovation strategy**

They analyse their ecosystem, integrating the results of this analysis into the definition of their strategy.

They plan and execute the defined innovation strategy

They promote a style and culture of leadership that empowers innovation

Their organisation is configured for continuous innovation

They present governance models and structures dedicated to innovation

They align their human capital policies with their innovation goals

They have the necessary skills to drive projects forward and implement RDI results

They **define processes to operationalise** their strategy

They have mechanisms and processes for the generation and recurrent selection of ideas

They demonstrate individual and holistic RDI project management capability

They protect and appreciate the results of their RDI activities

They develop transversal activities as a way to **enable innovation**

They have developed cooperation routines with external partners in their RDI activities

They plan for and have diversified financing sources necessary for their RDI projects

They present routines for knowledge management and continuous improvement

The most innovative SMEs outperform average Portuguese SMEs, regarding their economic and financial performances.

With an exception made for the turnover per employee, the companies in the top quartile of the sample have performed better in economic and financial terms than the other companies in the survey throughout the period of this analysis.

Difference between the indicators for the top performers and national SMEs, 2015
(average per company)

Turnover	Turnover per employee	Annual turnover growth rate	Turnover CAGR (2011-2015)	EBITDA
3.7x higher	5% lower	10p.p. higher	10.8p.p. higher	5.3x higher

EBITDA per employee	EBITDA margin	EBIT	EBIT per employee	EBIT margin
1.3x higher	1.4x higher	5.4x higher	1.4x higher	1.5x higher

Net profit	Net profit per employee	Net profitability of sales	Exports	Gross Value Added (GVA)
7.8x higher	2x. higher	2.1x higher	2.9x higher	5.9x higher

GVA per sales	GVA per employee	Average staff costs per employee	Number of employees	Financial autonomy
1.6x higher	1.5x higher	1.6x higher	3.9x higher	1.3x higher

Debt	Return on capital	Return on assets
16% lower	1.8x higher	2.4x higher

The sample SMEs have economic and financial performances that are above those of Portuguese SMEs

With an exception for the turnover per employee, the companies in the Innovation Scoring® sample have performed better in economic-financial terms than the national SMEs throughout the period in analysis.

Difference between the indicators for the companies in the sample and national SMEs, 2015
(average per company)

Turnover	Turnover per employee	Annual turnover growth rate	Turnover CAGR (2011-2015)	EBITDA
2.2x higher	8% lower	8.8p.p. higher	7p.p. higher	2.9x higher

EBITDA per employee	EBITDA margin	EBIT	EBIT per employee	EBIT margin
1.2x higher	1.3x higher	2.9x higher	1.2x higher	1.3x higher

Net profit	Net profit per employee	Net profitability of sales	Exports	Gross Value Added (GVA)
3.7x higher	1.5x higher	1.7x higher	2.3x higher	3.2x higher

GVA per sales	GVA per employee	Average staff costs per employee	Number of employees	Financial autonomy
1.4x higher	1.3x higher	1.4x higher	2.4x higher	1.3x higher

Debt	Return on capital	Return on assets
15% lower	1.5x higher	1.9x higher

03

The fewer incentives available to large companies than to SMEs do not encourage the growth of such segment.

-7

We see there is a disparity between the incentives available to SMEs and to large companies, including mid-caps: of the 18 types of projects covered by incentives to SMEs, only nine are open to large enterprises. We believe this is one of the factors blocking the growth of SMEs, since all companies with more than 250 employees or a turnover of more than €50 million lose access to these funds.*

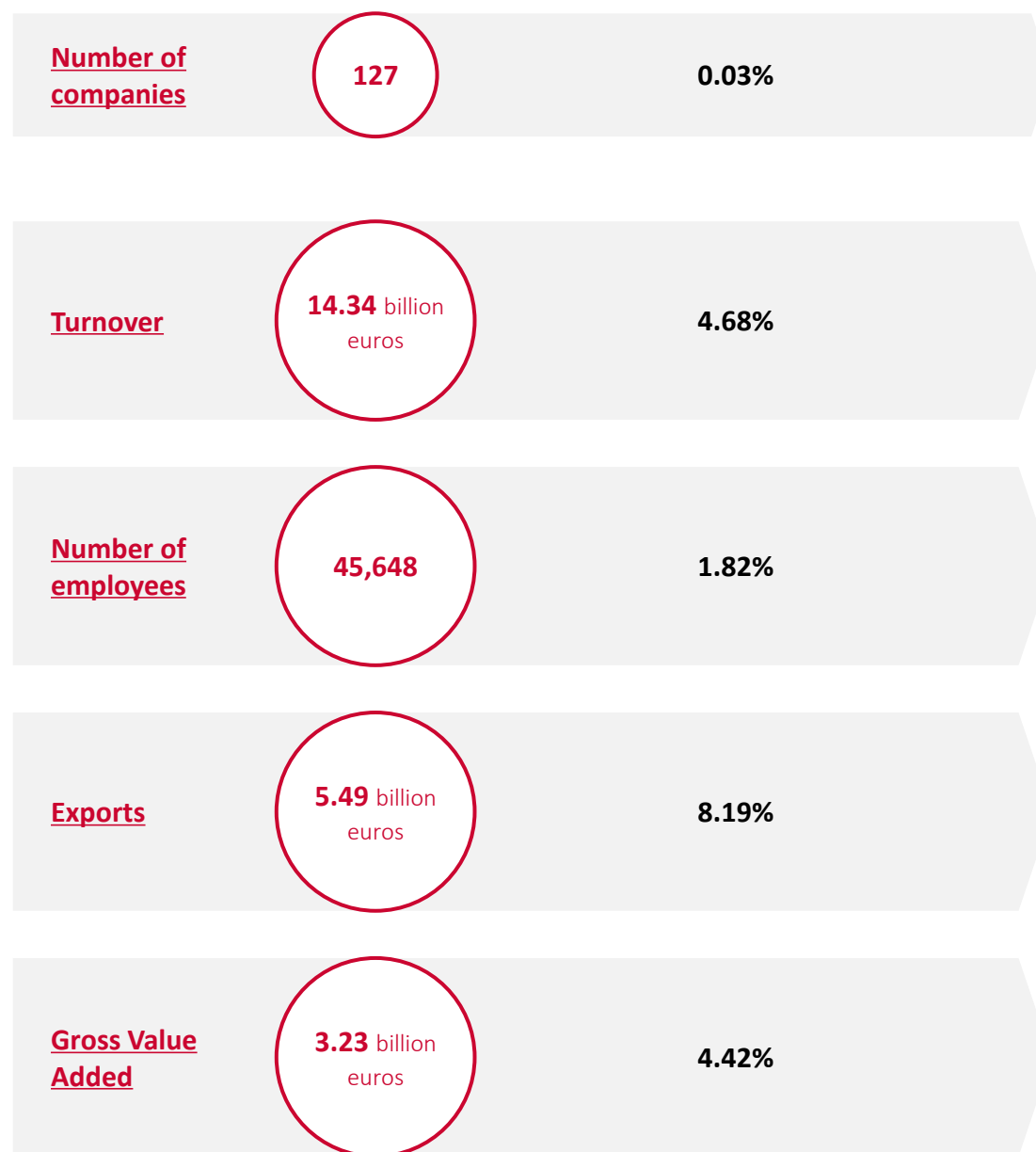|			SME	Large companies and mid-caps
Financial	Research & Technological Development (R&TD)	Company R&D	✓	✓
		Mobilisers	✓	✓
		Demonstrators	✓	✓
		R&D centre	✓	✓
		Protection of Industrial Property Rights	✓	✓
		R&D internationalisation	✓	✓
		R&D voucher	✓	✗
	EEI	SME Productive Innovation	✓	✗
		Non-SME Productive Innovation	✗	✓
		Qualified and Creative Entrepreneurship	✓	✗
		Voucher for Entrepreneurship	✓	✗
	QI SME	SME Skills	✓	✗
		SME Internationalisation	✓	✗
		Voucher for Internationalisation	✓	✗
		Voucher for Innovation	✓	✗
Fiscal		SIFIDE II	✓	✓
		RFAI	✓	✓
		BFCIP	✓	✓
		DLRR	✓	✗

-7

-1

04

The inequity in the distribution of incentives provides a partial explanation for the lack of companies (missing middle) transitioning from medium-sized enterprise to the first stage of large company (mid-cap).

Despite the small number of mid-caps with the required number of employees and turnover (only 0.03% of all companies in the country), in terms of turnover and number of employees, in 2015 these companies accounted for 4.68%, 1.82%, 8.19% and 4.42% of national turnover, number of employees, exports and gross value added, respectively.

Representativeness of the mid-cap adjusted subgroup in 2015

(companies with turnover of €50-€500 million and 250-500 employees)

Proportion of the national total (%)

Number of companies	127	**0.03%**
Turnover	14.34 billion euros	**4.68%**
Number of employees	45,648	**1.82%**
Exports	5.49 billion euros	**8.19%**
Gross Value Added	3.23 billion euros	**4.42%**

Impact of the graduation of innovative SMEs to mid-caps

We have designed growth and graduation scenarios based on the sample of innovative SMEs.

In order to test the impact of SME graduation to mid-cap, we considered the 20 innovative SMEs with the largest turnover (chapters 1 and 2). We developed scenarios in which the growth of these companies by 2020 reaches (a) €50 million and 250 employees (the lower limit for becoming a mid-cap), with (b) average turnovers (€55.22 million) and employees (354) of the Portuguese mid-cap lower quartile.

SME Sample
companies for which growth was tested

Three scenarios

20 Innovation Scoring® sample companies with higher turnovers in 2015.

03 different segments (top 10, top 15 and top 20), representing the 10, 15 and 20 companies with the highest turnover in the sample in 2015.[1]

From these segments we calculated the required growth of turnover and average number of employees, as well as the impact of the graduation of the respective SMEs to mid-caps by 2020.

Target results
projected value of turnover and number of employees by 2020

Two hypotheses per scenario

Hypothesis a): growth, by 2020, having as target values those required for becoming a large company (by turnover or number of employees).

Hypothesis b): growth, by 2020, having target values in terms of turnover or average number of employees of companies in the lower quartile in the mid-cap sample in 2015.

50 million euros

250 employees

55.22 million euros

354 employees

Impact on exports and GVA
projection of the value of exports and GVA based on turnover

- Exports and GVA were also chosen as important indicators for calculating impact.

  The trend of these values was defined according to the extrapolation of the CAGR from the weight of both indicators in the turnover.

- For example, if the proportion of exports in turnover had increased by 4% per year on average between 2011 and 2015, then this would be the factor used to calculate the proportion of exports in turnover in each year during the period 2016-2020 . Based on this and on the value of calculated turnover, we project the value of exports.

(1) Not included is the sample SME that during the period of study moved from being a medium-sized enterprise to a large company.

The transition of a small number of medium-sized companies to mid-caps will have a significant impact on the national economy.

The graduation of companies represented in the different scenarios would have a significant impact on the national economy. In scenarios 1 (top 10) and 2 (top 15), in order to achieve the minimum standard to become mid-caps, between 2016 and 2020 this set of companies need to grow at a slower pace than between 2011 and 2015. Scenario 3 demands that turnover grows at a slightly faster rate (by 1.21 pp/year) than was the case between 2011 and 2015; however, the pace of growth in the number of employees required is lower than that recorded during the same period.

Impact of the graduation of innovative SMEs to mid-cap[2]

Assuming that in 2020 they achieve the minimum standard to graduate to mid-cap

Impact = (average indicator value in 2020 – average indicator value in 2015) x number of companies studied

SCENARIO 1
The **10 companies** in the sample with the highest turnover achieve the target values.

	Start value average value in 2015	Impact	Target value Average value in 2020
Turnover (€ million)	37.13	+ 128.69	50
Number of employees	168	+ 818	250
Exports (€ million)	20.64	+ 198.66	40.51
GVA (€ million)	6.44	+ 22.41	8.69

SCENARIO 2
The **15 companies** in the sample with the highest turnover achieve the target values.

	Start value average value in 2015	Impact	Target value Average value in 2020
Turnover (€ million)	32.82	+ 257.70	50
Number of employees	174	+ 1,135	250
Exports (€ million)	17.16	+ 305.15	37.50
GVA (€ million)	7.44	+ 72.21	12.25

SCENARIO 3
The **20 companies** in the sample with the highest turnover achieve the target values.

	Start value average value in 2015	Impact	Target value Average value in 2020
Turnover (€ million)	29.15	+ 417.02	50
Number of employees	177	+ 1,465	250
Exports (€ million)	15.82	+ 412.04	36.42
GVA (€ million)	7.41	+ 136.49	14.24

(2) The scenarios were projected from average values, which does not represent the individual effort required for each company to graduate.

We estimate the impact of the growth of a larger set of companies on the national GVA (aggregated to 2020).

The estimated impact on national GVA (variation aggregated to 2020) as a result of the growth of non-financial companies similar to those in the previous sample ranged from 0.5% to 2.8% of the national total in 2015, depending on the scenario. The non-financial companies included in this calculation are those with a turnover and number of employees within the values considered in the respective sample (top 10, top 15, top 20).

Estimated impact on accumulated national GVA by 2020

Assuming that in 2020 they achieve the minimum standard to graduate to mid-cap

SCENARIO 1

	Sample	Remaining identified companies[2]
Number of companies	10	369
Average turnover in 2015	€37.13m	€36.06m
Average GVA in 2015	€6.44m	€5.62m (15.6% of turnover)
Projected average turnover in 2020	€50.00m	€50.00m
Projected average GVA in 2020	€8.69m	€7.80m
Impact[3]	**€22.41m**	**€802.66m**

GVA growth (accumulated between 2016 and 2020) generated by companies[4]   **+€825.07m | +0.5%**

SCENARIO 2

	Sample	Remaining identified companies[2]
Number of companies	15	583
Average turnover in 2015	€32.82m	€31.79m
Average GVA in 2015	€7.44m	€5.37m (16.9% of turnover)
Projected average turnover in 2020	€50.00m	€50.00m
Projected average GVA in 2020	€12.25m	€8.45m
Impact[3]	**€72.21m**	**€1,793.81m**

GVA growth (accumulated between 2016 and 2020) generated by companies[4]   **+€1,866.03m | +1.2%**

SCENARIO 3

	Sample	Remaining identified companies[2]
Number of companies	20	972
Average turnover in 2015	€29.15m	€26.49m
Average GVA in 2015	€7.41m	€4.87m (18.4% of turnover)
Projected average turnover in 2020	€50.00m	€50.00m
Projected average GVA in 2020	€14.24m	€9.20m
Impact[3]	**€136.49m**	**€4,206.61m**

GVA growth (accumulated between 2016 and 2020) generated by companies[4]   **+€4,343.10m | +2.8%**

1 The national GVA considered was the national total in 2015 (156.61 billion euros), in the rest of the study the GVA used for non-financial companies is obtained from the Bank of Portugal's Central Balance Sheet Database;

2 The sample of identified companies is based on information gathered from Informa D&B, which applied the minimum criteria for turnover and number of employees to the national total for companies;

3 Impact = (average indicator value in 2020 – average indicator value in 2015) x number of companies studied

4 GVA growth = [(GVA 2015 + 2020 impact) – GVA 2015] / GVA 2015

Recommendations

06 1/5

A set of constraints to growth and innovation that go beyond the inequity of the distribution of incentives was identified.

Our analysis identified a set of constraints to growth and innovation that can be generically divided into three segments: (1) difficulties in competing and innovating at scale, (2) skills and abilities to manage innovation, and (3) financial ability to execute RDI projects. We would like to address these with real initiatives.

Competing and innovating at scale

Connecting companies

Promoting collaboration networks and/or the formal merger of companies as a means of establishing competitive scale, as well as improving the management of innovation within companies in the same sector and/or cluster.

Developing innovation skills

Empower people

Increase the diversity and specialisation of technical and organisational skills within companies with a view to improving their ability to innovate.

Identifying alternative sources of finance

Raising finance

Diversify the sources of finance and empower companies to use these instruments. At the same time, increase the scope of access to community funds.
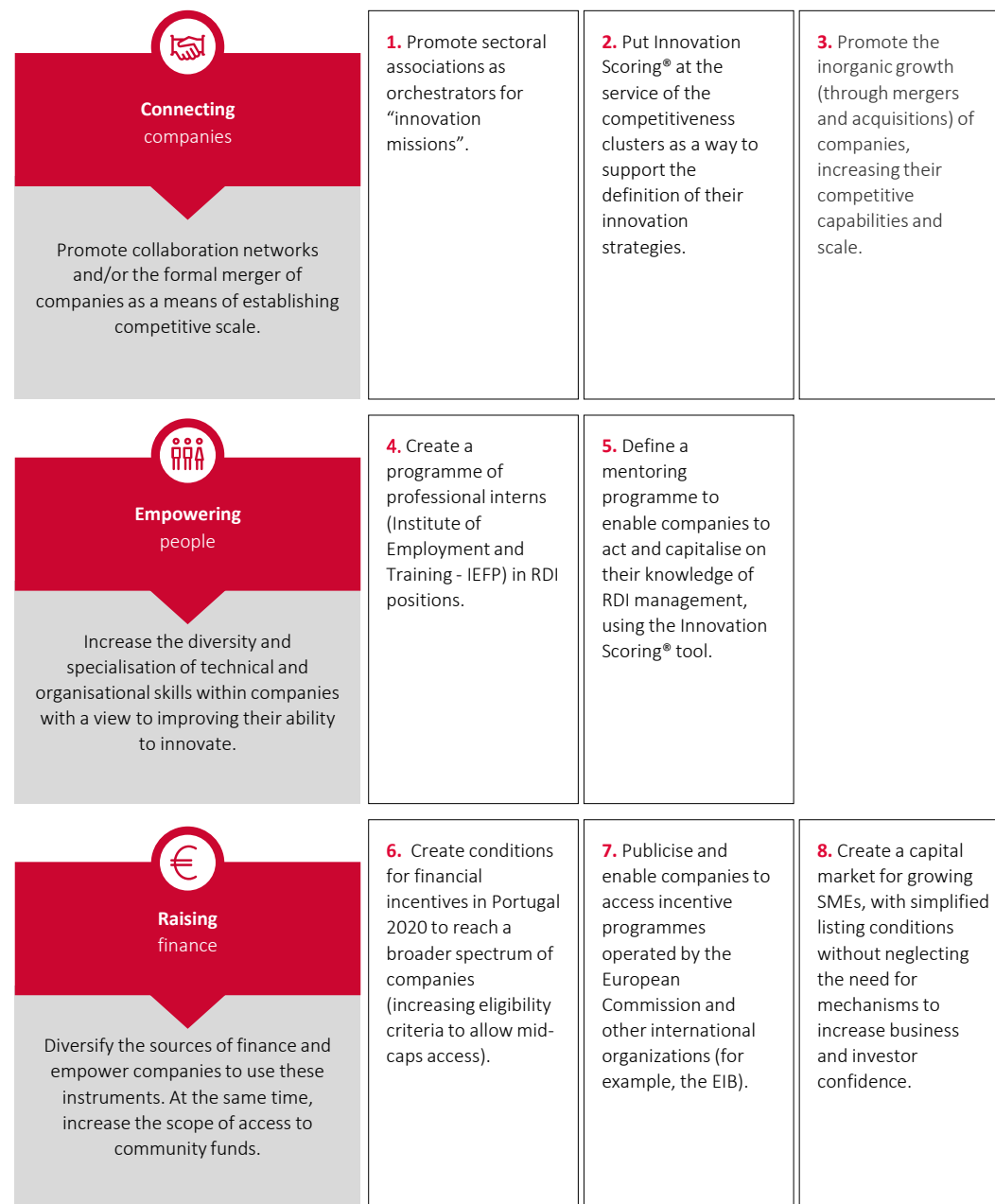
We suggest a set of measures to encourage and prepare growth and innovation within national medium-sized companies.

To promote growth and innovation within the Portuguese business landscape, we identified eight promotional measures for (1) formal or informal collaboration and coordination between companies and other economic agents, (2) the capacity building of human resources and (3) access to new and different sources of finance, encouraging the capitalisation of companies.

Connecting
companies

Promote collaboration networks and/or the formal merger of companies as a means of establishing competitive scale.

1. Promote sectoral associations as orchestrators for "innovation missions".

2. Put Innovation Scoring® at the service of the competitiveness clusters as a way to support the definition of their innovation strategies.

3. Promote the inorganic growth (through mergers and acquisitions) of companies, increasing their competitive capabilities and scale.

Empowering
people

Increase the diversity and specialisation of technical and organisational skills within companies with a view to improving their ability to innovate.

4. Create a programme of professional interns (Institute of Employment and Training - IEFP) in RDI positions.

5. Define a mentoring programme to enable companies to act and capitalise on their knowledge of RDI management, using the Innovation Scoring® tool.

Raising
finance

Diversify the sources of finance and empower companies to use these instruments. At the same time, increase the scope of access to community funds.

6. Create conditions for financial incentives in Portugal 2020 to reach a broader spectrum of companies (increasing eligibility criteria to allow mid-caps access).

7. Publicise and enable companies to access incentive programmes operated by the European Commission and other international organizations (for example, the EIB).

8. Create a capital market for growing SMEs, with simplified listing conditions without neglecting the need for mechanisms to increase business and investor confidence.

Promote collaboration networks and/or the formal merger of companies as a response to the challenge of competing and innovating at scale.

To do this we propose to (1) empower sectoral associations as orchestrators of "innovation missions", (2) place Innovation Scoring® at the service of the competitive clusters as a way of supporting the definition of their innovation strategy and (3) promote the inorganic growth (through mergers and acquisitions) of companies as a way of improving their competitive capabilities and scale.

Connecting companies

Promote collaboration networks and/or the formal merger of companies as a means of establishing competitive scale.

1. Promote sectoral associations as orchestrators of "innovation missions".

Promote sectoral dynamisation activities, with sectoral business associations as the central and aggregating agents. "Innovation missions" will seek to promote mobilising projects (within the scope of projects included in the COMPETE 2020 framework, namely with the R&D System of Incentives) which seek to respond to the challenges facing the sector, the results of which should have the potential (1) to be applied more broadly and (2) to promote the competitiveness and internationalisation of the results and its involved parties (incumbents, SMEs, technology interface centres and start-ups).

2. Put Innovation Scoring® at the service of the competitiveness clusters as a way to support the definition of their innovation strategies.

Put Innovation Scoring® at the service of the competitiveness clusters as a tool for assessing their capacity for innovation and for the identification of gaps in their abilities. The application of studies of this nature can help support the definition of innovation strategies, enabling an increase in the innovation performance of the different actors and enhance the overall capacity of the value chain.

3. Promote the inorganic growth (through mergers and acquisitions) of companies, increasing their competitive capabilities and scale.

Increase the competitive capacity and scale of national companies by promoting their inorganic growth through mergers and acquisitions, (1) facilitating the transfer of ownership of companies and (2) enhancing the measures already taken to refocus the tax system as applied to SMEs, encouraging reinvestment and recapitalisation to strengthen their capitalisation and encourage mergers and upscaling. This measure can complement those outlined in the "Capitalise Programme" (Cabinet Resolution 42/2016).

Increase the diversity and specialisation of technical RDI skills within companies, responding to the challenge of innovation skills development.

To achieve this it is proposed to (4) create a programme of professional interns (IEFP) in RDI positions and (5) design a mentoring programme that will enable them to act and capitalise on their knowledge of RDI management by using the Innovation Scoring® tool.

Empowering people

Increase the diversity and specialisation of technical and organisational skills within companies with a view to improving their ability to innovate.

4. Create a programme of professional interns (IEFP) in RDI positions.

Implement a programme of 12-month RDI paid internships (similar to the IEFP Work Placement scheme), that will offer a tax incentive for the internalisation of the resource within the structure of the company in which the internship takes place. This measure will contribute to (1) improve the transition to the job market and (2) encourage the creation or increase in the number of RDI positions within national companies.

5. Define a mentoring programme to enable companies to act and capitalise on their knowledge of RDI management, using the Innovation Scoring® tool.

Create a network of qualified consultants who can share and apply their RDI management knowledge, through the usage of the Innovation Scoring® tool, effectively integrating the contents of this tool. This service must be optional and paid as an individual contract.

Diversify funding sources as a response to the need to identify alternative sources of finance

Here we recommend(6) the creation of conditions to ensure the financial incentives in "Portugal 2020" cover a broader spectrum of companies, (7) publicise and enable companies to access incentive programmes operated by the European Commission and other international organizations and (8) create a capital market for SMEs that are expanding, with simplified listing conditions.

Raising finance

Diversify the sources of finance and empower companies to use these instruments. At the same time, increase the scope of access to community funds.

6. Create conditions for financial incentives in Portugal 2020 to reach a broader spectrum of companies (increasing eligibility criteria to allow mid-caps access).

Begin negotiations with the European Commission to expand the range of incentives available to SMEs and providing mid-caps (or some of them) with the opportunity to access this funding. Expanding the incentives to mid-caps can be complete or partial, based on the eligibility criteria that are currently only available to SMEs. Additional criteria may also be defined, such as a specific mid-cap subgroup (based on turnover) or eligibility for the first years of operation following the transition from a medium-sized company to a large company.
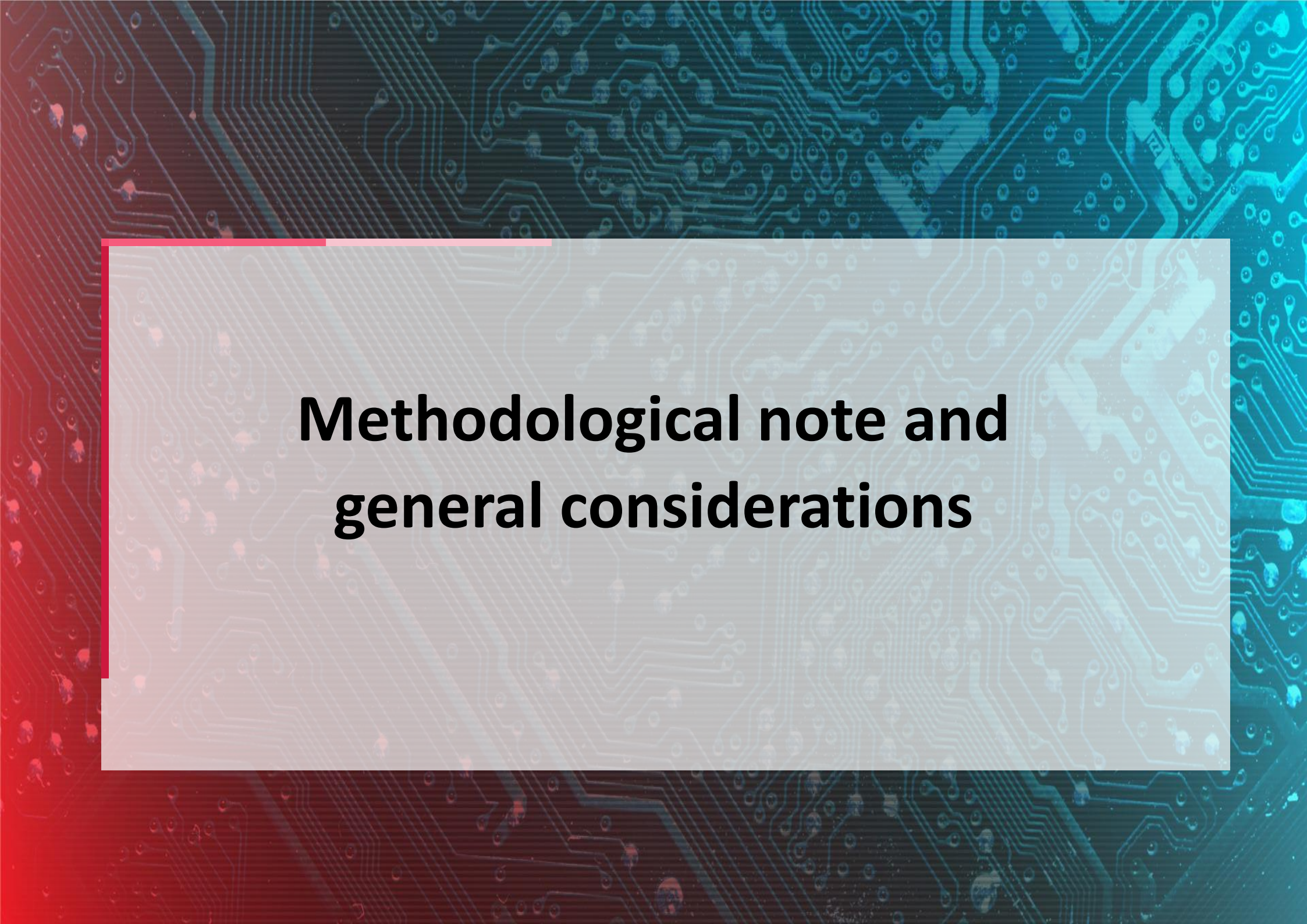
7. Publicise and enable companies to access incentive programmes operated by the European Commission and other international bodies (for example, the EIB).

Publicise and enable companies to access incentive programmes operated by the European Commission and other international bodies (for example, the EIB), particularly those that can be accessed by mid-caps.

8. Create a capital market for growing SMEs, with simplified listing conditions without neglecting the need for mechanisms to increase business and investor confidence.

Create a multilateral public capital market (alongside those that exist) that will allow companies that are emerging or expanding to raise capital for the development and commercialisation of their goods and/or services.

The market will respond to the needs of SMEs that are expanding and, eventually, to start-ups, by promoting the use of two distinct financial instruments: issuing of shares to capitalise the business, and bonds for financing it.

Access to finance can also be made with relatively small sums or, alternatively, without minimum amounts, but with an obligatory free float of, say, 10%.

Methodological note and general considerations

Methodological note and general considerations

Innovative SME performance: Growth constraints and incentives

- Element of the study comparing the economic and financial performance of the most innovative companies with the performance of national SMEs.

- The study relates to the years 2011, 2012, 2013, 2014 and 2015.

- Given the available data, the set of key indicators studied for the purpose of describing the Portuguese business landscape followed these methodological assumptions:

  - Sample of national companies: Annual data for 2011-2015 available at the Bank of Portugal's Central Balance Sheet Database.

  - Company size: Micro, small, medium and large, classified by the number of employees according to the criteria adopted by the National Statistics Office (INE) using the thresholds described in Decree-Law 372/2007 of 6 November, and mid-caps, in respect of companies with 250 to 500 employees and a turnover of between €50 million and €500 million and, wherever possible, providing disaggregated information for these companies.

- The sample used in this study to represent the most-innovative companies is based on those that completed the Innovation Scoring® questionnaire – a self-assessment of innovative practices developed by COTEC (Business Association for Innovation) and the Institute of Support for Small and Medium-Sized Enterprises and Innovation (IAPMEI) – between 2013 and 2015, with an audited score of more than 400 points (out of a possible 1,000).

  - The sample consisted of 203 companies, with each company's most recent audited Innovation Scoring® results being used to assess innovation performance (taking into account the results from 2013, 2014 and 2015).

  - The most innovative companies were defined as those in the top quartile in the Innovation Scoring® result table (a total of 50 companies) throughout the duration of the study of this segment. These companies are also referred to as top performers or most-innovative SMEs.

  - The sample's economic and financial indicators are based on the results reported in the companies' Simplified Business Information (IES) in each of the years of this study.

  - Whenever a company fails to present results for a particular indicator, its performance is not considered in the comparative analysis of that indicator.

  - In the base year of the study all the companies in the sample had a turnover of less than €50 million and had fewer than 250 employees. During the study period, four of the companies grew to employ more than 250 employees while the turnover of one grew to exceed €50 million (in 2015), although this had no significant impact on the overall results and were included in the sample throughout the period.

- The statistical information available at the Bank of Portugal's Central Balance Sheet Database was used for the national SME segment.

- The average indicators for sample companies and SMEs were calculated by dividing the total value of the indicator per segment by the number of companies rather than starting with the individual values per company in order to arrive at the segment average. For example, the average "SME" turnover was calculated by dividing the turnover of all SMEs by the total number of SMEs rather than from the turnover of each individual SME. While recognising that this assumption may introduce some limitations, no detailed information about the individual performance of national SMEs is available, meaning it was not possible to apply a different method of calculation.

- The analyses carried out were based on a comparison of the performance of the sample's top quartile with that of all the companies in the sample and with the overall performance of national SMEs.

- The number of companies included in the comparative analysis for each year is shown in the table below.

	Sample					National SMEs				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Total	196	198	201	203	200	43,968	40,519	39,050	39,482	40,519

Methodological note and general considerations

Innovative SME performance: Growth constraints and incentives (cont./)

- For the purpose of this study, mid-cap concept includes an adjustment to make it more restrictive when compared to the definition proposed by the Mission Structure for Business Capitalisation (EMCE), a consultative body within the Ministry of Economy that encourages greater business capitalisation – according to information available on the Portuguese Government's portal. This adjustment of the concept was carried out in order to confer greater sustainability to the economic impact projections in this study (greater dependence on the Gross Value Added [GVA] and turnover than on the number of employees). Even so, both concepts exclude a number of companies that are no longer considered to be SMEs (SMEs are companies with fewer than 250 employees and turnover of less than €50 million. Companies that exceed these limits are considered large companies and lose access to EU funds). If mid-cap corresponds to the early stage of a large company, based on the minimum and maximum thresholds proposed by the EMCE, then those companies with between 250 and 500 employees or with turnovers of €50 million to €500 million should be considered mid-caps.
- Considering only the universe of mid-caps for which there is data for 2015 (474 companies, according to the EMCE definition of mid-cap, and 127 according to the more restricted subgroup as defined for the purpose of this study and projections of their economic impact).

Survey – transversal contribution

- A questionnaire was also issued to COTEC Network companies, 102 of which responded. Its two objectives were:
  - To identify good practice in the framework of innovation management (in a way that complements existing information in the Innovation Scoring® questionnaires).
  - To identify key challenges, constraints and potential incentives for SME growth.

General considerations

- Size and representativeness of the sample
  - As noted above, the study is based on a sample of 203 companies that completed an Innovation Scoring® survey between 2013 and 2015. Of these, 50 are to be found in the first quartile of the Innovation Scoring® results, and as such are considered top performers.
  - To frame and evaluate the degree of company innovation, we used the Innovation Scoring® variable, which is a basic assumption of this study.
  - This sample of companies is constrained mostly by the sample size and its sectoral representativeness, the latter of which depends on the profile of companies belonging to the Network of Innovative SMEs.
    - This sample represents 0.5% of all national SMEs, while the top performers represent only 0.1%. In order to mitigate possible analysis bias that may arise from this representativeness, it was decided to present a comparison of the performance of national SMEs with the top performers and with the total sample.
    - While the companies in the sample are diverse, their sectoral variation is not representative of the national reality; however, the analysis carried out in Section C (the most representative of the sample) corroborates our initial findings. Nevertheless, we recognise this difference may have some impact on the ability to generalise the conclusions to a different sample.

Economic Activity Classification - Rev. 3	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	Total
Number of companies	1	0	**79**	0	2	6	9	0	0	**54**	0	0	**44**	5	0	1	2	0	0	0	0	203
Percentage	0.5%	0.0%	**38.9%**	0.0%	1.0%	3.0%	4.4%	0.0%	0.0%	**26.6%**	0.0%	0.0%	**21.7%**	2.5%	0.0%	0.5%	1.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Methodological note and general considerations

- Economic conditions during the period under analysis
    - The period being studied largely coincides with a time of economic and financial crisis and with the intervention of the Troika in Portugal. A period during which the circumstances may also result in limitation on the findings. Taking into account the fact that these exceptional circumstances may have affected every company, it is possible to mitigate for this impact.
    - Even so, the economic recovery of 2014 and 2015, and the changes in the composition of the economic fabric of business during the period 2011-2015 (start-ups, insolvencies and dissolutions) must be taken into consideration, especially the relative improvement of national SME performance compared to that of the other two segments being studied.
- Extrapolation and generalisation of conclusions
    - Although the results presented are significant, it is difficult to generalise them given the constraints and limitations mentioned above.
    - The size of the companies in the sample can also contribute to this. Although relative indicators have been used (turnover, assets and number of employees used as denominators) there remains a high probability they are correlated with absolute values.
    - Moreover, and despite the sectoral analysis carried out appreciating and corroborating the study's conclusions, we should bear in mind that the different sectoral composition of the sample and national SMEs may have an impact on the values obtained, and in particular in the different uses of the capital and labour factors in the production process in the different sectors.

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