SME and Entrepreneurship Policy Papers

Digital Business Diagnostic Tools for SMEs and Entrepreneurship

A review of international policy experiences

This report examines international policy experiences in designing and implementing online business diagnostic tools for SME and entrepreneurship development. These tools offer entrepreneurs and small business managers an individual online assessment of the strengths and weaknesses of their business across a range of business operation areas. Using these tools they can access online advice and guidance related to their areas for improvement and find sources of further help in the business support system. The report examines the rationale and success factors for public policy in this area and describes the different types of tools in operation. It includes twelve case studies of online business diagnostic tools in OECD countries and how they are supported by public policy. It proposes a number of lessons for policy makers considering developing digital business diagnostic tools.

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Executive summary

Many SMEs and start-ups under-perform in growth, survival and productivity because they have not adopted well-established good practice management techniques for their types of business. Business diagnostic tools can help respond by supporting entrepreneurs and SME managers/owners to recognise their business performance gaps and management challenges and by channelling them to sources of appropriate guidance and support.

Traditional business diagnostic approaches have tended to be expensive and limited in the number of SMEs and entrepreneurs that they reach, reflecting a face-to-face delivery method by consultants. In the last ten years, however, a new generation of online business diagnostic tools has been emerging that could open up basic business diagnostic assessments to many more firms. The field is evolving quickly, and while some governments have experimented with initiatives others have yet to do so.

This paper examines recent government experiences in promoting digital business diagnostic tools. These new tools vary in their approaches. For example, some seek to improve overall business performance while others focus on specific issues such as digital technology adoption; and some aim to support the full population of SMEs and entrepreneurs while others target rapid growth firms, new firms, microbusinesses or other specific firm groups. Nevertheless, the tools tend to share the following typical features:

- Assessment or benchmarking of business performance using quantitative and qualitative data supplied directly by the tool users or by government or private business data bases;
- Information on features of good practice management across a range of business operation areas (e.g. administration and financial management, marketing and sales, production processes, IT management, human resources management, innovation, and future strategy);
- Suggested actions and guidance on how to improve management practices and processes given the firms' situations; and
- Referrals to public and private sector sources of follow-up support.

Through such a tool, large numbers of SMEs and entrepreneurs can potentially take an online assessment of the strengths and weaknesses of their businesses, access online advice and guidance, and find sources of further help in the broader business development services and business support systems. A clear advantage is that these online tools have low marginal delivery costs and offer a great facility of access to SMEs and entrepreneurs with limited time and knowledge to seek out support. On the other hand, on their own, online tools can offer only generic business advice and might best serve as an entry point to wider business support systems.

Policy makers seeking to develop or modify such tools have a number of choices to make. One key choice is whether to create or support a tool of their own, or whether to signpost to tools that exist elsewhere or on the market. Reasons to go ahead with a new public tool may include the importance of inputting national official data (e.g. tax records, official censuses) for the assessment or benchmarking, the trust that government generates with businesses as an honest broker, and the potential to stimulate positive externalities from the associated expansion of business advice. On the other hand, a proliferation of different tools on the market may not serve SMEs and entrepreneurs well.

If policy makers choose to go ahead, they need to make further choices about the model of tool they support. This paper identifies a number of key dimensions on which existing online business diagnostic tools vary:

- Firms targeted – all SMEs and entrepreneurs or a specific target groups, e.g. new firms, high growth ambition firms.
- Objectives – business development in general or particular aspects of business development, e.g. growth or digitalisation.
- Business diagnosis method – quantitative benchmarking, e.g. using data from administrative/tax records or from users, or, qualitative data on management behaviours.
- Intensity of use – length of time required from users to complete an online session, whether business advisors are involved in use, and whether the tools include follow-up services.
- Costs – the scale of costs of development and ongoing operation.

The paper also presents 12 case studies illustrating how specific tools have dealt with these choices and what is known about their impacts and success factors. Based on these experiences the report proposes some lessons and success factors for policy makers considering developing digital business diagnostic tools, including:

- Inform SMEs and entrepreneurs at the outset what the tool is and how it can be used.
- Engage skilled economists, statisticians and business advisors in developing tools to ensure that they use relevant benchmarks and assessments.
- Design user interfaces for all levels of intellect, business knowledge, numeracy and comprehension since this has a very strong impact on user accessibility and retention.
- Use the tool to facilitate connectivity between SMEs and entrepreneurs and business development support providers, including by enabling partner organisations to connect their digital products.
- Make efforts to understand how SMEs and entrepreneurs are using the tools, including the extent to which follow-up services are used.
- Use large, high-quality datasets for quantitative benchmarking to allow for disaggregated comparisons. Plan the frequency and methods of updating the benchmarking data at the outset.
- Focus assessments of management practices on those with the greatest potential to generate a high impact on business performance.

The case studies were identified and selected in two steps. First, potential cases were identified through an expert survey conducted by the OECD Secretariat and a request for information to OECD government representatives at the 55th Meeting of the OECD Working Party on SMEs and Entrepreneurship. Second, a final set of case studies was selected for inclusion in the paper based on the availability of good quality information and the scope to highlight a range of different policy approaches and conditions. The information presented was collected by the OECD Secretariat and external experts through desk research and interviews with the tool providers and other stakeholders.

Part I.
Key policy considerations

1. An overview of digital business diagnostic tools

What are digital business diagnostic tools?

Digital business diagnostic tools are online tools that allow entrepreneurs and SME managers to assess the performance of their businesses against common standards and receive advice and guidance on where and how to strengthen their performance. The tools typically require the entrepreneur/manager to input quantitative and/or qualitative information into an online interface, returning a benchmark of the performance of their business and/or an assessment of its practices relative to similar businesses. This feedback is typically intended to give the entrepreneur or SME manager the ability to judge the extent to which they are running their business effectively. Most tools also provide some guidance on how users can adjust their management practices to improve their business performance. In some cases, the tool is intended to "shock" the business owner or manager because they are likely to adopt satisficing behaviour where they accept the status quo as long as the firm is meeting performance expectations (Simon, 1955).

Online business diagnostic tools have developed out of benchmarking practices that have been used as part of business counselling for decades (see Kaissi, 2010). However, the emergence of benchmarking tools on the internet has led to the development of many alternative approaches. Some tools seek to provide a broad "health check" for businesses, while others focus on specific issues such as digitalisation or internationalisation of the business. The tools can be stand-alone, where the user receives guidance through the tool, or integrated into broader business development services, with a strong link to in-person follow-up services.

Rationale for public policy intervention

The public sector role in business advice

Governments in most OECD countries have been supporting business advice for several decades. The typical rationale for intervention relates to information asymmetries (Storey, 2003). It is argued that businesses seeking one-off advice – often SMEs and entrepreneurs – find it difficult to identify quality support (Granovetter, 1985; North et al., 2011). In addition, SMEs and entrepreneurs can fear that private advisors on the market may not reveal if their service is poorly adapted or unnecessary for their situation (Clark and Fincham, 2002). The higher the risk of an intervention for a firm (i.e. changing key internal operations), the more the firm desires referrals to protect the business from poor quality advice (Mole et al., 2014). Businesses acknowledge an impartiality in public provision even if they might believe that there is greater expertise in private sector provision (Mole et al., 2014). In this context, governments can improve access to business advice through creation of recognised and publicly-supported "brands" (e.g. Innovation Norway). In particular, there is a role for the public sector in creating an impartial and visible service to diagnose the business needs of the firm. This is often an element of a brokerage model, where a state-

backed diagnostic reveals the likely needs of the business but the advice and follow up support is provided by the private sector (Lambrecht and Pirnay, 2005).

Leveraging the potential of digital business diagnostics

There are several motivations for policy to leverage online platforms for offering business diagnosis. First, the internet enables wide reach to many potential users, including SMEs and entrepreneurs that do not typically engage with the business development service system. Users can stretch across all sectors of the economy as digital adoption rates grow in non-digital sectors (Remane et al., 2017).

Second, online tools can utilise robust benchmarks derived from large datasets held by statistical agencies, government ministries or others or inputted by users themselves. These large datasets can allow users to make comparisons with other firms at disaggregated levels, for example by size, sector and location. In this respect, benchmarking has some of the features that make for a natural monopoly, which is another reason for the state to intervene (Posner, 1969).

Third, online business diagnostic tools have a very low marginal cost. Once the framework and digital platform has been created, digital business diagnostics (and other services) can be delivered at essentially no extra cost (Zammuto et al., 2007).

The role of external service providers

While providing financial and potentially data and other support for digital business diagnostic tools, policymakers typically delegate responsibility for operating digital tools to a non-government body. Operators often outsource functions to external partners, from the inspiration/idea for the tool, through design, development, pilot testing, platform/hosting, data licensing, marketing/promotion, monitoring and evaluation. Outsourcing is likely to incur financial costs unless partner organisations provide services pro bono or for benefits-in-kind such as access to the tool, or the dataset generated. Thus a model typically operated is one of a public sector-non-government sector partnership.

A typology of digital business diagnostic tools for SMEs and entrepreneurship

A variety of publicly-supported online business diagnostic tools have been introduced across various countries in recent years. They vary according to three fundamental characteristics (Figure 1):

- Objectives and target users;
- Benchmarking and assessment method; and
- Intensity of use.

In addition, tools vary on a range of operational characteristics. These include, for example, the type of institution or organisation that is responsible for hosting and managing the tool (e.g. government, non-governmental organisation, industry association) and the type of data used for benchmarking (e.g. administrative data, survey data).

Figure 1. A typology of digital business diagnostic tools
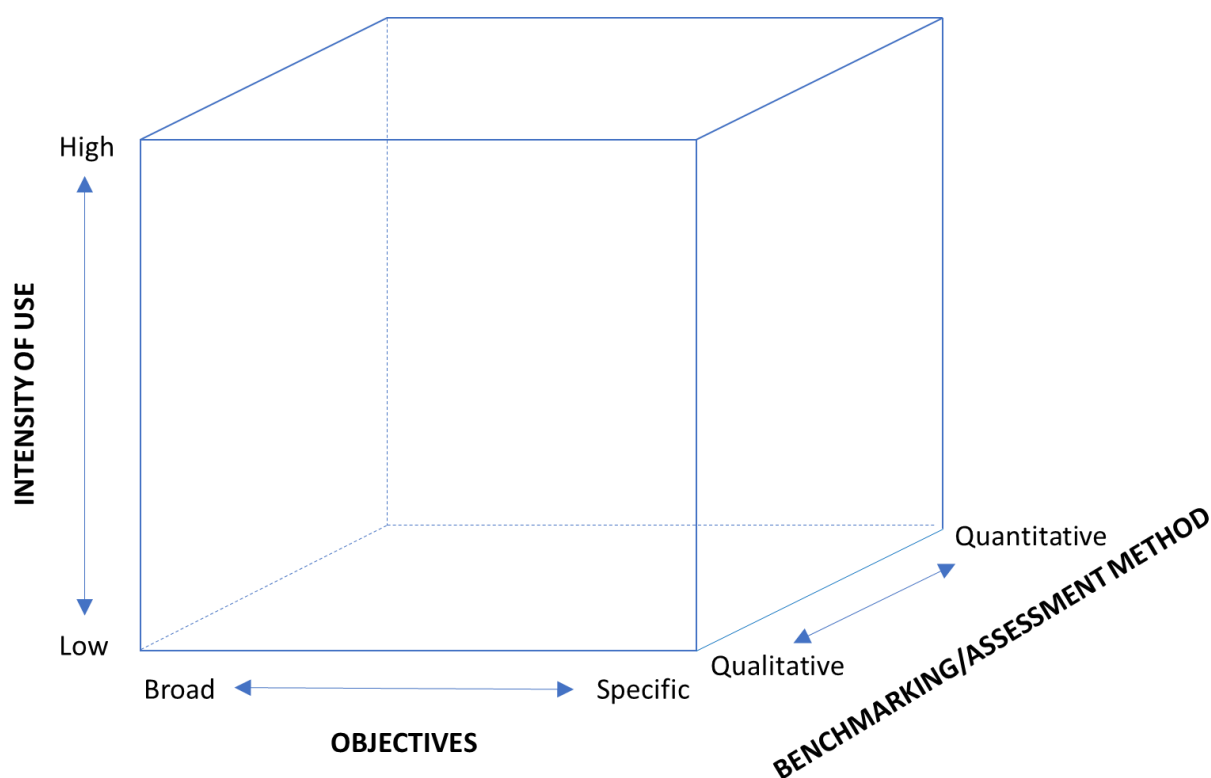
Objectives and target users

Publicly-supported digital business diagnostic tools vary according to whether they seek to influence behaviour across the business as a whole or to focus on one specific aspect of the business. The most common approach is to provide a holistic assessment of a firm's performance and suggestions on how management practices can be adjusted to improve efficiency and productivity, or to avoid bankruptcy.

Other tools, however, focus on specific aspects of a business such as digitalisation or growth capacity. They rely on an assumption that the aspect of business management addressed by the tool is a driver of firm performance, which could be justified from aspects of management theory although empirical evidence that directly links a single aspect of business management to firm performance is inconclusive. For example, small firms that innovate are not necessarily those that grow (Love and Roper, 2015).

A tool's objective tends to relate closely to the scope of its target users. Tools that aim to provide a holistic benchmarking of business performance typically target the full population of SMEs and entrepreneurs. This has the advantage of greater potential reach and creating a level playing field. The disadvantage is that it is difficult to design a tool that can respond to a wide range of SME needs and management practices. This can be mitigated in a number of ways, notably by ensuring that there are linkages between the online business diagnostic tool and face-to-face advisors.

Another approach to addressing the diversity of management practices is to target a subset of SMEs and entrepreneurs. For example the tool could target a particular sector. This has the advantage of being specific to differentiated needs by utilising unique metrics and indicators (e.g. hotel occupancy rates), potentially attracting interest from a higher proportion of firms in the sector. Alternatively, firms at the frontier (e.g. innovative firms) or laggards (e.g. firms at risk of going bankrupt) could be targeted. Tools could also try to engage segments of the population of SMEs and entrepreneurs that are less likely to access public

business development services such as businesses that are operated by women (OECD/EU, 2019) or immigrants (Wishart et al., 2018), although in practice this is not done frequently.

Digital diagnostic tools can also target business advisors, although this is rather uncommon. These tools tend to be holistic tools used as a support for the face-to-face advisor. The advisor will be trained in the use of the tools as a dialogue rather than as a mechanical diagnostic, which enables some of the challenges concerning distinct contexts to be overcome. However, business advisors may face a challenge in using the outcomes of the diagnostic tools appropriately. Their role is to use and build on the results of the diagnostic tool without succumbing to the temptation to use the output from the tool as a stronger indication of where to focus attention than may be warranted.

Benchmarking and assessment method

Digital business diagnostic tools also vary in terms of the benchmarking and assessment models that they use. A key distinction is between tools that benchmark firms using quantitative metrics (e.g. financial indicators) and those that make assessments (e.g. based on user descriptions of their management practices). A small number of tools use a combination of both benchmarking and assessment methods.

The benchmarking tools require a large amount of data. A common approach to securing benchmarking data is to use administrative sources (e.g. tax data) or large government surveys (e.g. manufacturing surveys). However, many tools have developed their own surveys to collect the data used for benchmarking, or have been developed out of research projects that collected the underlying data. A third, but less common, approach is to leverage the data that users input into the tool. This results in the benchmark data being continually updated, but requires a significant user base and a verification process to separate "real" uses of the tool from people experimenting with it.

The source of the benchmarking data has implications for how frequently tools are updated. Administrative data are typically updated with a greater frequency, often annual. Survey data are usually updated less frequently due to the cost of collecting and cleaning the data. These data, however, can be more tailored to the objectives of the diagnostic tool.

Assessment approaches tend to make more qualitative assessments of firms against best practice behaviours (rather than quantitative comparisons with other firms). This approach may be more effective at encouraging firms to upgrade practices that are not yet widely adopted, including formal management methods (e.g. formal bookkeeping and accounting practices in micro firms). They can also be used to diagnose issues or assess performance in areas where standardised data is not readily available (e.g. business management practices related to goal-setting).

Many of the older assessment tools were theory-driven tools based on academic business management literature. One of the most well-known is the VRIO Framework (Barney, 1991), which was a checklist based on a resource-based view of strategy. This approach was popular in the 1990s, but these models have become less well-regarded over time. This is largely because they tended to follow the fads in management literature with relatively little evidence to support guidance (Abrahamson, 1996; David and Strang, 2006) and because many of the companies used as models for these approaches turned out to be less successful in the medium-term.

More recent assessment tools have tended to be practice-driven. Practice-driven tools are usually built using the experience of business advisors, codifying their knowledge into heuristic rules of thumb that can be applied to a range of businesses in a range of contexts. Thus, business advisors develop their own theory through noticing patterns and through assessing common challenges faced by their client firms (Mole, 2002). These tools are typically structured around frameworks derived from strategy literature (e.g. SWOT analysis), or as models of issues or challenges and common corresponding business practices. The practice-based approach has the advantage of collecting and presenting information in appropriate and easily understood language since the content is developed from the interactions between advisors

and business managers. These tools can be a device to reduce the tendency to satisfice on the part of the entrepreneurs or SME manager and advisor but this also creates a risk that issues are self-diagnosed too early (Cohen et al., 2018). Another drawback of practice-based tools is that there are two potential sources of bias. First, these tools risk being biased towards those factors that advisors consider are important, even if the evidence for making a significant difference to the performance of the business is inconclusive. In addition, there is a risk that these types of tools can emphasise aspects that improve the satisfaction of the business advisors and entrepreneurs or SME managers, while there is evidence that these aspects may not be the most important for firm performance (Kautonen et al,. 2010).

Intensity of use and integration in the business support system

Digital business diagnostic tools vary greatly in the levels of effort, time, knowledge, data and follow-up actions required to utilise them. They can be classified into "light touch" and "intensive" tools, the latter sub-divided into "stand alone" tools and tools that are integrated into the business development services system.

"Light touch" tools typically have two motivations: i) to appear attractive to potential users so that they are motivated to use the tool; ii) to reduce the number of incomplete diagnostic assessments. The extent to which users engage and complete diagnostics depends greatly on the "ease of use" of the tool, notably the time required to input information and the ease with which the user can find the requested information (Rodrigues et al., 2016). The burden of inputting information can be reduced by providing users with clear indications on the information that they will need before starting the diagnostic. Another approach could be to utilise previously submitted information. Questions also need to be unambiguous, with appropriate language that is relatively free of jargon. One method that may help is presenting answers to questions as a series of statements and asking businesses to select the one that most applies to their situation. This includes Likert style questions whereby respondents are asked to rate their degree of agreement with a particular statement on a multiple point scale (often five or seven points).

Intensive stand-alone tools can provide more tailored and nuanced feedback and guidance. They can still reach a large number of users at low marginal cost, as the capacity of the tool is not constrained by availability of business development advisors. In many cases, they are designed as entry points towards in-person support and seek to appeal to firms that do not usually engage with business advice. Some of these tools require users to engage with the tool several times. A consistent periodical reflection of business management is beneficial since the manager typically has a greater awareness of the different aspects of business performance (Jones et al., 2010). Nonetheless, these tools still face many of the same design challenges that "light touch" tools face, i.e. they need to be relatively easy to use while collecting detailed information to provide a relevant diagnostic. Moreover, the diagnosis and guidance needs to be easily understood by the entrepreneur or SME manager.

The most intensive tools are often those that are integrated into the business development support system. Entrepreneurs and SME managers are usually required to provide more information since they have already committed a substantial amount of time to participating in a programme. The managers often engage with these online tools multiple times as well as with business advisors in a face-to-face setting. The use of business advisors to accompany the use of a tool may help overcome the barrier of the high level of self-motivation that is needed for those working online only (Jin, 2011). These tools offer more in-depth support and foster greater engagement of diagnosed firms. However, they come at an additional financial cost and time investment, and their coverage is limited by the availability of support staff.

Summary of tool design options

As indicated by the above typology of different digital business diagnostic tools currently in operation, governments seeking to develop or support tools have key policy choices to make with respect to the type of tool they promote. The central choices can be summed up as being between:

- A <u>specific</u> tool (focused on one operational area of the business and/or a subset of SMEs and entrepreneurs) <u>or</u> a <u>broad</u> tool (offering a holistic assessment of the business and/or the full population of SMEs and entrepreneurs).
- A <u>quantitative</u> tool (benchmarking firms with quantitative metrics such as financial data) <u>or</u> a <u>qualitative</u> tool (using business behaviour checklists).
- A <u>high intensity</u> of use tool (providing tailored feedback and guidance requiring significant reflection by the firm, potentially accompanied by business advisors) <u>or</u> a <u>light touch</u> tool (with a low time burden for users to input information and interpret results).

Promoting awareness and take-up

A common problem for business advice policies is that the SMEs and entrepreneurs that are most likely to seek out a tool tend to be those starting with the strongest understanding of the development needs of their businesses and greatest willingness to make changes. Thus, it is likely that spontaneous take-up will be low among those SMEs and entrepreneurs with the greatest need to improve their management practices. Research has shown, for example, that the attitude of senior management is crucial in the adoption of new business techniques (Damanpour and Schneider, 2006), that the absorptive capacity of the firm, i.e. the ability of the firm to understand and implement changes is also critical to seeking advice and achieving impact (van Doorn et al., 2016), that firms operating in more dynamic environments are more likely to seek advice (Heyden et al., 2013), and that firms undertaking more complex tasks are more likely to seek advice (Gino and Moore, 2007). Clearly, to search online, the entrepreneur or SME manager has to decide that they are at least considering making changes.

It is therefore important that policymakers and digital tool operators take steps to communicate the existence and purpose of digital business diagnostic tools to entrepreneurs and SME managers and also to other stakeholders within the wider business support system with whom target business owners are likely to interact such as banks, accountants, consultants, membership bodies, trade associations and corporate partners. Creating awareness among business stakeholders might prove more fruitful than direct communications with small business owners because the latter may be more likely to listen to a trusted adviser than they are to government.

Payments have been shown to increase the degree of engagement of SMEs and entrepreneurs in business advice and the impact of the advice across different types of advisory services (Gino, 2008). However, there is a strong expectation of no payment for web-based products. Moreover, digital diagnostic tools are typically seen as a stepping-stone towards more in-depth support, and as a relatively new tool, firms may be reluctant to pay for a service for which the benefit is not immediately apparent. As a result, there are currently few attempts to charge for the use of digital diagnostic tools. Nonetheless, some tools operate on a freemium model, whereby users may access a part of the tool free of charge and pay for follow-up services.

Stimulating positive action following a diagnostic

One of the main challenges for effective online business diagnostic tools is to inspire and encourage entrepreneurs and SME managers to take action to strengthen their business practices following the

identification of areas for improvement and the provision of basic guidance by the tool. Evidence suggests that businesses that are stronger in business planning tend to respond better to diagnostic results and have greater capacity to take positive action (Burke et al., 2010). Others may need greater support.

One of the strengths of a diagnostic assessment or benchmarking exercise is that it may provide a "shock" to a poorly performing business that could engender strong motivations for change. However, the business will still need to be clear on what it can do in response. Most tools are not very precise in their online guidance on what the business should change, since it is difficult to deliver such advice in a "one size fits all" framework. A shock will not be effective if it is not clear how to respond to it.

Moreover, some firms may put off improvements or investments if a diagnostic indicates that their position in the industry is more precarious than they previously thought. It may then be necessary to indicate some non-costly steps that can be taken to make initial improvements. Some SME managers or entrepreneurs are also likely to respond by seeking to address the greatest area of weakness identified in a diagnostic. However, businesses are complex, integrated entities, and the tool may therefore need to indicate an integrated plan of action.

One of the possibilities to help secure positive action from a digital tool is to ensure that SMEs and entrepreneurs can easily access in-person support from a business advisor to consider the follow-ups. This could be achieved with channelling the firm towards a face-to-face business advisor following completion of a diagnostic. Alternatively, the online tool could be used not only by the business but also by an advisor so that the digital diagnostic becomes the first part of a discussion concerning the strengths and weaknesses of the business and where it is advisable to take action. Links can also be provided to business support organisations that offer more intensive business support delivered face-to-face.

Another option, although not yet used in practice, is to devise an entirely digital support system where the diagnostic includes a section where users input future actions they wish to take and the system itself seeks to generate an action plan and sets reminders and milestones for the manager/entrepreneur.

In sum, approaches to stimulating positive follow-up actions by users of digital tools include:

- be precise in their online guidance on what the business should change
- include non-costly initial steps in the actions suggested
- promote integrated solutions rather than single actions focused on the most obvious area of weakness
- offer access to in-person follow up support from a business advisor
- create with the user an online action plan with milestones and reminders.

Monitoring and evaluation

The ultimate objective of business diagnostic tools is to improve business performance outcomes. This is expected to work by stimulating an ambition on the part of entrepreneurs and SME and managers to upgrade business practices, transferring knowledge that supports them in developing appropriate plans for changing management practices, and supporting them in implementing plans effectively, which then has positive outcomes on business practices and business performance. In many cases, the impact achieved may come about not only from the use of the digital tool itself but also from use of the tool leading to relevant follow-up support by business advisors or follow-up 'hard' business development support (such as finance programmes).

Effective monitoring and evaluation of policy interventions for digital business diagnostic tools should therefore emphasise measures at different stages of the transition to impact. Five key stages can be assessed:

- Use of the tool by SMEs and entrepreneurs;
- Learning by SMEs and entrepreneurs and motivation for business change through use of the tool;
- Stimulation of additional take-up of follow-up business development advice and business development support by SMEs and entrepreneurs;
- Change in business processes and practices of users as a result of using the diagnostic tool (including the additional business support taken up as a result);
- Change in business performance (growth, survival, productivity and other potential measures such as exports).

Tools often set specific targets related to usage, which can be tracked to help tool managers understand the scale and distribution of take-up of the tool (how many firms and which types of firms) and how it is being used (which tool features and services are being accessed). In monitoring usage, online tool managers typically pay great attention to where drop-off in usage occurs in the process of completion of the diagnostic to improve the user experience and increase the proportion of users that complete the benchmarking and assessment. Greater conversion would improve the impact of the tool without necessarily increasing marginal costs.

It is important for policy makers and tool managers to examine the extent to which users engage with the learning materials that are provided following use of the diagnostic tool and resolve to follow action plans. This will help tool managers understand the effects of use of the tool on learning and motivation for making changes in business practices so that they can be designed appropriately. This can be picked up to some extent by following the extent to which users develop or download action plan material from the tools.

Stimulation of additional take up of business advice and business development support could be monitored by using an identifier for tool user firms that can be tracked into the use of further business advice or receipt of further business support.

However, the final test of impact of digital business diagnostic tools needs to come from an assessment of the difference made to business performance. In this respect, the key is to carry out evaluation activities that compare business performance over time of tool users with a control group of non-users. This is best achieved using Step 6 evaluations, as identified in OECD (2007).

To gather the necessary information for monitoring and evaluation, policy makers need to give careful consideration to monitoring and evaluation processes at the tool design stage. Different methods are required to measure different types of outcome, and over different timescales. Unless incentivised or compelled to do so, digital business diagnostic tool operators might find it more convenient to focus on easy-to-measure and/or short-term indicators rather than on more important – but also more complex, long-term – indicators.

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2. Lessons from selected tool approaches

A range of different approaches to the design and operation of digital business diagnostic tools are being taken across OECD countries. Decisions must be made with respect to tool objectives and target users (specific or broad tools), assessment and benchmarking methods (quantitative or qualitative tools) and intensity of use (intensive/integrated or light touch tools).

This chapter explores the potential and challenges of different approaches focusing in particular on comparing and contrasting the following four case studies included in Part 2 (see section 3.1 for an overview of all case studies covered in Part 2):

- Be the Business (UK);
- Small Business Assessment Tool (France);
- Business Development Bank of Canada (BDC) Productivity Benchmarking (Canada); and
- Business Propel (Australia).

The comparative analysis is based on interviews with key personnel at digital tool operators and policy sponsors, follow-up email exchanges with respondents and information extracted from operator websites. The section focuses in particular on choices, risks and challenges related to each of the following aspects of tool development:

- Objectives and target users;
- Benchmarking and assessment methods;
- Intensity of use and integration in the business support system;
- Promoting awareness and take-up of tools; and
- Monitoring and evaluation of impact and effectiveness.

Comparisons of case study experiences on key tool dimensions and functionalities

Objectives and target users

One of the key distinguishing features of different types of online business diagnostic tools is the extent to which they target the broad development of the business as a whole or specific aspects of business operation, and whether they address a broad population of users or a narrow section of SMEs and entrepreneurs.

In terms of objectives, the BDC Productivity Benchmarking (Canada) and the Be the Business (UK) focus on the broad objective of improving productivity. By contrast, the Small Business Assessment Tool (France) focuses on managing innovation, finance and internationalisation. All of these tools, however, aim

at the larger end of changing managerial attitudes and embedding the goal of continuous business process improvement within the managerial team.

In terms of target users, all four case studies make access to the tool freely available to all businesses. None restricted access to specific types of business. Operators typically reported that 'small firms' or 'SMEs' were their primary target audience because such firms are commonly perceived to lack the managerial skills to perform certain tasks competently and consistently, for example, developing a business strategy, managing staff, accessing finance, implementing innovation or exporting goods and services. 'Small firms' were defined variously, for example, as: businesses with 5-20 full-time employee equivalents (Business Propel: Australia); businesses with fewer than 100 employees and with annual revenue of less than CDN 50 million (approximately EUR 32 million) (BDC Productivity Benchmarking tool: Canada); and small and medium-sized enterprises (with up to 249 employees) (Be the Business: UK). Defining the target group as inclusively as possible enables operators to attract the largest number of users and thereby build the largest possible dataset for benchmarking purposes. At the same time, the broader the target user group, the greater the need to ensure tools appeal to a large and diverse business owner population in terms of functionality, language and 'look and feel'.

Despite the wide overall remit of the tools, respondents often emphasised the thinking that the tools would impact particularly on growing businesses and businesses with growth ambitions. Underpinning these approaches is the belief that the benefits of using digital tools are contingent upon users' absorptive capacity: the managerial ability to learn from using tools and to act effectively on that learning in order to develop their enterprises. Very small firms, for example, people working on their own and those employing just 1-2 employees are often believed to lack sufficient absorptive capacity to benefit from using digital tools. Businesses of this size often lack managerial skills, and sometimes any division of managerial labour at all. Owner-managers often perform all managerial functions – managing finance, people, strategy, operations and legal/regulatory obligations.

In practice, there is a loose coupling between defining a target audience and actual users in the four case study tools. Working with different definitions of 'SME' or 'small firm' does not preclude businesses outside the target group from accessing tools, unless tools require users to meet strict eligibility criteria, or prevent operators from promoting greater awareness and take-up amongst hard-to-reach groups. This is an issue of marketing/awareness-raising, however, rather than one of access. For instance, Be the Business: UK has taken steps to attract hospitality/tourism businesses in Cornwall and small manufacturers in the North West of England, as these businesses were considered likely to benefit from increased attention to productivity issues and therefore from using the tool – but this does not prevent other types of business also accessing the tool.

Based on this assessment, the following learning points for policymakers and digital tool operators can be suggested:

- Policymakers and operators need to develop clear digital tool objectives. This should inform user targeting, choice of tool type, user data inputs required and the methods used to increase awareness and take-up.
- Digital support tools should be free to use. Take-up is likely to be extremely low otherwise.
- Defining the target audience with precision might be unnecessary, particularly if specific sub-groups can be isolated in data analysis.
- Encouraging take-up among the widest possible group of business users facilitates a large dataset. This, in turn, confers greater confidence in the data patterns and trends identified.

Benchmarking and assessment methods

Qualitative assessment tools appraise managerial capabilities, activities and performance in relation to a specific theoretical model, or set of assumptions, about what constitutes or drives best/good management

practice. These tools score or rate users on the basis of an algorithm that applies particular values to user data inputs. Academic research and consultancy can supply theories and metrics to underpin algorithms. For example, the Small Business Assessment Tool (France) uses the Storper/Salais model and Be the Business (UK) uses the McKinsey model.

The challenge for policymakers and digital tool operators here is twofold. First, to decide which theoretical models to use to underpin tools and their outputs. Second, to operationalise the selected models in terms of the specific data users are required to input and the weights to attach to these inputs. Digital tools incorporate different management capabilities, activities and performance dimensions – for example, leadership, strategy, operations, human resources (HR), finance, internationalisation, corporate social responsibility, risk management – and weight user responses in particular ways. Choice of theoretical model should be informed by policy objectives and resource availability; resources are needed to search for and/or operationalise an appropriate theoretical model.

Typically, users are asked to supply business profile data – for example, employment, industry/sector, region/location, turnover, costs, business objectives, type of client served – and then asked a series of questions regarding capabilities, activities or performance. Tools usually display assessment results on-screen with a facility to generate a pdf report, which may include a more detailed analysis of user responses and also additional information and advice. Results may be presented in quantitative form, as percentage scores, or in qualitative form, as descriptors such as 'excellent' or 'poor' (Business Propel: Australia).

Benchmarking tools enable user businesses to compare their capabilities, activities or performance with other businesses (inter-firm comparison) or with their own previous scores/ratings (historical intra-firm comparison). Benchmarking against other firms requires methods and datasets to support meaningful comparison between user and comparator businesses. Comparisons are more valuable where comparator firms are similar in terms of attributes such as business size or industry/sector. Benchmarking tools use some kind of scale to compare users with other businesses – to gauge whether user businesses are above or below average, or to estimate what proportion of similar businesses perform better or worse than the user (Be the Business: UK).

Benchmarking tools require access to high-quality datasets that permit inter-firm comparison using key variables such as business size, industry/sector, location/region, or intra-firm comparison, where businesses are able to use tools to generate new results in order to compare past and present performance. Operators may incur data licensing fees to maintain access to relevant datasets over time.

Digital tools often combine both assessment and benchmarking functions. Combining the two functions arguably increases user benefits because they measure managerial capabilities, activities and performance in different ways. But tool combination entails higher costs in terms of the extra work needed to design, develop and operate tools and to find, construct, license and mobilise suitable datasets. Policymakers and digital tool operators therefore face a trade-off between resource costs and offering a more expansive digital product to businesses.

The four case study digital tools are described briefly below in their assessment and benchmarking approaches.

- Business Propel (Australia) is primarily an assessment tool, but also allows user businesses to benchmark themselves against their own prior scores/ratings through repeat use. It is operated by ABCS (Australian Business Consulting Solutions) and sponsored by the New South Wales government. Users are required to provide a limited amount of business profile data on industry, employment, client base and business goals, before answering a series of single- and multiple-choice questions for each of five tools assessing the following managerial capabilities – people, customers, financials, strategy and operations. Each tool can be taken as a stand-alone product or in combination with others. Each has a number of component parts, with questions for each; for example, under the 'people' subheading, there are 12 subsections, each with a number of

questions. Completing assessment tools generates a percentage score for that tool. Users are able to generate a fairly substantial report (approximately 20 pages) providing a qualitative descriptor such as 'excellent', 'very good', 'good', 'fair' and 'poor' in relation to particular measures and then offering a more detailed analysis of their question responses. The tool also enables users to develop action plans to address the challenges identified and to assign tasks and deadline dates to particular people. Users are also directed to an online directory of consultants for further specialist support within the tool.

- BDC Productivity Benchmarking (Canada) is a benchmarking tool operated by the Business Development Bank of Canada, a state-owned Crown Corporation, operating at arm's length from government. Business users do not need to register or identify themselves, but must enter data on a small number of issues in order to benchmark their productivity performance against similar Canadian businesses. Required data fields are: corporate federal income tax return data; industry/sub-industry, using the fine-grained North American Industry Classification System (NAICS); total revenue; assets; labour costs; employment; net income/loss; and capital cost allowances. Users are told which tax forms, and what specific sections on the form, they need to use to input specific data fields. The operator claims the tool covers 80% of Canadian businesses in 90% of industry categories; benchmarks cannot be provided for businesses falling outside this coverage. Users are presented with text descriptions and infographics representing their position on five separate variables relative to similar firms – overall productivity, revenue per employee, profit per employee, labour productivity, capital productivity – so they can see whether they are above or below average, and by how much in percentage terms. The algorithm underpinning the benchmarking system was developed by Statistics Canada, the national statistical agency.

- Be the Business (UK) is an assessment and benchmarking tool operated by Be the Business, a business-led charitable organisation funded by the government's Department for Business, Energy and Industrial Strategy. The tool enables users to assess five managerial capabilities and functions – people and team, planning, sales and growth, digital readiness, and leadership and strategy. Users input data on numbers employed, industry, turnover and intermediate costs of consumption (defined as total purchases of energy, goods, materials and services consumed as inputs by a process of production). Each assessment presents users with 6-10 single/multi-choice questions to answer. The benchmarking element comprises a productivity comparison between the user business and similar businesses defined in terms of broad business size class (small: 10-49 employees; medium-sized 50-249 employees) and industry group/sub-group (broadly defined in terms of UK Standard Industrial Classification categories). Registered – but not unregistered – users are able to store information and retrieve and amend it at a later date. To register, firms are required to provide a business name, a contact email address and some financial data. Unregistered users can use the tool anonymously. The algorithm underpinning the assessment and benchmarking system is based primarily on a method developed in a report by McKinsey.

- The Small Business Assessment Tool (France) is an assessment and benchmarking tool operated by OPEE (Observatory on Practices of Entrepreneurs and Enterprises). OPEE was created by a group of economists, management scholars and statisticians. User businesses are required to register and provide details of type of business, employment size and location. The tool enables users to generate results at two levels: the first allows users to identify their business model (Level 1); the second allows users to assess their capabilities, activities and performance in relation to finance, innovation and internationalisation (Level 2). Each part of the assessment presents users with 17-29 single/multi-choice questions (including multi-part questions) to answer. The tool does not require users to submit any financial data. Operators consider this to be a benefit because business owners are believed reluctant to divulge sensitive financial information. Users can generate a report presenting results in relation to Levels 1 and 2. The report identifies user businesses as adopting one of four types of business model (the price competitiveness, innovative

business, economies of scope and customer relationship models) and offers analysis under each of the three broad subheadings (innovation, finance, internationalisation), with each subdivided into small topics. The algorithm underpinning the assessment and benchmarking system is based primarily on a method informed by an approach developed by academics, Michael Storper and Robert Salais.

Based on this assessment, the following learning points for policymakers and digital tool operators can be suggested:

- Tool choice depends on policy objectives and resource constraints (finance, labour skills, access to high-quality datasets). Greater tool functionality, for instance, combining assessment and benchmarking tools in a single product, requires more resources.

- Different tools place varying demands on operators; for example, assessment tools require an underpinning theory; benchmarking tools require access to high-quality datasets to facilitate inter-firm comparison.

- Access to digital tools might be made conditional on users providing basic business profile data, for example, business size, industry/sector and location/region. This will enable operators to identify user attributes and to undertake statistical analysis of user data inputs. These data are important for monitoring and evaluation purposes and should also make it possible to focus promotional activities more precisely on specific hard-to-reach groups.

Intensity of use and integration in the business support system

The benefits of using digital tools may be enhanced where user businesses are able to identify or access further information, advice or support via the tool. Operators face a trade-off between committing resources to building and sustaining a network of connected support providers/consultants and leaving business users stranded who, having completed the tool, are uncertain where to turn next for further support.

The four case study digital tools vary in their degree of integration with support providers. In particular, Business Propel (Australia) and BDC Productivity Benchmarking (Canada) provide relatively close connections to additional support:

- Business Propel (Australia) is well-integrated into the business support system. The tool incorporates a directory of approximately 20 consultants which users may search by specialism, defined in terms of the five assessment tool topics (for example, people, customers or strategy), selectable from a drop-down menu or by using a free text box. For each listed consultant, additional information is provided on key personnel and business profile, enabling users to make an informed selection. It is also possible for users to contact consultants directly and to share outputs generated by the tool prior to entering into a formal contract with them.

- BDC Productivity Benchmarking (Canada) enables user businesses to access a detailed report incorporating the results displayed on-screen, a brief description of best practices and how these might be achieved, suggested reading on how to improve on each of the measures benchmarked as on or below average; and weblinks to related support services such as business coaching, strategic thinking essentials, human resources essentials or BDC financing solutions. Each weblink leads to further reading material and to a facility to chat online with an adviser.

- Be the Business (UK) provides short case studies of businesses that have experienced similar problems to those faced by user firms. Many, but not all, cases are based on real businesses; others have been outsourced to external providers to ensure a broad representation of business and owner types. Case studies are tagged with keywords to help readers search for similar cases. Users can also sign up for monthly 'business insight' update emails to obtain additional information on selected topics.

- Small Business Assessment Tool (France) is a stand-alone product and does not currently direct users to other support providers. There have been discussions regarding whether to provide users with support organisations' addresses but, at the moment this has been postponed.

Based on this assessment, the following learning points for policymakers and digital tool operators can be suggested:

- Connecting digital tool users to the wider system of business support presents entrepreneurs with a more unified, coherent, accessible support system.
- Using digital tools to identify strengths and, particularly, weaknesses in managerial capabilities, activities and performance, provides important clues as to entrepreneurs' needs from the wider business support system.
- Linking users to an online directory of approved consultants is a convenient and cheap route to connect firms to further support.
- Tools enabling users to send outputs/reports to prospective support providers also ease communication.

Promoting awareness and take-up

Case study tool operators reported a number of direct and indirect methods of promoting awareness and take-up by business owners. Direct marketing methods include social media, advertising, webinars, and communications to SMEs and entrepreneurs engaged in other operator programmes, for example, mentoring schemes.

BDC Productivity Benchmarking (Canada) has a large marketing department, although there is no specific budget, or any dedicated staff, for promoting the Productivity Benchmarking tool. At launch, in October 2016, the tool was promoted heavily during National Small Business Week, an annual event held at various locations across Canada to celebrate the contribution of entrepreneurs and small businesses to the economy. After launch there have been regular web-marketing campaigns, webinars delivered by BDC advisory services staff and online advertisements pushed towards those reading online materials about improving efficiency. These methods are considered efficient in reaching 'mid-sized firms' with 20 employees – but perhaps less efficient in reaching 'micro firms'. This is consistent with BDC's mandate to support growing firms.

The case study tool operators also demonstrate additional ways of stimulating awareness and take-up. For example, the Small Business Assessment Tool (France) has engaged users through a range of activities undertaken for other reasons than direct tool promotion. This includes networking with entrepreneurs at events and conferences (when presenting and testing Version 1 of the tool), meeting entrepreneurs through research (a European Union project funded by DG NEAR aiming to develop high-quality entrepreneurs in North Africa and the Middle East), and meeting entrepreneurs through teaching (one member of the operations team used the tool to teach master's students who then used it with specific SMEs to prepare a detailed report for them; some companies asked for further support from students on certain points raised in the report).

Digital tool operators also promote awareness and take-up through indirect marketing methods, where external partners act as intermediaries. In the case of Be the Business (UK), support for marketing is provided by three key sets of external partners. First, large corporate partners promote the tool to their own client bases. For example, banks promote the tool to SMEs via their platforms or local relationship managers. There is typically no cost to digital tool operators for these activities, because partners perceive the tool as adding value for their members/clients. Promotional activities are undertaken as collective initiatives as the information gathered is of value to all parties. Second, national government promotes the tool through the UK tax authority (HMRC) via their reminder communications to businesses. Third, the Federation of Small Businesses, the largest small business organisation in the UK with more than 200 000

firms in membership, has promoted the tool through communications with members. Different messaging languages have been used to simultaneously raise awareness of the tool and to test what messages are most effective at prompting SMEs to take action. Small business associations have also been important to the promotion of Business Propel (Australia), which reports that Chambers of Commerce have required businesses seeking to win awards to use the tool.

Based on this assessment, the following learning points for policymakers and digital tool operators can be suggested:

- Building and sustaining a network of business stakeholders to promote digital tools probably offers the cheapest and most effective means of promoting awareness and take-up of digital tools by diverse SMEs and entrepreneurs. Business stakeholders are typically trusted by the member/client/user groups they serve and are more likely to be able to penetrate small business populations.

- Policymakers might need to devote substantial resources to persuading time-constrained entrepreneurs to make use of the tools and to supporting stakeholders to communicate about the tools to their respective client groups.

Monitoring and evaluation

The case study tool operators systematically collect some significant monitoring information. All four case study tools collect data on user numbers and attributes (where registration mandates business profile data), although targets set for the number of users to be engaged in only one case. Be the Business (UK) set an initial target of a target of 3 500 'sessions' for the first year ('sessions' include both new and return users).

In addition, the Small Business Assessment Tool (France) monitors user satisfaction. This is achieved using offline methods. A subset of users is emailed a few days after using the tool to request a short contact to estimate user satisfaction; those agreeing are asked whether they were satisfied with using the tool. Although user satisfaction is reported to be high, it is acknowledged that more systematic reporting practices are required. Users commonly report that answering the tool questionnaire encourages them to think about issues they have not considered and to deepen their knowledge of their businesses. Some users ask if they can use the tool report to negotiate with their banks, and the tool operators encourage this but do not know if this enables users to obtain credit more easily, or at better interest rates. Be the Business (UK) reported plans to introduce methods of assessing user satisfaction in the near future.

Several tool operators referred to the 'conversion rate' and their goal to increase it. The term conversion rate might be applied to any escalation in activity/impact. But operators typically used it to refer to the proportion of visitors to the operator's website who decide to take at least one of the assessment or benchmarking tools on the site, or who, having completed the tools, choose to take further financial or advisory support. These conversion rates are monitored by BDC Productivity Benchmarking (Canada) and Be the Business (UK).

However, no examples were reported of measures to evaluate the behavioural or business performance impacts of using tools. The lack of evaluation of the impact of tools may partly reflect the relatively limited periods for which the tools have been operating. Currently, operators are concerned primarily with attracting business users and, hopefully, retaining them. However, the lack of evaluation is also likely to be related to a broader dearth of evaluation evidence on business support policies (see OECD, 2007).

Based on this assessment, the following learning points for policymakers and digital tool operators can be suggested:

- A range of monitoring information should be collected on tool use numbers and user attributes, user satisfaction, and conversion rates from site entry to assessment functions and further support.

This can generally be set up in the design of the tools themselves but needs to be planned in advance.

- Additional metrics and methods need to be introduced to evaluate changes in business processes and performance attributable to the use of digital tools. These evaluation approaches need to use control group methodologies and operate over a sufficient timescale to enable effects to be achieved (e.g. three years for improvements in business processes to lead to changes impacts on firm growth, survival and productivity).

Key success factors

The policy sponsors and operators of digital business diagnostic tools identified the following key success factors for developing and operating a tool:

- **Access to skilled, committed people** – The tools have been supported by passionate professional staff offering diverse skillsets (economists, statisticians, data scientists, marketing specialists, business advisers) who fully support the development of the tool as well as strong buy-in from senior management.

- **Focus on management practices with the potential to generate high impact** (such as strategy, finance, HR and innovation) – business owners may be reluctant to commit time to digital tools unless they perceive the contents to be important.

- **User-friendliness** – The user interface should be designed with all levels of user knowledge and capability in mind. Key terms should be defined, questions and guidance should be made intelligible, and technical terms and jargon should be kept to a minimum. In addition, the 'look and feel' of the tool should use culturally sensitive text and images likely to attract diverse users (for example, by gender, ethnicity, and age).

- **Connectivity** – Enabling partner organisations to connect their own digital products to the tools offers benefits to digital tool operators and their partners. For operators, this permits access to partners' client and membership bases, and by enabling them to contribute to the tool dataset, it provides greater confidence in the data patterns and trends identified. Partners benefit because they avoid the time and money costs of building their own API (application programming interface), while also gaining access to the dataset for their own needs.

Challenges and trade-offs

Policymakers and digital tool operators face a number of challenges in tool choice and operation:

- **Balancing easy data input with powerful diagnosis** – Where data input requirements are long, complex or ambiguous, users may be deterred from completing assessment and benchmarking tools. BDC Productivity Benchmarking (Canada) requires user businesses to answer just nine questions to generate benchmark scores. As long as users have the relevant documents readily to hand, they should take no more than five minutes to complete the assessment and read the outputs. In contrast, the Small Business Assessment Tool (France) requires answers to 93 questions, many of them multi-part, to complete all assessment tools. Digital tool operators face a trade-off between brevity of user journey and the quantity and quality of information needed to support a powerful diagnosis of user capabilities, activities and performance.

- **Balancing helpful guidance with ease of use** – There is also a trade-off between the quantity and quality of output information supplied by operators (for example to justify assessment scores) and the amount of time entrepreneurs are required to commit to interpreting them. Longer, more detailed outputs offer the potential for greater reflection and impact but require entrepreneurs to

commit more time. In some cases, outputs are no more than a short list of bullet points and related infographics *(*BDC Productivity Benchmarking, Canada). In other cases, assessment tool reports could be 20 pages long (Business Propel, Australia). Where users take all assessment tools, and request pdf reports for each, a substantial amount of reading is required.

- **Threats to data quality** – Where tools rely on user inputted data to build up a benchmarking data base they are potentially vulnerable to users inputting mistaken or false data, with attendant risks to the validity of data patterns and trends identified and to the algorithms that are often adjusted in the light of new data. Registration cannot guarantee data quality, although the incentives to enter false information are weak. With large datasets, small amounts of false data do not seriously affect validity, but any data corruption is a concern. The Small Business Assessment Tool (France) identified, and removed, a number of instances of assessment tools being completed in inhumanly fast times, suggesting deliberate malign interventions.

Part II.
Case Studies

3. Overview of case studies

Comparison of key characteristics of the case study tools

#	Tool	Country	Target user	Broad: Business performance	Specific: Growth	Specific: Digital	Quant: Administrative/Tax data	Quant: Survey data	Quant: User generated data	Qual: Management practices	Time <10 min	Time >10 min	Sign-post	Integrated	Public sector	Private sector	Other	Dev <EUR 500k	Dev >EUR 500k	Op <EUR 50k	Op >EUR 50k
1	Australian Tax Office Small Business Benchmarks	Australia	All SMEs	✓			✓				✓		✓		✓			✓			✓
2	Be the Business	United Kingdom	10-249 emp	✓			✓			✓	✓		✓				✓	N/A		N/A	
3	Business Propel	Australia	All SMEs		✓					✓	✓			✓	✓			N/A		✓	
4	Canadian Business Productivity Benchmarking Tool	Canada	All businesses	✓			✓				✓		✓		✓			✓		✓	
5	Digital Maturity Assessment Tool	Canada	All SMEs			✓				✓	✓		✓		✓			✓		✓	
6	Early Warning Scan	Belgium	All SMEs	✓						✓	✓				✓			N/A		✓	
7	futureSME Capability Diagnostic Model	10 EU countries	50-150 emp		✓			✓				✓		✓	✓*	✓			✓	N/A	
8	GROWTHmapper	United Kingdom	Business advisors		✓					✓	✓		✓		✓	✓		N/A		N/A	
9	Industry 4.0 Readiness	Germany	>20 emp in mechanical engineering or manufacturing sectors			✓		✓			✓		✓				✓	N/A		N/A	
10	SizeUp Initiative	United States	All SMEs		✓		✓				✓		✓		✓*	✓		N/A		N/A	
11	Small Business Assessment Tool	France	<50 emp	✓					✓	✓	✓						✓	✓		N/A	
12	Smart Diag'	France	All SMEs			✓				✓	✓		✓		✓			N/A		N/A	

Column groups: OBJECTIVES (Broad, Specific), BENCHMARK METHOD (Quantitative, Qualitative), INTENSITY OF USE (Time required, Follow-up services), MANAGED BY (Public sector, Private sector, Other), COSTS (Development, Operating).

*Denotes tools that were developed by the public sector but are now delivered by a private sector company through a formal licensing agreement.

Short description of key features each case study tool

1. Australian Tax Office Small Business Benchmarks

Australia	
Web address	https://www.ato.gov.au/Business/Small-business-benchmarks/
Main objective	To provide key health check benchmarks for SMEs and to help the Australian Tax Office (ATO) identify businesses with tax returns that fall outside of industry norms.
Target users	SMEs with turnover less than AUD 15 million (approximately EUR 8.8 million) and business advisors.
Responsible organisation	Australian Tax Office
Overview	The tool informs users to collect different tax forms and pieces of information prior to working with the tool. Users then enter this information using the ATO app and the tool computes seven key benchmarks. The benchmarks are presented as ranges to account for variations across firms. If firms fall outside of the ranges, they are instructed to double check their information. This may potentially lead firms to report errors in past tax declarations, as well as follow-up actions from the ATO (e.g. letter requesting more information).
Benchmark data	Benchmarks are computed from the tax returns of approximately 1.5 million SMEs. Data are updated annually.
Development process	The initial set of benchmarks were released in October 2009. They were developed out of a broader initiative to use existing administrative data for practical purposes.
Costs	The 2009 federal budget allocated AUD 9.97 million (approximately EUR 5.9 million) over four years for the development of the tool and related compliance activities.
Take-up	Not available.

2. Be the Business

United Kingdom	
Web address	https://www.bethebusiness.com/
Main objective	To nudge SMEs into making improvements to their business management practices by benchmarking their competitive position and management practices against other SMEs in their sector.
Target users	SME with 10-249 employees, especially those that are average or below average performing firms.
Responsible organisation	Be the Business, backed by the Ministry for Business, Energy and Industrial Strategy and founded by the Productivity Leadership Group, which is a non-profit organisation that receives public funding.
Overview	The tool has a very short benchmarking questionnaire with five modules: Leadership & Management, Sales & Growth, Planning, Digital Readiness & People and Team. Each of these take between six and eight minutes to complete. There is also a productivity measure to place the user in the productivity distribution.
Benchmark data	The tool assesses the SMEs' capacity for improving management practices, however it also provides some quantitative benchmarks that are based on statistics from the Office of National Statistics (ONS).
Development process	Be the Business was set up as a charity in 2017-18 and it was given the mission to address the productivity crisis in UK firms. The online tool was launched in April 2018 to help increase its reach into the business community. Although version 2.0 was launched in May 2019, development is ongoing. Future plans include making stronger links between the tool and more intensive follow-up support.
Costs	Development costs are not available. Ongoing operational costs include approximately USD 800 (approximately EUR 730) per month for hosting the website and some staff are dedicated to maintaining and developing the content and functionality of the tool.
Take-up	The tool aimed to have 3 500 sessions in the first year, which includes both new and returning users.

3. Business Propel

New South Wales, Australia	
Web address	https://businesspropel.com.au/home
Main objective	To help SMEs improve their performance by assessing their business practices against good practice standards.
Target users	All SMEs.
Responsible organisation	Australian Business Solutions Groups under the auspices of NSW Business Chamber, which has a voluntary membership. There is a strong relationship between the regional government and the Chamber.
Overview	Business Propel is an online programme to track and support businesses' progress on an ongoing basis. It is interactive, engaging and easy to navigate programme including for example a health check. The programme expects users to keep returning to monitor and review their business progress, which perhaps is an issue that needs further investigation.
Benchmark data	Good practices
Development process	The tool was developed in 2014 by the Australian Business Solutions Group, which is the commercial arm of the NSW Chamber.
Costs	Development costs are not available. There are currently 12 dedicated staff members.
Take-up	More than 3 000 SMEs worked with the tool in 2018, completing 2 267 health checks.

4. Canadian Business Productivity Benchmarking Tool

Canada	
Web address	https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/business-assessments/canadian-business-productivity-benchmarking-tool/pages/default.aspx
Main objective	The tool aims to help businesses benchmark their performance against similar businesses.
Target users	All businesses
Responsible organisation	Business Development Bank of Canada, which is a public corporation.
Overview	The tool benchmarks business productivity levels against those of similar businesses in the same sector. Five benchmarks are offered: i) overall; ii) revenue per employee; iii) profit per employee; iv) labour productivity; and v) capital productivity. The tool generates a detailed printable report for users and provides links to information sources and various business development support services.
Benchmark data	The data used to support this benchmarking tool is provided by Statistics Canada (Canadian Centre for Data Development and Economic Research), which are based on federal corporate income tax returns.
Development process	The free online tool was developed by the Business Development Bank in collaboration with Statistics Canada. It was launched in October 2016.
Costs	Development costs were less than CDN 50 000 (less than EUR 32 000), including staff costs. Operational costs include a small fee to Statistics Canada to cover the costs of updating the benchmarks and a small number of staff.
Take-up	Since 2006, about 45 000 users have worked with the tool.

5. Digital Maturity Assessment Tool

Canada	
Web address	https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/business-assessments/digital-maturity/pages/default.aspx
Main objective	To identify opportunities for digitalisation to improve productivity for SMEs.
Target users	SMEs that are interested in improving productivity through digitalisation.
Responsible organisation	Business Development Bank of Canada, which is a public corporation.
Overview	The tool asks SMEs about the use of digital technologies and digital culture in the firm, as well as some basic information on the firm (e.g. number of employees, turnover, sector, region). The tool provides a report that benchmarks the SME's use of digital technologies against similar firms. The report also offers suggestions of how the user could more effectively use digital technologies and links to information and consulting opportunities.
Benchmark data	The underlying benchmarking data were derived from a survey of 2 000 SMEs. Benchmarks are weighted by region and size of business.
Development process	The tool was launched in October 2018. It is expected that the benchmark data will be updated regularly, but this requires launching surveys each time.
Costs	Development costs included less than CDN 500 000 (less than EUR 32 000) for data collection and building of tool, plus salary for an economist.
Take-up	To be assessed 2020.

6. Early Warning Scan

Wallonia, Belgium	
Web address	https://www.earlywarningscan.be/fr
Main objective	To help entrepreneurs identify the early signs of financial difficulties that could threaten the survival of the business.
Target users	Self-employed workers and SMEs operating in Wallonia as well as their advisors.
Responsible organisation	The tool is managed by the public investment fund *Société Wallonne de Gestion et de Participations* and is implemented by local chambers of commerce.
Overview	The tool contains a self-assessment questionnaire with 25 questions. Users can indicate that they would like to be contacted by a business advisor from the Enterprise Bouncing Back initiative (*Entreprise en Rebond*) for a follow-up discussion.
Benchmark data	The tool is based on self-perceptions and does not use benchmarking data.
Development process	The tool was established in 2005 to complement the Centre for Enterprises in Distress (*Centre pour entreprises en difficultés*), which is now Enterprise Bouncing Back initiative.
Costs	The tool had a budget of approximately EUR 15 000 for 2019.
Take-up	Take-up is under review.

7. futureSME Capability Diagnostic Model

Ten European Union Member States	
Web address	http://www.futuresme.eu/diagnostic
Main objective	To provide performance benchmarks for SMEs so that they can improve their practices to achieve better performance outcomes.
Target users	All SMEs, but especially those with 50 to 150 employees. SMEs with high-growth potential are prioritised.
Responsible organisation	FutureSME was developed by researchers at the University of Strathclyde, in partnership with 26 other partners across the European Union. The project was supported and monitored by the European Commission. It is now licensed to a private consulting company in Scotland, United Kingdom.
Overview	The tool is the first part of a three-step support system. It analyses the following four key aspects: i) strategy; ii) operations; iii) management; and iv) adaptability. An output report is automatically generated highlighting the key priorities the SME needs to address in order to improve its business performance and competitiveness and illustrating visually how it compares to other SMEs.
Benchmark data	The data inputs by SMEs contribute to create benchmarking datasets available for comparative purposes.
Development process	Under its Research and Innovation Framework Programme, the European Commission launched a call for proposals to help stakeholders to develop a digital diagnostic tool across European countries. The project was awarded to a consortium of 26 partners (13 SMEs and 13 R&D institutions representing 8 European countries) led by the University of Strathclyde (Scotland, UK). The final methodology was tested and approved by over 70 business organisations from Europe (mainly UK, Ireland, Czech Republic, Poland, Italy and Turkey).
Costs	The development of the tool had an overall budget of EUR 8 016 171, including an EU contribution of EUR 5 999 959 (75% of the total).
Take-up	Not available.

8. GROWTHmapper

United Kingdom	
Web address	https://about.oigrowthmapper.com/
Main objective	To identify perceived growth capabilities so a business advisor can help the business to tackle deficiencies.
Target users	Business advisors.
Responsible organisation	The tool was developed by Oxford Innovation, a non-profit organisation.
Overview	Business advisors work with SME managers to complete a questionnaire with 90 questions on ten themes, including business strategy, marketing, operation management. However, it is estimated that the questionnaire takes about 10-15 minutes to complete. The tool is intended to be used as part of a business consultation process where various follow-up supports are provided. The tool has been used as part of public programmes such as the regional GrowCornwall programme and users can access the tool for free. However, the tool is also used as part of the management consulting offers by Oxford Innovation, which have a fee.
Benchmark data	The tool provides an assessment of practices using a qualitative methodology.
Development process	The tool was privately established by Oxford Innovation, which is a non-profit company that is financially supported by charitable donations. The tool was launched in 2011 and was used in England's GrowthAccelerator Programme (2012-2015). The software platform was rebuilt in 2018 to include new functions, including versions for start-ups and another for manufacturing businesses. Developments are ongoing.
Costs	Not available.
Take-up	The tool was used as part of the GrowthAccelerator programme and had around 20 000 users through this programme. However, this may not reflect actual demand since it was a required element of a comprehensive programme.

9. Industry 4.0 Readiness: Online Self-Check for Businesses

Germany	
Web address	https://www.industrie40-readiness.de/?lang=en
Main objective	To allow users to assess how well they are prepared for Industry 4.0.
Target users	SMEs with more than 20 employees in mechanical engineering or manufacturing sectors.
Responsible organisation	Commissioned by IMPULS Foundation of the German Engineering Federation (VDMA), and conducted by IW Consult (a subsidiary of the Cologne Institute for Economic Research) and the Institute for Industrial Management (FIR) at RWTH Aachen University.
Overview	Detailed self-check questionnaire for businesses to identify their strengths and weaknesses. It scores users from Level 0 to Level 5 across six dimensions: i) strategy and organisation; ii) smart factory; iii) smart operations; iv) smart products; v) data-driven services; and vi) employees.
Benchmark data	Built from survey of firms with more than 20 employees.
Development process	Tool developed out of a research project that was completed in 2015.
Costs	Not available.
Take-up	More than 7 000 firms completed the tool between fiscal year 2017-18 and October 2019.

10. SizeUp Initiative

United States	
Web address	https://company.sizeup.com/
Main objective	The tool aims to help SMEs become more profitable and competitive by comparing their performance with their competitors in the same region and field of activity.
Target users	SMEs and start-ups
Responsible organisation	GIS Planning, a business consulting company. However, the tool was developed in partnership with the United States' Small Business Administration (SBA), which also originally hosted the tool.
Key functions	The tool contains three main components. The first component ("My Business") offers benchmarking so that users can compare the performance of their business against the performance of others. Other sections offer tools to map competitors ("Competition") or gain insights improving the effectiveness of advertising ("Advertising"). The tool provides reports to users with results from the benchmarking and assessment tools, including some general suggestions for how improvements could be made. It also provides links to pertinent resources based on the information input by the user. It is recommended that users work with the tool at least twice per year.
Benchmark data	SizeUp integrates information provided by several Government sources and agencies, including the Internal Revenue Service, the Postal Service, the Bureau of Labour Statistics, the Patent and Trademark Office and the Census Bureau, together with private sector sources such as phone directories, business publications and commercial data providers. The SizeUp database includes information on over 14 million businesses.
Development process	The tool was developed by a private company and presented at the TechCrunch Disrupt event in 2011. It was a top finalist and subsequently received financial support from the US SBA. The SBA hosted the tool and provided free access as of September 2012. However, the tool is now hosted and maintained by the developer and licensed to government and non-governmental organisations.
Costs	Development costs are confidential. Operating costs include website hosting expenses, data licensing and promotional materials.
Take-up	Not available.

11. Small Business Assessment Tool (SBAT)

France	
Web address	https://opee-sbat.org/en/?lang=en
Main objective	To provide benchmarking for SMEs so that they assess how to improve their business performance.
Target users	SMEs, business advisors, investors, bankers, policymakers, etc.
Responsible organisation	Observatory on Practices of Entrepreneurs and Enterprise, which is a group of researchers and practitioners.
Overview	The tool uses a two-step process to assess SMEs' performance. First, an online questionnaire is used to categorise the SME into one of four different business models. Second, the business performance according to standard practices of firms in three models. The tool then provides a diagnostic report that identifies the users' business model and positioning relative to other SMEs with the same model.
Benchmark data	Benchmarking is based on a dataset developed by the Observatory on Practices of Entrepreneurs and Enterprise. The unique feature of the SBAT dataset is that the dataset comprises only user-provided data.
Development process	The project was launched in June 2015 and the first version of the tool was released in June 2016. A second version was deployed in June 2017 with improved algorithms and additional modules on Human Resources, Leadership and Corporate Social Responsibility are anticipated. Efforts have been ongoing to increase the underlying database and to increase use, including through the development with research and business organisations around the world.
Costs	EUR 173 000 (research grants)
Take-up	3 133 new users in 2019

12. Smart Diag'

France	
Web address	https://smartdiag.opcoep.fr/
Main objective	To identify the level of digital maturity in SMEs and support further digital adoption in micro and small firms.
Target users	SMEs and self-employed.
Responsible organisation	*France Num*, an initiative managed by the Ministry of Economy and Finance.
Overview	A short survey about the use of digital tools in business practices and processes. It provides an assessment of practices relative to similar SMEs and offers suggestions for improvements. The tool also provides links to various support organisations and public programmes. The tool is the first step in an integrated programme called "Smart SME", but it can also be used freely by any business. However, businesses are required to enter their business number to complete the questionnaire.
Benchmark data	Good practices developed by business professionals in the *France Num* network.
Development process	The tool was developed with a year-long consultation process led by the National Digital Council.
Costs	Development costs are not available. France Num has a budget of EUR 700 000 for 2020 to cover all of its activities, including the tool.
Take-up	Metrics on usage of the tool are not available, but social media impact suggests that the tool has had a low take-up.

4. Case 1 Australian Tax Office (ATO) Small Business Benchmarks, Australia

Box 1. Snapshot of the ATO Small Business Benchmarks

Address: https://www.ato.gov.au/Business/Small-business-benchmarks/
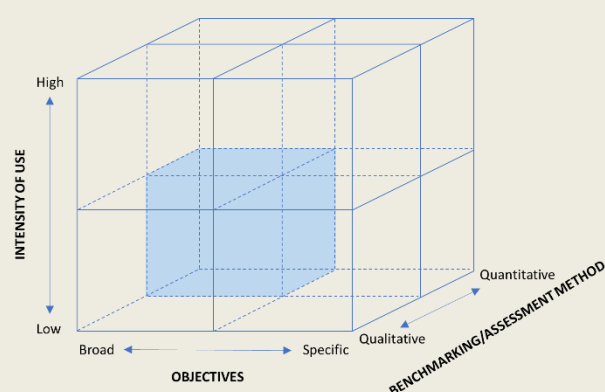
Operated by: Australia Tax Office.

Target users: SMEs with annual turnover less than AUD 15 million (approximately EUR 8.8 million) and business advisors.

Main objectives: Health check for SMEs, as well as a tax compliance tool.

Overview: Shot standalone questionnaire that requires users to input some financial information. The tool benchmarks the users SME against firms of similar size in the same industry and region. Benchmarks are presented as a range, and the ATO may follow-up if users are outside of industry norms.

Benchmarking/assessment approach: Quantitative (tax data) and qualitative.

Objectives

The Australian Tax Office (ATO) offers a benchmarking tool for SMEs that allows them to compare their performance against other SMEs. The main objectives of the tool are:

- To encourage business owners and managers to perform annual "health checks" to see how their costs compare to their competitors;
- To enable business owners and managers to assess whether there are an irregularities or discrepancies that may be flagged for an audit to the ATO; and
- To alert the ATO to investigate businesses that fall outside of the benchmarking norms.

The ATO's small business benchmarks are intended to cover businesses with annual turnover less than AUD 15 million (approximately EUR 8.9 million).

Rationale

Financial benchmarking is offered to SMEs to help them identify issues in their management practices or processes, and helping business managers to make sound business decisions.

Overview of the tool

The benchmarking tool is based tax return and activity statements filed with the ATO by Australian SMEs. This dataset contains financial information on more than 1.5 million SMEs across 100 industries. Although the ATO has access to a large volume of data (i.e. tax records), the benchmarks themselves are limited to only a handful of metrics (Figure 2). Due to the small selection of metrics, users who want to assess the overall business performance will need utilise a more comprehensive benchmarking service and are encouraged to contact a professional business advisor.

Figure 2. ATO Small Business Benchmark metrics

Tax return benchmarks	**Income activity benchmarks**
• cost of sales to turnover (excluding labour) (not available for all industries) • total expenses to turnover • rent to turnover • labour to turnover • motor vehicle expenses to turnover	• non-capital purchases to total sales • GST-free sales to total sales

Two types of benchmarks are available in the tool, performance benchmarks and input benchmarks. Performance benchmarks are used to check business performance against other businesses in the same industry. These benchmarks include:

- income tax ratios such as cost of sales to turnover, total expenses to turnover, and rent to turnover; and
- activity statement ratios, including non-capital purchases to total sales, and GST-free sales to total sales.

Input benchmarks apply to tradespeople who purchase their own materials to perform jobs for household customers. These benchmarks show an expected range of income based on the total cost of labour and materials used. They are calculated from information provided by trade associations and other industry participants. For example, the West Australian Solid Plastering Association helps the ATO set input benchmarks for plasterers who work with domestic customers.

SMEs can use the benchmark tool in different ways. The easiest way is to use the Business Performance Check Tool, which within the ATO app. The ATO app can be downloaded for free onto smart phones and tablets. Alternatively, SMEs can work with tax professionals or business advisors to use the tool. This could be part of a more comprehensive benchmarking and assessment process. SMEs can also download the benchmarks as an Excel file and work with them offline. The website provides detailed instructions for how

these users can correctly compute the benchmark ratios and compare them with the correct ratios in the spreadsheet.

When working with tool through the ATO app, users are informed at the outset about the information that they will need to input (Figure 3). The first step is for users to sign in with their tax number and select the appropriate industry code. A tool is available for users to help select the correct industry if they are unsure. Next users input the financial information that is requested by the tool and a report is generated that benchmark the ratios for the user's firm against the range of industry norms.

One of the functions of the ATO Small Business Benchmark Tool is to allow small businesses to identify any discrepancies against industry standards to help identify reporting errors or misreporting that may need to be flagged for an ATO audit. Users that identify reporting errors in previous tax returns can make a voluntary disclosure to make corrections. It is possible that ratios that fall outside of industry norms will trigger follow-up actions by the ATO, which could range from a letter that requests an explanation for the discrepancy to an audit to investigate irregularities.

Figure 3. Checklist of information needed to use the ATO Small Business Benchmark Tool

Gross business income
- Sales records, which could include:
- Tax invoices for goods and services provided
- Sales invoices, vouchers or receipts
- Cash register tapes, credit card statements
- Bank deposit books and account statements

Salary and wages
- Salary or wages of business owner
- Salaries or wages of employees
- Payments to associates

Vehicles
- Information depends on accounting method used

Interest
- Credit card
- Overdraft

Other
- Statements of purchases from suppliers or tax invoices
- Contracts for labour hired
- Purchase or expense records such as:
- Cheque records
- Bank account records
- Credit card statements

Cost of sales
- The cost of anything produced, manufactured, acquired or produced, including for example:
- Sale or exchange in deriving the gross proceeds
- Earnings of the business

Source: https://www.ato.gov.au/business/small-business-benchmarks/compare-your-business-now/what-you-need/

Benchmark data

The ATO develops small business benchmarks for use in any particular year based on data from business income tax returns. These data are complemented with data from activity statements for firms that operate in ATO-identified cash economy sectors. Updated benchmark data are released each year.

Industry benchmarks are derived from the industries set out in the publication ATO Business industry codes, which are an ATO adaptation of the Australian Bureau of Statistics' ANZSIC codes (4-digit based). The ATO has adapted these ABS ANZSIC codes by adding a fifth digit to allow for a greater level of distinction of industries. For example, the 4-digit ABS ANZSIC code 4121 covers "Fresh Meat Fish and Poultry Retailing". The ATO has used the fifth digit to distinguish between seafood, poultry and meat retailing. In many industries, the ATO has not used the fifth digit to distinguish between sub-industries belonging to a code. For example, the ATO business industry code 41290 covers 13 listed types of "Specialised food retailing" businesses such as bakeries, cake retailers, small goods retailers and confectionery retailers. None of these listed business types have their own particular 5-digit code.

The benchmarks are published a range rather than a single number to recognise that variations occur between businesses due to large number of factors (e.g. location). The development of the benchmark ratios includes an analysis for trends over time, as well as for correlations between different benchmark ratios and turnover volumes since some of the benchmarks are sensitive to turnover. The benchmark methodology has been verified as statistically valid by an independent organisation and is consistent with international approaches.

Development process

The small business performance benchmarks were launched in October 2009. The motivation behind the project was to leverage existing tax data and the ease-of-use of online platforms to both support SMEs and potentially increase compliance with tax obligations.

The ATO undertook an initial consultation on the tool to assess concerns about the tool's use as a tax compliance mechanisms. While stakeholders were generally supportive of the concept of using a benchmarking tool to identify risks, a number of concerns were raised. First, stakeholders were concerned about the transparency of the development of the benchmarks. In response, the ATO seeks an independent verification of the benchmarks before they are published. Second, some concerns raised about the validity of equating businesses with financial performance "significantly outside" of the benchmarks with a higher risk of under-reporting. Stakeholders also raised a number of concerns about potential follow-up actions and methods, notably a potential over-reliance in using the benchmarking tool as evidence.

When launched, the ATO promoted the benchmark tool through its website, electronic communications to tax practitioners, flyers for small businesses and industry associations. In subsequent years, communication activities were expanded to include advertisements in the ATO's TAXAGENT magazine, wide electronic communications to professional business service providers and state-based small business education networks and institutions; and discussion in ATO consultation forums.

The initial version of the benchmark tool was built on tax data for the tax years 2008 and 2009. The ATO extracted data from the income tax return returns, such as cost of sales and turnover, and then developed a set of ratios used for benchmarking. In subsequent years, the method was improved by also extracting data from activity statements so that additional ratios could be computed, including a non-capital purchases/sales ratio and a GST-free sales/total sales ratio.

Costs

The 2009 federal budget allocated AUD 9.97 million (approximately EUR 5.9 million) to the ATO over four years (fiscal year 2009-10 to fiscal year 2012-13) to develop small business benchmarks and conduct compliance activities based on these benchmarks.

Impact

In 2017, the ATO reported that there were more than 1 million users of the ATO (ATO, 2017). However, individual users and business users are not differentiated.

A survey of tax agents in 2011 indicated that 89% were aware of the small business metrics and 75% of those who were aware of the tool used the benchmarks in their work, while 66% referred small business clients to the benchmarks (Chat Link and Associates, 2011).

Success factors

The ATO Small Business Benchmarks is an example of a tool that has two very different objectives, namely improving the performance of SMEs as well as improving compliance with tax obligations. A key success factor in achieving this double objective was the consultation process, which helps get buy-in from businesses and business organisations but also helps to promote the tool. This is important because the use of a tool for tax compliance could be a disincentive for users.

In addition, the use of tax data helps to ensure that the benchmarking is based on high quality data. Use of all business tax records used allows for fine breakdowns of different firm characteristics, which helps make the tool more relevant and attractive to users. It is also relatively easy to regularly update the underlying data so the benchmarks are always current. The factors also boost the credibility of the tool.

Sources

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Benchmarking Data and Research (2019), "ATO Small Business Benchmarks Explained", https://www.benchmarking.com.au/articles/bbs/inform/ato-small-business-benchmarks-explained/.

Chat Link and Associates (2011), "Tax Agent Perceptions Survey 2011", https://cdn.tspace.gov.au/uploads/sites/16/2014/11/benchmarking-to-target-cash-economy.pdf.

5. Case 2 Be the Business, United Kingdom

Box 2. Snapshot of Be the Business

Address: https://www.bethebusiness.com/
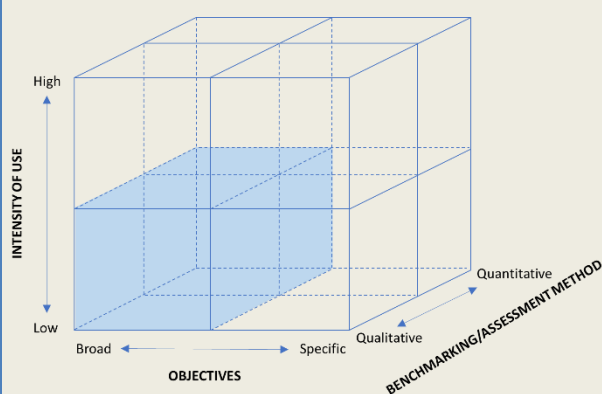
Operated by: Be the Business, a non-profit charity that is partly funded by the UK Department for Business, Energy and Industrial Strategy.

Target users: All SMEs.

Main objectives: To improve business performance.

Overview: Standalone survey with five modules: (Leadership & Management, Sales & Growth, Planning, Digital Readiness & People & Team). Users are directed to relevant resources, including business development support providers and public programmes, depending on responses.

Benchmarking/assessment approach: Quantitative and qualitative.

Objectives

The target audience for the diagnostic tool are SMEs, defined as businesses with 10 to 249 employees. Within this broad spectrum, there is an emphasis on reaching firms in particular industries and regions. Be the Business (BtB) targets hospitality businesses and small manufacturers because increasing productivity in these firms is anticipated to be especially rewarding. Efforts have been made to encourage take-up in particular regions such as Cornwall and the North West where there are large numbers of hospitality and manufacturing firms. This sectoral and regional targeting complements other BtB programmes and can be a useful first step to promote a widespread benchmarking exercise, to generate programme awareness and to act as a funnel for more comprehensive engagement with firms. This does not limit SME access outside these industries and regions or diminish the user experience. There is no targeting of disadvantaged groups beyond this industrial and regional focus.

Rationale

BtB, established in 2017, is a non-profit registered charity, partly funded by the UK Department for Business, Energy and Industrial Strategy (BEIS). BtB offers a range of services focused on leadership, management and technology adoption, aimed at increasing productivity and business competitiveness. Services include: the diagnostic tool, freely available to all SMEs; a national mentoring programme; and community networking, emphasising peer-to-peer learning rather than government or academics telling business owners how to operate. This is an innovative government approach – providing strategic support for bottom-up support and delivery. The diagnostic tool, combining assessment and benchmarking functions, supports SMEs to assess a range of managerial capabilities and to benchmark their productivity performance against similar firms.

Target users are believed to have sufficient scale and capacity to absorb and apply interventions in a meaningful way, and that the resultant productivity uplift will itself be significant. Cornwall, for instance, is a low productivity region with a high density of tourism/hospitality businesses. Because hospitality is a high-employment, low-productivity sector, BtB felt that a focus on this sector/region combination could yield strong results. The North West, with a strong manufacturing base, and low diffusion of best practice from high-performing firms to SMEs might also benefit from a closer focus on productivity issues.

BtB also targets family businesses because there are a large number of them and many have informal management structures. There is therefore great potential for supporting family businesses if close contact with principal decision-makers can be achieved. BtB collaborate with family businesses already, contributing programmes/methodology as added-value to such firms' networks.

Overview of the tool

The current tool (Version 2.0) was launched in May 2019. Most similar tools used by membership organisations and industry bodies are reported to operate behind a membership wall or paywall. Service users can either use the tool anonymously or become registered. To register, users must input information regarding: business name; business address and postcode; turnover; intermediate consumption (defined as total purchases of energy, goods, materials and services consumed as inputs by a process of production); number of employees; industry and sub-industry (optional). Registered users can store data and retrieve it for repeated use.

Employment and industry data are used to benchmark user businesses with firms in the same broad size class (distinguishing small businesses with 10-49 employees and medium-sized businesses with 50-249 employees) and firms in similar industries. The tool uses UK Standard Industrial Classification categories to classify businesses at varying levels of aggregation (section, division, group, class and sub-class), although its industry and sub-industry categories do not correspond precisely to SIC categories. So, for example, the tool uses Agriculture, forestry and fishing (a 1-digit SIC section) and Accommodation (a 2-digit SIC division) as industry categories. Users can choose which of 27 industry categories and, where appropriate, which sub-industry, is the best description for their business.

The tool benchmarks users within the wider distribution of similar businesses by measuring productivity (calculated as Gross Value-Added (GVA)) to be higher or lower than average, and by how much in percentage terms. GVA is calculated by subtracting user-provided intermediate consumption costs from turnover and dividing the residual by number of employees. Benchmarking data is provided by the Office for National Statistics (ONS) and is publicly available. ONS data derives from business responses to the Annual Business Survey which is completed by 65 000 firms. Clicking the "Get your results button" takes users to a results dashboard displaying a benchmark productivity score.

Users can undertake up to five separate assessments to identify their strengths and weaknesses relating to a range of managerial functions and activities:

- People and team
- Planning
- Sales and growth
- Digital readiness
- Leadership and strategy

Each assessment presents users with six to ten single/multi-choice questions to answer. For the leadership and strategy assessment, for instance, users are asked nine questions and invited to choose from a list of four to seven response categories. The first question is: "Which of these statements best describes how your business engages with external stakeholders? This could include local councils, investors, suppliers and the like - but excludes customers". Users are asked to choose one response from a list of four:

- "We don't really engage with external stakeholders/we only engage with external stakeholders if we have to"
- "We have a view of who our external stakeholders are but it's up to leadership to manage these relationships"
- "We share the responsibility of stakeholder management throughout our business. We try to keep in touch regularly but sometimes we are too busy"
- "We are all aware that stakeholder management is a shared responsibility, and we actively speak and listen to our external stakeholders"

On completion of each assessment, users are taken to a results page that identifies the weakest feature of that particular aspect of management, together with a percentage score. Scores are calculated and weighted depending on question type. For single-choice questions, answers are scored from two to ten; for multiple-choice questions, answers are weighted depending on their efficacy towards improving productivity according to the McKinsey method. Users achieving a score below a certain threshold (approximately 70%) are directed to additional content, to tips and case studies in relation to the management practices identified as being weak, and to a downloadable handbook for further advice and information. Tips take the form of short bullet points. So, for example, having identified "target setting" as weak, users are advised to:

- "Ensure targets are clearly defined and assigned"
- "Base targets on estimates made by people closely involved in the work (i.e. bottom-up estimates)"
- "Establish aspirational targets and take on the mindset of an outside investor"
- "Look outside of the business for benchmarks and analysis"

Users are also directed to short case study materials based on real business problems, solutions adopted and the results of action. Some cases, developed in-house, are based on real businesses; others have been outsourced to external providers to ensure a broad representation of business and owner types. Case studies are tagged with keywords to help readers find similar cases. So, for example, one case study, "Finding a North Star helped us focus on our future", classified under "planning" is tagged with the keywords - #goals, #mission, #targets and #vision. Searching on these keywords enables users to find additional cases. Users can also sign up for monthly "business insight" update emails if they would like additional information on selected topics.

BtB is supported in its work by a number of large corporations, with the role of each varying. Several promote the tool to their own client bases, for example, banks promote to SMEs via their platforms or local relationship managers.

BtB promote the tool through social media, advertising and communications to SMEs engaged in other BtB programmes. Government and small business associations have also promoted the tool, for example, through HMRC reminder communications regarding deadlines and through Federation of Small Businesses communications with members. Different messaging languages have been used to simultaneously raise awareness of the tool and to test what messages are most effective at prompting SMEs to take action. Other organisations also promote the tool to their memberships or clients; there is typically no cost to this, as they see it as value-added to their members/clients. Promotional activities are undertaken as collective initiatives as the information gathered is of value to all parties.

Since so many organisations are involved in promoting awareness among members/clients, this raises the challenge of generating awareness of the Be the Business brand. But, overall, the advantages of SMEs using the tool outweigh any brand confusion.

Benchmark data

The tool uses a combination of benchmarking and assessment. Users are benchmarked against a productivity metric and a small number of other performance metrics that are based on ONS data (see previous section). The tool also assesses responses against a scoring system that was developed based on progress towards good practice standards.

Development process

The origins of BtB lie in a proposal to government by a group of business leaders to set up an independent organisation to tackle the productivity crisis with government strategic support and funding. Government set out their agreement with this approach in "Fixing the foundations: Creating a more prosperous nation", published in 2015. BtB was set up as an independent charity and government provided charitable grant funding for three years, starting in financial year 2017-18. BEIS funding was GBP 2 million (approximately EUR 2.2 million) in year 1 (2017-18) and GBP 3 million (approximately EUR 3.4 million) in year 2 (2018-19). No funding was earmarked for the tool because this was judged to be a BtB operational matter.

Version 1.0 of the tool was launched in April 2018. A report, from McKinsey, identified links between management practice, leadership and productivity. The report proposed questions that might be used to determine what SMEs do, or do not do, well, answers to the questions, and the weightings to attach to each answer. This enabled the development of an algorithm to identify SME strengths and weaknesses. However, Version 1.0 offered only a "bare bones" tool and did not offer a user-friendly experience. There was little incentive to hook service users into taking the assessments and little guidance regarding which assessments to choose. Version 1.0 suffered an 85% drop-off rate at the assessment choice page.

BtB also discovered the ONS Productivity Tool at this time, which looked promising. Consequently, BtB decided to make a tool that was "super easy" for SME owners and managers to use. They aimed to use very simple language and to ensure that all concepts used in the tool were clearly explained. The BtB tool aims to provide a short user journey of five to ten minutes.

A key member of staff was then brought in to re-launch a more sophisticated Version 2.0. BtB approached an analytics company to help create a better user journey. The company conducted an initial analysis of the McKinsey research and Version 1.0 and consulted SME leaders, asking them if they wanted a Version 2.0, what it should look like and what would capture their imagination. The company provided the essential guidance and discovery work for Version 2.0, producing a 144-slide presentation setting out the necessary features.

The tender to find a partner to develop Version 2.0 was issued in November 2018. The first Version 2.0 prototype was produced for the BtB Festival in March 2019 and the Beta launch took place in April 2019. Version 2.0 was launched in May 2019. User testing was conducted at various stages throughout the development process.

Version 2.0 is still considered to be a Minimum Viable Product. There is limited variation in online content for different users. Integrating the online tool with offline support offered by BtB and other providers, such as mentoring services, remains a challenge. Future plans include developing the tool to incorporate a "decision tree" enabling users to access more tailored support. This will become even more important as the client base broadens industrially. Users will be prompted to consider other BtB programmes, depending on their particular business needs and circumstances. These plans pose a number of challenges that need to be addressed. First, they amplify substantially the amount of work that would be required, for example, to change terminology, calculate appropriate productivity measures and offer relevant, tailored information, advice and support. Second, it is crucial to ensure that new programmes are able to scale up sustainably and operate in the areas in which the SME is located.

Costs

A monthly fee is paid to the development company to implement product enhancements on a continuing basis. Hosting costs for Amazon Web Services are approximately USD 800 per month (approximately EUR 730), although this figure will scale up with increased user numbers. There are no data costs because all data has been obtained from freely available public sources.

Impact

There are currently no measures of impact on user businesses, defined in terms of changes in activity or performance, or of user satisfaction with the tool. The only evaluation measures relate to the number of sessions conducted with the tool. BtB uses google analytics and bespoke analytics to monitor the tool's performance against use targets.

BtB have always envisaged the tool as high-volume and low impact. A market of 285 000 potential SME users is believed to exist. Initially, BtB hope to reach 20% of these SMEs; now they believe they will reach 10% as partner organisations support scaling. Approximately two-thirds of users are new to the system each month, with the remaining third being returners/re-engagers. BtB want to increase the proportion of re-engagers.

A key success metric is improving the "conversion rate", the proportion of visitors to the web page who complete the assessment component all the way through to the results screen. The conversion rate has improved from 7% (Version 1.0) to 36% (Version 2.0). BtB aim to move towards a lower-volume, higher-quality, higher-impact business support approach, where users are directed to more tailored forms of additional support.

BtB are currently talking to major UK partners about enabling them to use the underlying dataset with someone else's front-end application. Partners could build their own front-end, while using the ever-expanding BtB dataset.

BtB plans to introduce three types of "satisfaction email" (expected to go live in January 2020) to ask users about their experience of operating and completing the tool. Users completing assessments will be asked to rate their experience and invited to try other assessments. Users who do not complete an assessment having started one will be asked why they did not complete. Users will also be asked whether they would recommend the tool to another colleague or business. Finally, users will be invited to make suggestions for improvements.

Success factors

Two important factors influencing the success of the tool were identified. First, the user interface was designed with all levels of business knowledge, numeracy and comprehension in mind. BtB decided to use gov.uk to host the tool in order to simplify it and make it useable by the largest number. The improved conversion rate is reported as evidence of success. The tool was tested on a BtB employee's 8-year old daughter for user-friendliness.

Second, the user interface was developed to enable large partner organisations to connect their own digital tools to the BtB diagnostic tool. Both the benchmarking and assessment tools can be incorporated into partners' own websites/web-apps. For instance, a retail bank with an online SME client interface featuring working capital and loan repayment digital tools can incorporate the BtB tool. Partners can encourage take-up because there is greater trust with their own customers than between BtB and these SMEs. This benefits BtB because the expanding volume of user transactions enables them to build a larger dataset providing greater confidence in the data patterns and trends identified. Partners benefit because they avoid the time and money costs of building their own API (application programming interface). Partners using the API gain access to the BtB dataset.

Conditions for transfer

Successful transfer of the tool to other environments depends on meeting certain conditions. First, high data quality. Reliable productivity data that covers all industries – the more fine-grained the better – is essential. Furthermore, SMEs may be reluctant to participate unless they are being compared with similar businesses. Second, users need to be supported to decide which assessment(s) to take. Benchmarking 1.0 had a large withdrawal rate at the assessment choice page. Third, asking business owners to commit time to using the tool means it needs to focus on management practices with the potential to generate a high impact on productivity. Fourth, ensure the user-friendliness of the tool, including simplicity in the language used throughout the tool. For example, defining key terms and making questions and text intelligible to the widest group of SMEs facilitates user accessibility and retention.

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6. Case 3 Business Propel, New South Wales, Australia

Box 3. Snapshot of Business Propel

Address: https://businesspropel.com.au/home
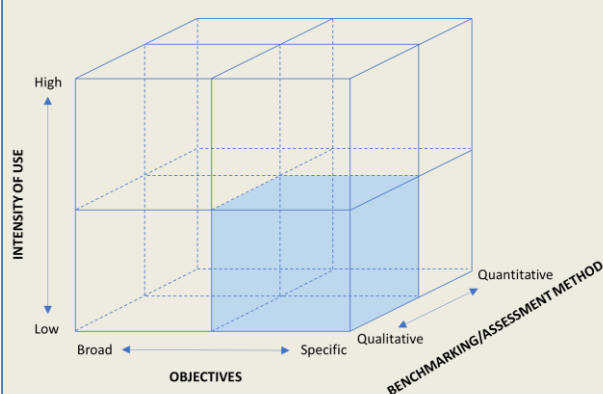
Operated by: NSW Business Chamber, a private chamber of commerce. The tool is supported by the New South Wales government.

Target users: All SMEs.

Main objectives: To help SMEs improve their performance by assessing their business practices against good practice standards.

Overview: Short survey track and support businesses' progress on an ongoing basis. It is intended to be used repeatedly.

Benchmarking/assessment approach: Qualitative.

Objectives

Business Propel is an assessment tool aimed at helping small and medium-sized business users to assess their business practices and to develop action plans to improve performance. The tool also enables user firms to benchmark their managerial capabilities against their own historical performance. The tool is intended to be relevant for small businesses in all sectors.

Rationale

In Australia, small business programmes are devolved from federal government to state level. State governments operate programmes to support start-ups and growing firms in order to provide economic and social benefits such as employment creation and reducing reliance on social security. The principal NSW government support programme is Business Connect. Businesses are able to access a range of support services, including tailored 1-to-1 advice as well as small-group workshops and seminars. In general, small business clients receive the first four hours of support free, with a further period of subsidised support, the precise subsidy varying with business location or special requirements (e.g. supporting businesses affected by the recent bush fires). Support is delivered at advisors' premises or remotely via skype, zoom or other teleconferencing applications.

Business Connect services include a number of diagnostic, or health-check, tools. Most health-check services are contracted out to a software company based in Auckland, New Zealand. 80 Business Connect advisors to have access to these tools in order to support their small business client portfolios.

Targeted users are typically sole traders or micro firms (one to five full-time employee equivalents, FTEs) up to firms with 20 FTEs. Larger firms may also be eligible for support if they consider themselves to be small and in need of support (about 3-4% of clients). There is a regional dimension to business support. Two thirds of businesses supported lie outside the Sydney metropolitan area, even though only one-third of businesses are located there.

Overview of the tool

Business Propel is operated by Australian Business Solutions Group under the auspices of New South Wales Business Chambers, supported by the New South Wales government. The tool is free to use to registered businesses. Users create an account and log in with a username, password, company name and region/location. After entry, users are presented with a dashboard summarising "My actions plans/My actions", "My Overall Score" (from taking the assessment tools) and "My business plans".

Users are invited to write in a free text box titled "How can we help improve your business today?" or to choose one of five assessment tools – people, customers, financials, strategy and operations. Selecting the "people" assessment tool, users see a box asking "What can you do to unlock the potential of your staff?". Clicking the box "People – how does your business rate?" channels users to a series of single- and multiple-response questions under 12 subheadings: your business; recruitment; training; culture; internal communication; HR management; remuneration; performance and development; administration; succession; policies; and workplace health and safety.

The "your business" section is mandatory; all users have to submit profile data to progress to further questions: number of employees; industry; whether clients are businesses or consumers; and business goals. Each of these questions offers a drop-down menu of possible responses. Users selecting "recruitment" are asked two questions:

- How do you identify the skills, qualifications and attributes you require in an employee? (Users are asked to select one from four possible responses)
- How do you locate and assess candidates for those qualities? Tick all that apply. (Users are presented with a multiple-response question with 11 possible responses)

For the "operations" assessment tool, users are asked questions under seven subheadings: your business; business processes, product and service delivery, technology, compliance, metrics, risk management and disaster recovery. So, for example, under processes, users are asked: "How confident are you that you know how your business is performing?", and offered the following response categories:

- There's money going in the bank most weeks so that's ok
- We keep an eye on the costs and revenue
- We have some measures we look at, (e.g., forward sales)
- The business can and does measure business performance regularly via a variety of key measures

On completion of each assessment tool, users see a management capability rating presented as a percentage score, a list of recommended action plans and a list of consultants for those wishing to access additional support. Clicking "View Recommended Action Plans" takes users to a list of plans including "Develop your marketing plan" and "Understand your customers and their activities". Following these links takes users through to short pieces of advice, and allows tasks to be allocated to people and to set a date by which tasks need to be completed.

Business Propel is well-integrated into the wider business support system. Clicking on "Find a consultant" takes the user to a screen displaying a directory of consultants which users may search by specialism, defined in terms of the five assessment tool topics (for example, people), selectable from a drop-down menu or by using a free text box. For each listed consultant, a "Learn more" button leads to additional information on key personnel and business profile, enabling users to make a selection. This page also makes it possible to contact consultants directly and to share any outputs generated by the tool.

At this point, users can generate a pdf report (approximately 20 pages) which includes the percentage score, a brief description of what it means, positioning on a qualitative scale rating capability as either excellent, very good, good, fair or poor, and a discussion of how performance might be improved. Generating reports for all five assessment tools can produce a substantial amount of reading for users.

Users can update responses by taking any of the assessment tools again. This facility permits users to benchmark their own historical performance and to generate new action plans to suit changing business goals and circumstances.

Benchmark data

Users are assessed on their progress towards good practice standards.

Development process

The New South Wales government in connection with the New South Wales Business Chamber decided to develop an online business planning tool. The Chamber created the software and manages the tool via its commercial arm, Australian Business Consulting & Solutions (ABCS), an organisation with a successful track record of developing diagnostic assessments, online systems and business education programs in collaboration with various business partners.

Business Propel was registered in 2014 and a version was developed for advisor use in 2018. The tool is described as being in "Phase 1" – a pilot testing stage. For Business Connect service users, there is a slight problem in that user details have to be input again in order to access Business Propel, rather than there being a single log in to access all services.

Major challenges include not only initial take-up but also encouraging users to stick with the tool and to persist with their business improvement efforts. Too few users get into the habit of working on the business, which is likely to yield greater impact.

Costs

There are 12 dedicated staff attached to Business Propel at Australian Business Solutions Group.

Impact

There is no formal evaluation of Business Propel. There are over 3 000 subscribers and in 2018, 2 267 health checks were completed.

The Chambers of Commerce have undertaken extensive marketing and conducted a number of outreach efforts including webinars to encourage businesses to have the one-page business plan, the first step in the Business Propel journey. Chambers of Commerce have also required those looking for awards to use Business Propel.

Success factors

The key to Business Propel for other countries is to understand how and online diagnostic process can be developed to solve the problem of trying to encourage businesses to reflect upon their progress periodically. It offers a one-stop shop for online business development based upon the businesses strategy and with documents in support of the business, how far the online environment works to encourage progress is the area that might be investigated most thoroughly because the online ongoing progress is likely to create the beneficial economic impact.

Conditions for transfer

Successful transfer of the Business propel tool to other national contexts requires certain conditions to be met. First, language issues are important where text needs to be translated into a new language. Tools need to be piloted with native speakers to ensure textual translations are valid. Second, and related, there is a need to ensure the language is appropriate for small business users and not too technical. Third, the "look and feel" of the web interface needs to be culturally appropriate for the widest range of potential users. For example, it is important to utilise images of a diverse range of people rather than drawing on particular social groups. Fourth, consideration needs to be given to evaluating tools to investigate their effects. User satisfaction data and, even better, activity data, is useful to ascertain the wider consequences of using diagnostic tools.
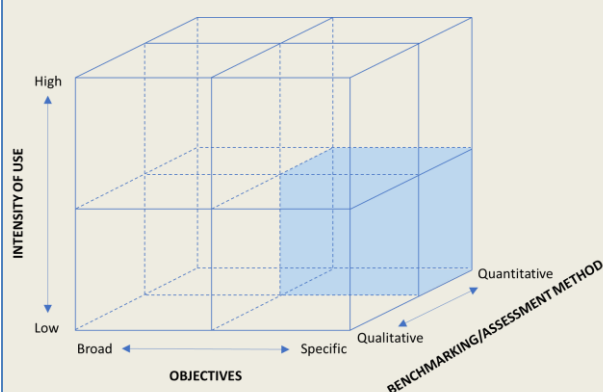
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7. Case 4 Canadian Business Productivity Benchmarking Tool, Canada

Box 4. Snapshot of Canadian Business Productivity Benchmarking Tool

Address: https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/business-assessments/canadian-business-productivity-benchmarking-tool/pages/default.aspx

Operated by: Business Development Bank of Canada (public corporation).

Target users: All businesses.

Main objectives: Benchmark business performance.

Overview: Short online survey that computes five benchmarks: i) overall; ii) revenue per employee; iii) profit per employee; iv) labour productivity; and v) capital productivity. Users a directed to business development resources, including other BDC programmes.

Benchmarking/assessment approach: Quantitative.

Objectives

The purpose of the Productivity Benchmarking tool is to help SMEs to increase productivity. However, the tool is suitable for firms of all sizes. SMEs are defined as businesses with fewer than 500 employees and with annual revenue of less than CDN 50 million (approximately EUR 32 million). Measuring and comparing productivity is believed to be an essential starting point on the road to improvement. A study by the Business Development Bank of Canada (BDC) (available at www.bdc.ca/productivitystudy) demonstrates that a business that formally measures productivity improves profitability and generally sees higher sales growth. Policy makers and economists are concerned that increased productivity is important for the welfare of Canadian citizens. Canadian businesses face a productivity challenge as their productivity is lower than for US firms, especially SMEs. Canadian businesses are often thought to be too small to be able to compete internationally. This productivity gap is partly explained by SME under-investment in ICT.

The Productivity Benchmarking tool can be used by small, medium-sized, and large businesses in almost all industries. BDC are keen to attract growing SMEs as these have a greater impact on the economy,

Businesses in almost 90% of industries, covering approximately 80% of businesses, are represented in the database which underpins the tool (firms covered by more than 800 industrial codes are included). Some industries are excluded because there are too few businesses in the industry, or because businesses are too diverse, for Statistics Canada to be able to provide valid data to support sensible comparisons between tool users and other businesses.

Rationale

The BDC operates the Canadian Business Productivity Benchmarking tool. BDC is a state-owned enterprise, a financially sustainable Crown Corporation, operating at arm's length from government. BDC helps to create and support businesses, mainly SMEs, through the provision of financing, advisory and capital services. This includes the supply of loan and equity finance as well as a range of advisory support, including several business assessment tools. The Productivity Benchmarking tool is one element in BDC's advisory services. BDC seeks to support entrepreneurs at all stages of development from start-up through its 123 Business Centres located across the country and online.

Overview of the tool

The Productivity Benchmarking tool is freely available and enables business users to benchmark their performance on a range of indicators with other Canadian businesses in the same industry. The tool uses corporate federal income tax return data and Statistics Canada's North American Industry Classification System (NAICS) to benchmark user businesses. Income tax returns are used because it makes it possible to obtain estimates from more than 600 000 Canadian businesses across multiple industries. Using these data sources ensures a high degree of consistency in benchmarking practice. Users are able to input data anonymously; the tool requires no data that could identify the business.

Users are required to submit a small amount of business data in order to generate meaningful benchmarks:

- Sector – the tool enables businesses to classify themselves using NAICS 6-digit categories. It is believed that most companies will be able to benchmark themselves at the 6- or 5-digit level. So, for example, entering NAICS 2-digit code 54 identifies Professional, Scientific and Technical Services providers. Users can then select their activities more precisely using a drop-down list of 6-digit categories such as Architectural services (code 541310) or graphic design services (code 541430). Greater precision facilitates more reliable benchmarking.

- Tax year – users can currently choose any year between 2013 and 2019 from a drop-down menu.

- Total revenue – users enter a figure in a free text box (taken from T2 Income Statement Information (schedule 125)). Users can click on a question-mark symbol to have total revenue (and other financial information) emailed to them if they do not have it readily to hand.

- Number of employees – users are requested to enter the average number of employees.

- Total tangible capital assets - users are requested to enter a figure in a free text box (taken from T2 Balance Sheet Information (schedule 100)).

- Total accumulated amortisation of tangible assets - users are requested to enter a figure in a free text box (taken from T2 Balance Sheet Information (schedule 100)).

- Total labour cost - users are requested to enter a figure in a free text box (taken from T4 Statement of Remuneration Paid).

- Net income/loss (positive or negative) - users are requested to enter a figure in a free text box (taken from T2 Balance Sheet Information (schedule 100)).

- Capital cost allowance (CCA) - users are requested to enter a figure in a free text box (taken from T2 Schedule 8).

Using user data inputted, the tool then generates calculations for five separate indicators and displays the results on screen using text and graphics to offer a quick visual comparison between user firms and their peers:

- Overall level of productivity – this measure is based on the efficiency to generate revenues given the resources used (people and tangible capital assets). Users are benchmarked against similar businesses (giving the precise number of comparator firms) using financial data taken from federal corporate income tax returns. Users are positioned on a scale of 0-100 (from least to most efficient) with markers at each decile. So, for example, a firm positioned between 10 and 20 on the scale is interpreted as there being at least 10% of similar firms being less efficient than the user business, while at least 80% of firms are more efficient.

- Revenue per employee – user performance figures are calculated, for example, CDN 135 000 (approximately EUR 87 000) per employee and compared with the industry average, and displayed using a bar graph to enable a quick visual comparison. A summary statement then sets out whether the user is above average, or on or below average on this measure.

- Profit per employee – similar to Revenue per employee indicator.

- Labour productivity – similar to Revenue per employee indicator.

- Capital productivity – similar to Revenue per employee indicator.

The page also presents a short results overview summarising the indicators where user businesses are above average and those where the user business is on or below average.

User businesses can request a slightly more detailed report to be emailed to them. This email incorporates the results display page but also includes additional material: a brief description of best practices and how these might be achieved; suggested reading on how to improve performance on each of the measures identified as on or below average; and also weblinks to discover more about related support services such as business coaching, strategic thinking essentials, human resources essentials or BDC financing solutions. Each weblink leads to further reading material and to a facility to chat online with an advisor.

At the point where users are able to request a report, they are also invited to press a "modify data" link if they wish to return to the date entry page and amend any of the information previously entered. Users can then generate new benchmarking scores and indicator estimates with the new data inputted.

Benchmark data

Corporate income tax data are used to create the productivity benchmarks. In order to obtain valid estimates for each industry, Statistics Canada removes outlier cases – those with values significantly above or below industry averages – from the dataset. This means some user companies cannot obtain estimates for the indicators and cannot be benchmarked in a meaningful way. This is because some users use data taken from their financial statements rather than from their tax returns as instructed. The Statistics Canada methodology requires users to use the same data source. BDC are currently working to improve the tool in order to reduce the number of user companies unable to obtain estimates.

Development process

The origins of the Productivity Benchmarking tool lie in an in-house, offline tool used by BDC advisors concerned with improving the operational efficiency of manufacturing clients. This offline tool was simply an excel spreadsheet in which clients provided information in a face-to-face meeting with an

advisor/consultant who then manually performed the calculations to measure labour productivity (value added per hour worked) and revenue growth, and who then benchmarked the client with other similar businesses. This tool was perhaps used by 20 companies annually. These BDC advisors approached the BDC economics team to see if they would be interested in helping them to develop a more sophisticated tool, drawing on Statistics Canada skills that would be applicable to all industries, services as well as manufacturing. BDC showed Statistics Canada the in-house tool and asked them to develop a new methodology to support a new online tool. A Statistics Canada economist was keen to use a novel form of economic modelling to underpin the tool – stochastic frontier analysis.

It took nearly two years to develop the Productivity Benchmarking tool from the start in 2015 through to launch during National Small Business Week in October 2016. National Small Business Week is an annual event held at various locations across Canada to celebrate the contribution of entrepreneurs and small businesses to the economy. Statistics Canada developed the methodology and the tool uses data provided by the Canadian Centre for Data Development and Economic Research (CDER), part of Statistics Canada. At the outset, it was uncertain whether stochastic frontier analysis was feasible, but ultimately it enabled them to build a productivity indicator (which is really a revenue efficiency indicator); this was not an easy task. It is basically a sophisticated excel sheet that underpins the tool. The other four indicators (revenue per employee, profit per employee, labour productivity and capital productivity) are quite conventional. This method also enabled data confidentiality to be preserved. Developing the methodology took about eight months.

BDC developed the web interface part of the tool drawing on the skills of about 25 IT, web specialists, economists and marketing people. In addition, two UX/UI (User Experience design and User Interface design) consultants worked to develop how users would interact with the tool as well as the look and the feel of the website. The BDC marketing team were involved in writing the online text for the tool.

Approximately 20 entrepreneurs were consulted when developing the tool and it was tested with BDC account managers to see if the tool would make sense for their client portfolio. Pilot testing was successful.

The main challenges in developing the tool were: first, to stay focused on the main objective to develop a free, easy-to-use tool; and, second, secure a formal arrangement with Statistics Canada to supply the data.

Costs

Development costs related to IT and data were less than CDN 50 000 (less than EUR 32 000), plus salary for approximately 12 staff members who worked on the tool's development (e.g. IT, economists).

Every year, Statistics Canada updates the database and BDC covers this cost. Statistics Canada is looking at automating this update to reduce costs.

Impact

BDC track the number of Productivity Benchmarking tool users, the conversion rate and any outcomes in terms of use of BDC advisory services and financing support - but there are no specific targets for any of these objectives. To evaluate the performance of the tool, it can be compared with other BDC business assessment tools. There is no other similar freely-available productivity tool in Canada.

BDC are currently in the early stages of working on version 2.0 of the Productivity Benchmarking tool. There is no urgent need to do this, and no specific deadline to complete this work, but there is some dissatisfaction with the number of people visiting the website and the conversion rate. The BDC would like to increase conversion rate to as high as 25%. Consultations with entrepreneurs, advisors and accountants have found that some users experience difficulties using the tool, for instance, finding the relevant industry

code for their business or having to use their tax documents to input the required data. It is also suggested that the tool might be simplified to just two indicators (labour productivity, capital productivity), while permitting users to maintain access to the current tool if users prefer to retain the more complex set of indicators. BDC are considering allowing users to input data from their financial statements instead of tax returns – for example, sales, profit, labour costs and investment data – as users may not have their tax data readily to hand. It might also be useful to incorporate regional (province) data in the benchmark. BDC aim to enable entrepreneurs to access the tool using their mobile phones. Arguably, the tool serves its purpose by encouraging entrepreneurs to reflect seriously on productivity issues and to consider how to operate more efficiently rather than on the specific values of the particular indicators used or on users' precise positions on the benchmarking scale.

BDC has a large marketing department – but there is no specific budget, or any dedicated staff, for promoting awareness and use of the Productivity Benchmarking tool. At launch in October 2016, the tool was promoted during National Small Business Week to give it a lot of visibility. Since launch there have been regular web-marketing campaigns, webinars delivered by BDC advisory services and online advertisements intended to attract visitors to the BDC website. Where visitors choose to read particular materials online, for example, items on methods of improving efficiency, the system will push ads about the Productivity Benchmarking tool to encourage visitors to take a look at it. These methods are considered efficient in reaching medium-sized firms with at least 20 employees – but perhaps less efficient in reaching micro firms with fewer staff. This is not perceived to be a major problem because the tool's main aim is to support entrepreneurs looking to grow their firms.

Since launch in October 2016, 45 000 existing and new BDC clients have visited the tool; the conversion rate is 8% (this refers to the proportion of visitors who complete the tool and generate a report). The tool facilitates take-up of additional BDC services by new clients, enabling BDC to meet their annual objectives. Of those users completing the tool, 2 500 new businesses have taken up an additional CDN 450 million (approximately EUR 292 million) of BDC financing services and CDN 3 million (approximately EUR 1.9 million) in advisory services. Businesses taking up additional support tend to be larger, on average, than the 45 000 who simply visit the website but do not complete the tool.

Success factors

The key factor explaining the success of the Productivity Benchmarking tool is the professional staff offering diverse skillsets who fully support its development – economists, statisticians, marketing specialists, business advisors – together with strong buy-in from senior management.

Conditions for transfer

The principal conditions required to enable the transfer of the tool to another country are: first, the host country must have access to the relevant statistical data from their national statistics agency; some countries may not have the quality of data that is required. A second requirement is that entrepreneurs must be willing to input the necessary financial information in order to generate high-quality output.
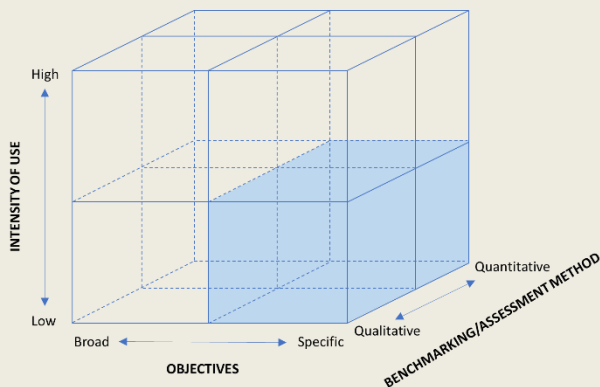
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Interview with Sylvie Ratte, Business Development Bank of Canada.

8. Case 5 Digital Maturity Assessment Tool, Canada

Box 5. Snapshot of Small Business Assessment Tool

Address: https://www.bdc.ca/en/articles-tools/entrepreneur-toolkit/business-assessments/digital-maturity/pages/default.aspx

Operated by: Business Development Bank of Canada (public corporation).

Target users: All SMEs.

Main objectives: To identify opportunities for digitalisation to improve productivity for SMEs.

Overview: Short stand-alone survey that assesses different dimensions of digitalisation. An overall score is assigned and users are then provided with basic guidance and links to additional support.

Benchmarking/assessment approach: Qualitative and quantitative.

Objectives

The Digital Maturity Assessment tool seeks to help firms identify areas where digitalisation could be used to improve their productivity. This includes the following:

- Help SMEs identify their current level of digitisation;
- Compare the digital maturity of users to other SMEs of similar size, in the same region and industry;
- Identify potential areas where digitalisation could be used to improve the SMEs productivity.

Rationale

The digital maturity of a business can have a significant impact on business performance. A body of research has shown that businesses with a more advanced digital maturity profile typically generate more revenue and have higher profits. They also export and innovate more. However, research by the Business

Development Bank of Canada (BDC) suggests that only 19% of Canadian companies have reached an "advanced" level of digital maturity, while the majority exhibit a conservative approach to digitalisation. The tool helps SMEs evaluate their current level of digital maturity, which is the first step to knowing which steps can be taken.

Overview of the tool

The tool was launched in October 2018. It was developed by the BDC, which is a publicly owned corporation that operates at arm's length from the Government of Canada. The mandate of the BDC is to help create and develop strong Canadian businesses through financing, advisory services and capital, with a focus on small and medium-sized enterprises.

The tool is targeted at all SMEs that have an interested in improving their productivity through digitalisation. It is based on a short survey (16 questions) that asks questions about digital intensity (e.g. use of digital tools, collection and use of data; digitisation of processes) and digital culture (e.g. digital strategy, support from leadership; planning; risk taking and collaboration; training and continuous learning) in the SME. Users are required to input some basic information about their firm (e.g. number of employees, revenue for the previous year, sector, region) and then assign a score of "disagree", "somewhat disagree", "somewhat agree" and "agree" to each of the 16 questions. It is estimated that the questionnaire takes less than five minutes to complete.

Once completed, the tool provides users with a report that provides an assessment of their level of digital intensity and digital culture. Each dimension is rated as Low, Medium, High or Very High. These score are then plotted onto a grid that provides an overall status as: Conservative, Techno-shy, Technocentric or Advanced. The overall score is benchmarked against similar SMEs, according to size, region and industry. The report also makes some recommendations about how improvements could be made and linkages are made to information created by the BDC or business development programmes operated by the BDC.

The information that is entered by users is stored by the BDC but it is not currently used for any purpose. After one year, the BDC will analyse the data and will assess whether it could be used to adjust the benchmarks. There is some hesitation due to data quality because the BDC cannot verify the accuracy of the data. Further, it may not be possible to weight the data properly.

Benchmark data

The benchmarking tool was built using data from a survey of 2 000 SMEs in Canada and the United States. The survey was carried out between 16 March 2018 and 23 April 2018. The results were weighted by region and size of business to ensure findings were representative of Canadian SMEs.

Development process

The Digital Maturity Assessment Tool developed out of a research project that examined the role of digitalisation and management skills in boosting SME productivity. The project was inspired by work undertaken by MIT researchers, which measured digital maturity in large multinational corporations in the US and examined the impact of digitalisation on business performance. The BDC project attempted to adjust the framework so that it was relevant for Canadian SMEs. It then sought to confirm a link between digital maturity and business performance. The model was adjusted following a literature review and consultations with experts.

While undertaking the research project, researchers at the BDC were inspired to build a tool to help SMEs once they had established the link between digital maturity and business performance. They then conducted a review of international tools that benchmarked digital maturity for SMEs. However, the BDC needed to build a dataset to test the link between digital maturity and business performance. The BDC decided to build a tool that was simple to use and could be done quickly. Therefore, the survey that was conducted was short and easy to complete. The survey was sent to 2 000 SMEs in Canada and the United States in March and April 2018.

To develop the tool, the BDC decided to license a survey platform called Survey Gizmo. This is an out-of-the-box platform that can be used by non-programmers. The tool was built by one of the BDC researchers and then put on the BDC website by IT staff.

The BDC launched the research report and assessment tool in October 2018, which coincided with the launch of a new loan programme to help SMEs improve their productivity through digitalisation. The new loan programme has an envelope of CDN 250 million (approximately EUR 162 million).

Costs

The cost of developing the survey, administering the survey and developing the IT was less than CDN 50 000 (approximately EUR 32 000). Other costs included about 18 months salary of a research analyst and some salary budget for IT staff who put the tool on the BDC website. It is maintained by a small number of staff members among other responsibilities, i.e. there are no full-time dedicated staff.

Impact

The majority of users appear to have completed the tool as part of a public or private sector business consultancy programme. The number of users are difficult to assess due to the way in which the tool appears to be used, i.e. often by SMEs with a business consultant. It is also difficult to differentiate between people trying the tool and those using it more deeply. A more thorough analysis is expected in 2020.

Success factors

Several key factors contribute to the success of this tool. First, it was decided to build a simple tool that could be used quickly. This simplified the need for data collection and helped make the tool attractive to potential users. However, the trade-off is that the tool's outputs are less precise than other tools. Second, the model is adaptable. Digitalisation impacts business models rather quickly and the framework may need to be adjusted in the short-term to differentiate different business functions, e.g. front office and back office. Third, securing sufficient budget to build the benchmarking dataset was critical for launching the tool. Building a dataset for benchmarks is expensive because differentiating for business size, sector and region requires a large sample.

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Interview with Pierre-Olivier Bédard-Maltais, Economist, BDC.

9. Case 6 Early Warning Scan, Wallonia, Belgium

Box 6. Snapshot of Early Warning Scan

Address: https://www.earlywarningscan.be/fr
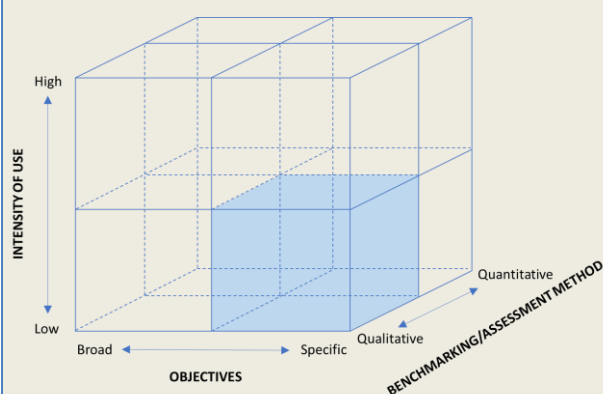
Operated by: *Société Wallonne de Gestion et de Participations*, a public investment fund, and is implemented by local chambers of commerce.

Target users: Self-employed and SMEs.

Main objectives: Identify potential financial difficulties.

Overview: Stand-alone questionnaire with 25 questions. Users can indicate that they would like to be contacted by a business advisor from the Enterprise Bouncing Back initiative (*Entreprise en Rebond*) for a follow-up discussion.

Benchmarking/assessment approach: Qualitative.

Objectives

The Early Warning Scan aims to help business managers detect warning signs of financial or legal challenges that may jeopardize the sustainability of their activity. The self-assessment tool aims to prompt SME managers and self-employed workers to seek specialised support from the Enterprise Bounce Back programme as early as possible. The support can help them put their business back on track or assist them in terminating their activity. It also aims to educate business managers on factors that need to be monitored so that they are able to react more quickly in case warning signs appear in the future.

Rationale

The Early Warning Scan was created in the context of the Enterprise Bouncing Back scheme (formerly CED). While support for SMEs at risk of bankruptcy was available, entrepreneurs did not necessarily seek out support, or waited too long until they did as they lacked a proper understanding of warning signs.

Overview of the tool

The Early Warning Scan tool is part of the Enterprise Bouncing Back scheme, which is managed by the SOGEPA (*Société Wallonne de Gestion et de Participations*). SOGEPA is a public investment fund with the Wallonia Region as its only shareholder. The programme is entirely publicly funded and the SOGEPA manages it as a "delegated public mission" (*mission publique déléguée*). The Enterprise Bouncing Back programme is operated by the Consortium of Chambers of Commerce of Wallonia (*Chambre Wallonne de Commerce et d'Industrie*, CCI Wallonie) and the Chambers of Commerce are responsible for the programme's implementation. Each of the three local Chambers of Commerce has a dedicated counsellor for the programme.

The tool targets SMEs and the self-employed whose main activity is self-employment. The tool is freely available online but is aimed at firms established in Wallonia, who will be eligible for the Enterprise Bouncing Back Scheme. In practice, the vast majority of users are independent workers or micro enterprises of less than 10 employees.

The tool offers a 25 question self-assessment questionnaire. In case of concerning diagnosis, users can opt to be contacted by an advisor from the Enterprise Bouncing Back initiative to support them in mitigating the issue early on.

The regional online and phone-based platform that centralises information for entrepreneurs and business managers in Wallonia, 1890.be, refers struggling entrepreneurs to the Early Warning Scan tool and provides them with information on the Enterprise Bouncing Back programme. The three local CCIs, in charge of the implementation of the Enterprise Bouncing Back programme, include links to the tool on their website. Outreach campaigns have been organised in the past, but are currently on hold while the tool is being revised and the support programme is expanding its capacity.

The Early Warning Scan self-assessment tools serves as an entry point for the Enterprise Bouncing Back scheme. If the assessment results show the enterprise is at risk of experiencing financial or judicial difficulties, the user is offered the option to share their contact details and be contacted by an Enterprise Bouncing Back Counsellor within five business days. Based on the tool's diagnostic and an interview with the business manager, programme counsellors carry out an in-depth assessment of the firm's economic, judicial, financial, accounting and tax situation. They provide initial advice and appropriate referrals. Eligible firms may receive free support for 12 weeks as part of the scheme. In this case, the counsellor may establish a crisis action plan in partnership with relevant professionals (e.g. lawyers and accountants). Support with experts can be arranged. The programme notably works in partnership with the Belgian Order of the French and German-speaking bars (*Ordre des barreaux francophones et germanophones de Belgique, OBFG*), and two tax advisors and accountant institutes (*Institut des experts-comptables et des conseils fiscaux*, IEC and *Institut professionnel des comptables et fiscalistes agréés*, IPCF). The programme may also support the recipient in liaising with creditors, settling issues with other public agencies (e.g. the National Social Secutrity Office) and help them access other support programmes. For example, they may be referred to the Concileo scheme, which offers mediation services between banks and SMEs. Concileo is managed by the Wallonia Funding and Guarantee Company for SMEs (*Société Wallonne de Financement et de Garantie des Petites et Moyennes Entreprises*, Sowalfin) which offers credit guarantee, co-financing, risk capital and other support to access to finance for SMEs in Wallonia. The programme currently has three counsellors, one in each local chamber of commerce of Wallonia.

As most users are independent workers, the tool had to adapt its language. First, the name of the tool is in English, a language that is not fully mastered by many of the target users. Upon reviewing the tool, it was found that many users had difficulties understanding its purpose because of this. It is expected that the tool will be rebranded under a French name "*Je Scanne Mon entreprise*" (I scan my business). Second, the initial names of the tool's modules and some of its questions were intimidating and an important proportion of users gave up the questionnaire at certain questions. These questions were rephrased to

increase completion rates, and the tool will be offered in two versions in September 2019, offering a different questionnaire for firms under 10 employees and larger firms. Finally, the presentation of the results was updated from a spider chart to a gauge with a needle pointing on a gradient from green (good situation) to red (very concerning situation) to help readability of results.

The programme also evolved in terms of the support provided by programme counsellors. Based on the profile of the entrepreneurs and the main types of situations encountered, a typology of users was developed. In addition to technical support and referrals, programme counsellors offer a listening ear to entrepreneurs unique context and a space for discussion where business failure is not stigmatised. They receive training to do so.

Benchmark data

The tool provides a diagnostic based on the responses to 25 qualitative questions organised in five modules: (i) planning and oversight, (ii) commercial relations: clients and suppliers, (iii) human resources, family and private life, (iv) finances / financial management/ balance sheet, (v) counselling and external support. The questions can all be answered by "yes" or "no", with the option to indicate that the respondent "does not know" for certain questions. The questionnaire also asks simple questions on firm size, institutional form and type of activity.

The tool collects data on its usage, including number of users, type of users and activity on the site (e.g. whether they dropped out of the questionnaire or completed it and whether they opted in to be referred to a counsellor).

Development process

The tool was introduced in 2017, as part of the Enterprise Bouncing Back scheme (formerly CED) which had been in operation since 2005. The programme was coordinated by the defunct Enterprise & Innovation Agency (*Agence pour l'Entreprise et l'Innovation*, AEI) of Wallonia. Following its transfer to the SOGEPA in 2018, the management of the Enterprise Bouncing Back scheme has been updated and the Early Warning Scan tool has been reviewed. An updated version of the tool is scheduled to be released in September 2019. The Enterprise Bouncing Back programme is also recruiting an additional counsellor.

The tool was established as part of a pre-existing programme and could draw on information from its activity. As the tool does not use benchmarking data, but rather, makes mainstream business knowledge accessible in concrete terms for untrained entrepreneurs, the technical development of a similar tool would not require major investment in data production. The most important factor for the development of such a tool is a good understanding of the profile of its users and their level of understanding of technical terms and formal business management practices.

Costs

The 2019 budget for managing the online tool is EUR 15 000.

Impact

The tool is currently under review. The review draws on data on the tool's usage and feedback from the Enterprise Bouncing Back counsellors on their interactions with users. The programme has developed a typology of users. The main objectives are to increase the number of users and completed questionnaire

(as opposed to unfinished ones) with the goal to improve coverage of the support programme for enterprises in financial distress.

Most users of the site are independent contractors and micro-enterprises (less than ten employees). The Enterprise Bouncing Back programme treats about 480 to 550 cases yearly. The programme considers that the tool brings an important value added to its activity.

Success factors

A key success factor for the development of the Early Warning Scan Tool was the knowledge of its target users, acquired both through the tool and through programme counsellors. The attention paid to users characteristics allowed programme managers to adapt the tool to the needs of its target population.

A second success factor was its direct linkages to a programme offering personalised support, helping entrepreneurs rapidly act on the diagnostic and interact with counsellors trained to support business managers with their specific profile.

An important lesson learned is the usefulness of a tool as a means to help entrepreneurs gain awareness of their need for support. As bankruptcy remains relatively stigmatised, the use of an anonymous tool and subsequent personalised support helps entrepreneurs get comfortable with a topic that they would not have been comfortable discussing openly with support providers otherwise.

Following experience with the tool and wider programme, a project is in preparation to offer a programme for peer support among entrepreneurs having previously had a "good faith" bankruptcy, including public funding opportunities for such entrepreneurs.

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Interview with Béatrice Alié, in charge of the management of the Early Warning Scan tool and *Entreprise en Rebond* Programme, Head of Economic Intelligence at SOGEPA.

10. Case 7 futureSME Capability Diagnostic Model, Ten European Union countries

Box 7. Snapshot of futureSME

Address: http://www.futuresme.eu/diagnostic
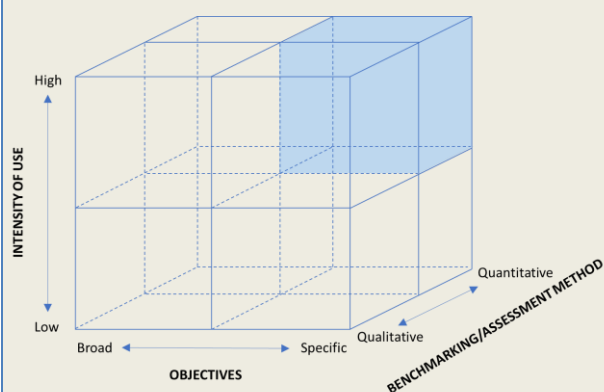
Operated by: Researchers at University of Strathclyde, with support from European Commission (now licensed to a consulting company).

Target users: Growth-oriented SMEs with 50 – 100 employees.

Main objectives: Improve business performance.

Overview: Survey covering four key themes: i) strategy; ii) operations; iii) management; iv) adaptability. This tool is now used as part of an intensive business advisory programme.

Benchmarking/assessment approach: Quantitative, users contributed to database

Objectives

futureSME aims to help SMEs boost their competitiveness. It provides a capability diagnostic and toolset to enable small and medium size companies to build the core capabilities to achieve sustainable growth in an increasingly competitive global marketplace.

## Rationale

The project was launched to assist European companies in attaining a more competitive position worldwide by encouraging and supporting the take up of management methodologies such as Lean and Six Sigma.

futureSME targets SMEs and more specifically those with 50 – 150 employees. Within this target group, those organisations with high-growth potential were prioritised to maximise impact.

Overview of the tool

The futureSME Transformation Process consists of three continuous phases through which SMEs are invited to think, act and reflect in an open and inclusive way. The continuous process contributes to strengthen the core capabilities that each company needs in order to develop and adapt to an unstable and volatile global economy. When involved in the futureSME Transformation Process, businesses are introduced to various tools, including a Capability Diagnostic, Visual Strategy and Visual Management Systems, as well as many other more process specific tools aimed at facilitating and promoting transformation. The tool is composed of six sections that are integrated and together contribute to improve SMEs competitiveness, with a main focus on the interaction between different tools (capability diagnostic, visual strategy and visual management work) and internal analysis (thinking, acting, and reflecting) (Figure 4).

Figure 4. futureSME transformation process

Source: http://www.futuresme.eu/register
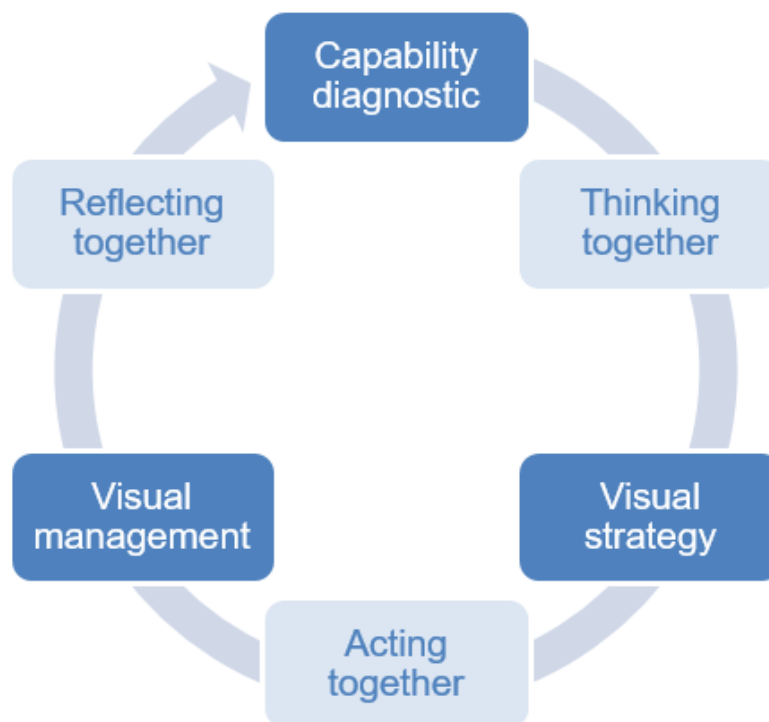
After filling in a questionnaire with 127 questions, the SME does receive an executive overview of the companies' competitiveness assessment against a best practice framework. The feedback report identifies its strengths and weaknesses from a capability perspective that covers the following eight thematic areas: innovation, strategy, operations, processes, performance, leadership, governance, and agility.

The Capability Diagnostic scores the results at three different levels of maturity (Level 1: low maturity for 0%-40%; Level 2: medium maturity for 41%-80%; and Level 3: high maturity for 81%-100%). It helps companies to understand their current performance and clarify their vision for the future. It is also recommended, although this is not mandatory, for an accredited facilitator to assist the company in this process, as the real benefit of the Capability Diagnostic also comes from discussion, exposure to external views and mutual understanding.

Understanding the importance of adapting the model to each individual SME, the tool also presents solutions to SMEs rather than only understanding their competitive position at the European level. For that purpose, futureSME also provides a comprehensive set of business advice in relation to strategic planning, cultural and structural issues preventing the adoption of best practices, modified lean and six sigma tools tailored for SME businesses, virtual manufacturing and collaboration methods, value chain enhancement methods, process modelling and simulation tools. futureSME may advice the company to follow up with a concrete number of online services or transactions, for example online services provided by a range of government departments, agencies or authorities.

The Visual Management system contributes to clearly define companies' objectives in order to become more competitive. These objectives need to be articulated and measureable, so that responsibilities can be divided among the team and timelines for its achievements can be settled. The main goal is to define who is responsible in the company for each activity in order to measure its improvement in the medium and long term. The visual management section will allow the company to understand its performance and measure it across time. In fact, repeating the Capability Diagnostic analysis every six months or every year will also highlight where improvements have been made, where scores for the same SME are compared between May 2011, February 2012 and August 2012.

Benchmark data

futureSME gathers information from a questionnaire of 127 questions that each company needs to address in order to access its performance and receive an executive overview, as well some exclusive advice in order to improve its worldwide competitiveness. In this regard, the online diagnostic tool collects SMEs data each time that a company does fill the questionnaire, and such data are then used mainly for internal purposes, as a sound benchmarking tool, so that each SME can then also compare its results with the average competition. With futureSME, each SME is able to rank itself against the benchmark and better understand its competitive advantages or disadvantages. Overtime, the longitudinal data collected also allows the SMEs to make a comparison of its current versus past performances.

Information that companies provide by using the futureSME diagnostic tool may also be shared, with their permission, to relevant service providers, including government departments, agencies or authorities, in order to respond to SMEs requests or match their needs. As a precautional principle, the futureSME data policy also states that no data transmission over the internet can be assured to be totally safe, but the futureSME portal is constantly analysed and managed to provide maximum data protection security and privacy to all the users.

Development process

The European Commission, under the Seventh Framework Programme of Research and Innovation (FP7), defined the production and integration of new technologies as a key priority in order to speed up the transformation of the economy and society, while adopting a safe, socially responsible and sustainable approach. The primary concept of the project was to research, develop, validate and valorise an architecture and set of tools, methodologies and structures which will assist European companies in attaining a competitive position in world markets in the mid to long term horizon.

In order to achieve this aim, a call for proposals was set and a consortium of 26 other partners (13 SMEs and 13 R&D partners representing 8 European countries), led by the University of Stratclyde, was established. The futureSME online diagnostic tool was created as part of a three-year project (January 2009 – December 2012) and 75% of the overall budget was funded by the European Union.

The EU project closed in 2012 but the tool is now licensed and used by LEAP, a Galway based Management and Leadership Development organisation. LEAP uses the futureSME tool as part of a business development programme for a fee. The complete programme includes six workshops for business management teams, delivered over a 12-week period.

Costs

The overall budget for developing, operating and licensing the futureSME methodology tool was of EUR 8 016 171, which was partially funded (75%) by the European Commission, namely by the Seventh Framework Programme of Research and Innovation, under the specific programme entitled Beyond Lean Manufacturing - New Industrial Models for Product and Process Life Cycle.

LEAP, a Galway based Management and Leadership Development organisation, signed a Licence Agreement in 2014 to deliver the fully accredited transformational futureSME business process in Ireland.

Impact

The diagnostic business model developed, and its tools, under the futureSME framework, are aimed at increasing manufacturing competitiveness and contribute to the development of new and better quality products which can promote social and economic cohesion. Europe is known by its standards and directives but the integration of knowledge and technologies can accelerate the transformation of the industry and the economy. The final methodology was tested and approved by over 70 company representatives from all across Europe (mainly UK, Ireland, Czech Republic, Poland, Italy and Turkey), who went through this diagnostic process. It is important to underline that the European Commission also accessed different stages of the project, its development and achievements throughout the entire three years of its development and implementation.

According to research conducted by Mitchell, Lalui and Kearney (2012), the futureSME Transformation Process enables an organisation to learn by thinking, acting and reflecting together in an open and inclusive working environment. This unique process, designed with concrete methodologies and tools that help the company in the process of improving its competitiveness, has been recognised by a wide range of SMEs. In the meantime, futureSME helps companies to examine how they carry out business processes, both from a strategic and operational perspective, and it seeks to change organisation culture, namely with "thinking as one brain" being mainstreamed. This involves getting all teams aligned towards common goals in an environment of respect and trust. It teaches a company how to become "adaptive" and prepare itself to take advantage of potential opportunities in the wider marketplace, under a common and tested business model.

Therefore, futureSME promotes a virtuous cycle of improvement, where each cycle builds on the positive results coming from the previous cycle, since its inherent methodology can be tested overtime and always provide updated comparison results. futureSME also promotes the use of visual tools both for strategy management and operational management, which are quite useful to communicate within the organisation, and thus reaching and including in the process all relevant personnel, and not just management.

The futureSME Transformation Process had an impact in a wide range of European companies, coming from different manufacturing areas and countries. In order to understand its impacts at the level of each participating SME, a number of Video Interviews with SMEs that have undergone a transformation with futureSME were also created and made available.

Success factors

The futureSME digital diagnostic tool is a successful project, aimed to address the need of individual SMEs that are usually not able to have access to low-cost, high-quality business advisory services. By understanding the economic problem and the lack of solutions provided by the market, the European Commission launched a call for proposals that allowed for a consortium to be established and be able to create and develop this new digital diagnostic tool.

The involvement of a trusted organisation in supporting the creation of a new digital tool, analysing its development throughout the different phases but also assessing its results, was critical for being recognised as an efficient and credible resource for SMEs across Europe. Additionally the uptake of the tool help to boost its credibility. Therefore, the conciliation of a reliable institution in assessing the project with the validation of the methodology by a wide range of SMEs makes it to be accepted and viewed as a trustful tool.

Another important success factor is the integration of the tool into a comprehensive business development programme that offers qualified advisory services. SMEs that are able to access to a complete portfolio of personalised advisory services are more likely to have an impact on the business and local economy. At the same time, advisory services are expensive and not easily made available to every company in every region, being even more difficult to access in rural areas or laggard regions.

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11. Case 8 GROWTHmapper, United Kingdom

Box 8. Snapshot of GROWTHmapper

Address: https://about.oigrowthmapper.com/
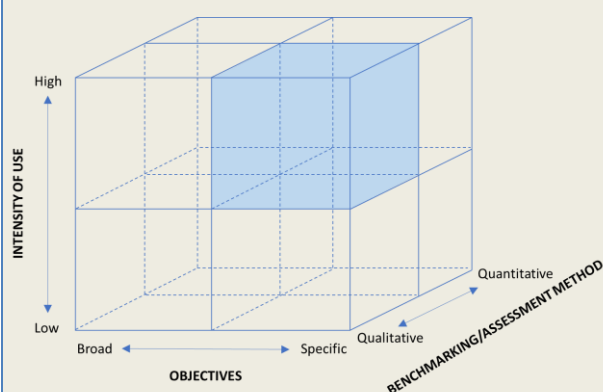
Operated by: Developed by Oxford Innovation, a non-profit organisations, it is used in several regional programmes such as GrowCornwall.

Target users: Business advisors for growth-oriented SMEs.

Main objectives: Diagnose an SME's capacity for growth.

Overview: Business advisors work with SME managers to complete a questionnaire with 90 questions and is intended to be used as part of a business consultation process. In practice, it is used as part of public programmes as well as in management consulting offers by Oxford Innovation.

Benchmarking/assessment approach: Qualitative.

Objectives

The GROWTHmapper tool is designed to highlight the strengths and weakness of a business that is seeking to develop a plan for growth. The tool is aimed towards the growth companies, or manufacturing companies or start-up businesses with slightly different questions for each. However, the tool is intended to be used to facilitate a discussion with an experienced business advisor.

Rationale

GROWTHmapper was developed by Oxford Innovation to support its own business coaches in delivering SME support and advice. The diagnostics gather information about a business, both in terms of an overall assessment of the strengths and weaknesses of the business and also understanding areas of agreement or disagreement amongst the SME's senior management team. The purpose of GROWTHmapper is to ensure that the business coach and SME managers look at all aspects of the business and identify four priority areas where business performance can be improved.

Overview of the tool

The online GROWTHmapper questionnaire consists of 90 questions on key topics within the business. Members of the senior management team individually and anonymously complete the questionnaire, which then captures both information about the business and how differently members of the senior management team see the business performance issues.

The tool's output is communicated via a visual radar plot which can reflect the strengths and weaknesses of the business showing where the business needs to improve. The tool informs trained and accredited business coaches of a SMEs specific needs, GROWTHmapper data provides a foundation on which to develop a conversation around the strengths and weaknesses of the organisation as a prelude to building a strategic business plan.

GROWTHmapper is used by Oxford Innovation in their work on SME support and advice and also to business support providers. This brings Oxford Innovation into contact with many different agencies and departments particularly different local enterprise partnerships (LEPs) which are tasked with improving enterprise in their locality and who contract with business support organisations to deliver support. There are around 40 local enterprise partnerships in England, in a decentralised business support system. As of 2020, ten different support programmes use GROWTHmapper and since two programmes are delivered across England GROWTHmapper is employed in every LEP area in England. GROWTHmapper is also used in Scotland.

GROWTHmapper is generally developed for business support programmes that aim to increase business growth. Consequently, more ambitious businesses are the targets for schemes that involve GROWTHmapper, although there are also versions for start-ups and for innovative businesses. The use of GROWTHmapper in England's Growth Accelerator is an example. The expectation that there will be more than one individual filling in the questionnaire indicates that usually these businesses have top management teams rather than one owner manager.

Business coaches use the tool in their coaching and business support. The tool informs accredited business coaches of a SMEs specific needs, as an objective basis to develop a conversation around the strengths and weaknesses of the organisation as a prelude to building a strategic business plan. Diagnostics cover particular business capabilities, e.g. export, productivity, finance. Each question determines whether the SME undertakes a particular activity (or not). This has the advantage of ensuring the management team consider all these facets of the business. Members of the senior management team individually and anonymously complete the questionnaire, which shows how differently members of the senior management team see the issues.

The output from the questionnaire produces a radar plot to reflect the strengths and weaknesses of the business showing where the business needs to improve. This assumes that the business must solve a "weakest-link" problem, rather than businesses having strengths in one area and exploiting these strengths, as would be the case in a SWOT analysis.

The main challenge faced in developing the tool was to ensure that a full range of information was captured for the business advisor. The language used in the questions also has to be specific and understandable for the business managers.

Benchmark data

All the data collected by the diagnostic is provided by the individuals completing the assessment questionnaires.

Development process

GROWTHmapper was originally developed in 2011. At present three diagnostics are available aimed at different types of SME – start-up, growth and manufacturing SMEs The software platform was rebuilt in 2018 to include new functionality to make it easier for other organisations to use GROWTHmapper. New diagnostics have been developed and added over the last 8 years and new assessments continue to be developed. Generally small incremental changes to respond to user needs are made in a continuous innovation process to ensure the continued relevance. Sometimes changes can be incorporated for a particular client.

GROWTHmapper was developed and is wholly owned by Oxford Innovation. The content and design of the questionnaires and the reports was undertaken by Oxford Innovation's business coaches. An external provider was used to build the software platform. Oxford Innovation uses GROWTHmapper in the delivery of its business support programmes, but also licences the diagnostic to other parties and provides training on its use.

Costs

Cost information is commercially sensitive.

Impact

GROWTHmapper is typically used as part of a wider package of business support. Specific targets for GROWTHmapper only relate to usage or completion rates. Impact measures and other KPIs relate to SME business performance and changes that occur as a result of the diagnostic and the coaching and advisory support. Some programmes include the completion of a GROWTHmapper diagnostic before and after coaching and, in these cases, the difference in scores can be measured. On average companies improve each of the ten areas of business by one point, e.g. increase their score on leadership from 7/10 to 8/10. This seems to indicate that the improvements using the coaching are generally spread widely across the business rather than working on specific areas.

Over 20 000 SMEs have completed GROWTHmapper. For each SME between 1 and 6 individuals in the company's senior management team have completed the diagnostic. It has therefore been widely used. Of course it will be part of a supported programme so that this is not a test of market demand for a stand-alone tool. The growth mapper was evaluated but it was only a formative evaluation which concluded even when times that it did not uncover something new "the GROWTHmapper process was still perceived to be valuable as a confirmation of where the business's challenges lay" (BIS, 2015).

Success factors

In developing GROWTHmapper there have been a number of challenges and takeaways that are useful for others. Fist, SMEs require a diagnostic tool that uses clear, jargon-free language. Moreover the diagnostic is relatively easy to complete since some benchmarking tools are considered too complicated by SMEs. Second, the output from the diagnostic needs to be clear to convey key messages that are easy to understand. However, the tool itself is not expected to be sufficient to produce an impact on the businesses performance. Instead the tool is used by professional business coaches who translate the results into an action plan with the SME manager. Finally, it is critical to have disaggregated benchmarks so that SMEs can have meaningful comparisons.

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12. Case 9 Industry 4.0 Readiness: Online Self-Check for Businesses, Germany

Box 9. Snapshot of Industry 4.0 Readiness: Online Self-Check for Businesses

Address: https://www.industrie40-readiness.de/?lang=en
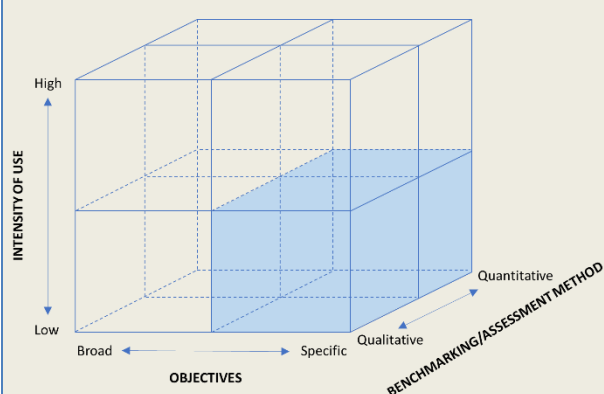
Operated by: IMPULS Foundation of the German Engineering Federation, IW Consult (a subsidiary of the Cologne Institute for Economic Research) and the Institute for Industrial Management (FIR) at RWTH Aachen University.

Target users: SMEs with more than 20 employees in mechanical engineering or manufacturing sectors.

Main objectives: Diagnose preparedness for Industry 4.0.

Overview: Detailed survey that asks users to identify the characteristics of their firm and the processes and practices related to the use of digital technologies.

Benchmarking/assessment approach: Quantitative and qualitative.

Objectives

This self-check offers a benchmark for how prepared SMEs with more than 20 employees are for Industry 4.0. It also identifies where improvements to management practices could be made.

Rationale

Estimates suggest that the increased use of automation and data exchange in manufacturing technologies and processes, including the internet of things, cloud computing, cognitive computing and artificial intelligence (i.e. Industry 4.0) could add as much as EUR 23 billion in additional value-added in Germany between 2015 and 2025. These benefits are expected to be achieved by improved processes that resulted efficiency gains of 30% to 50% (McKinsey, 2015).

The mechanical engineering industry and plant engineering sector stands to benefit greatly, increasing revenue for firms in the sector by up to 30%. However, relatively little is known about how certain sectors are prepared for Industry 4.0.

Overview of the tool

The benchmarking and assessment tool uses a detailed survey on business characteristics and practices, as well as a small number of key performance metrics, to identify the extent to which the user's business is progressing towards Industry 4.0. The benchmarking questionnaire can be completed in English or German, and it is estimated that the survey will take approximately 15 minutes.

The questionnaire contains two parts. In the first part of the questionnaire, users input basic information about the firm, including the sector, revenue, and number of employees. This information is used primarily to ensure the survey is representative and to enable projections.

The second part of the questionnaire contains detailed questions about business practices related to Industry 4.0. These 26 questions identify a set of indicators across the six modules of the Industry 4.0 Readiness Model (Figure 5). These indicators cover the functionalities of the firm's equipment infrastructure, type of data collected during various processes, autonomous production, data-driven services, employee skillsets, training practices and more. The benchmarking questionnaire also seeks to identify the main motivations for implementing Industry 4.0 practices as well as the main obstacles to implementation.

After completing the questionnaire, the user is asked about the types of firms that would present an accurate benchmark (i.e. sector, size and location). The tool then provides a scorecard and the user's firm is rated on its level of Industry 4.0 readiness:

- Level 0: Outsider
- Level 1: Beginner
- Level 2: Intermediate
- Level 3: Experienced
- Level 4: Expert
- Level 5: Top performer

However, an analysis is also presented for each of the six dimensions since the vision of Industry 4.0 and the pathway to achieve this vision will be different for each company. Not all firms have a short-term ambition to fully implement Industry 4.0 practices. Firms typically define their own interim and final goals based on their own background and current practices.

The scorecard also identifies potential action items for the user's firm. The action items are offered for three categories of firms: Newcomers (i.e. Levels 0 and 1), Learners (i.e. Level 2), and Leaders (i.e. Levels 3, 4 and 5). Action items are suggested for each of the six dimensions in the model.

Figure 5. Industry 4.0 Readiness model
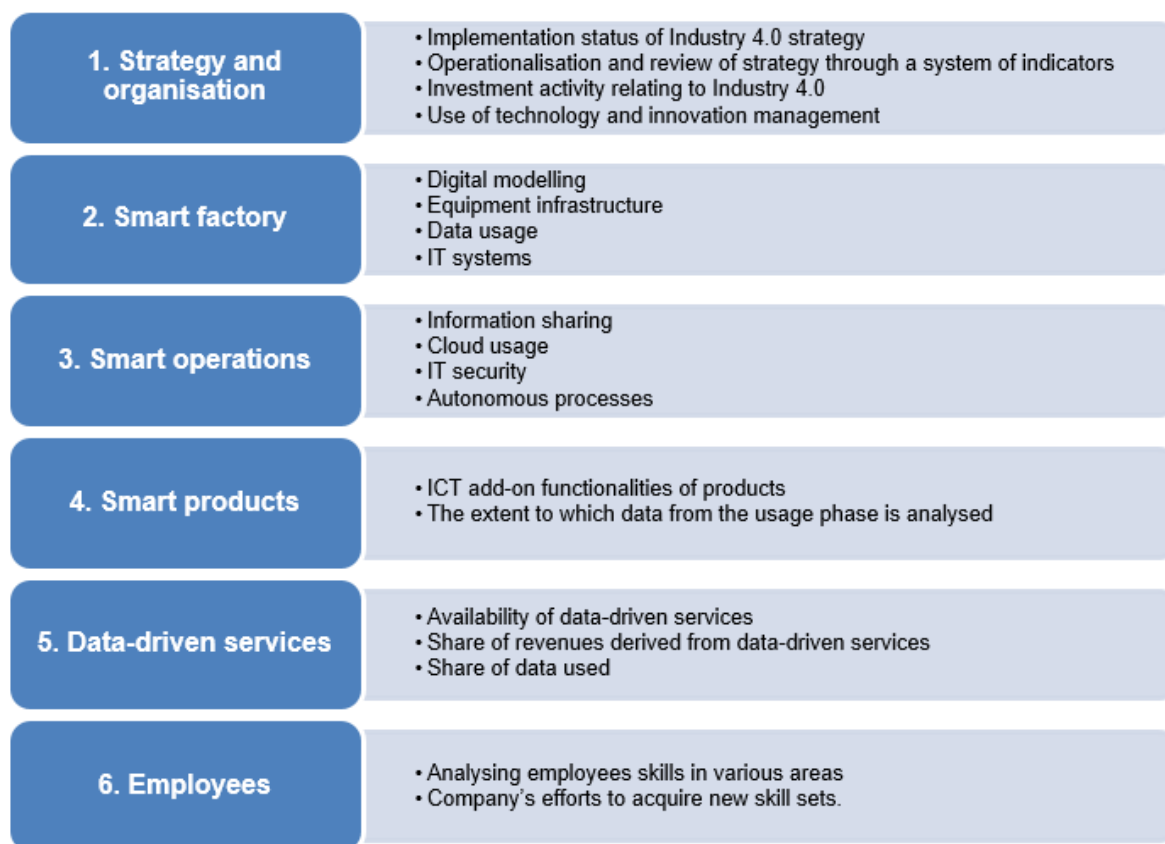
Benchmark data

The practices and data used to benchmark tool users were collected during a survey of members of the German Engineering Federation between April and July 2015. However, the survey of members only received 232 responses so additional efforts were undertaken to increase the number of responses. First, the survey questions were added to two existing surveys: i) the 26th round of the "Panel on the Future" survey (*Zukunftspanel*) by the Cologne Institute for Economic Research; and ii) the 23rd round of the IW Entrepreneur Survey (*Unternehmervotum*). Moreover, the researchers undertook a telephone survey directly. The latter surveys were used only to determine the percentage of companies unaware of or uninterested in Industry 4.0.

The dataset uses covers only companies with more than 20 employees. The sampling frame is presented in Table 1.

Table 1. Industry 4.0 survey sampling frame

Companies	Workforce size categories			
	20-99 employees	100-499 employees	500+ employees	Overall
	Mechanical and plant engineering companies			
Companies register	4 268	1 812	339	6 419
	Random sampling to identify Industry 4.0–friendly companies			
VDMA member survey (April to July 2015)	67	86	79	232
IW Panel on the Future (26th round; July to August 2015	66	44	16	126
IW Entrepreneur Survey (23rd round; May 2015)	8	10	7	25
Special telephone survey (July 2015)	24	19	5	48
Overall	165	159	107	431
	Core survey to measure readiness of Industry 4.0–friendly companies			
VDMA member survey (April to July 2015)	50	77	72	199
IW Panel on the Future (26th round; July to August 2015)	40	35	15	90
Overall	90	112	87	289

Development process

The tool was developed following a research project that assessed the readiness of German companies with more than 20 employees. This study was conducted using a mixed methodology of an analysis of the literature, expertise, workshops, and a comprehensive company survey. The first step was a literature review, which was followed by a workshop with select leading companies from the mechanical engineering industry that already had experience using Industry 4.0 technologies. The workshops were used to systematically identify and evaluate success-related indicators for Industry 4.0.

The result of the literature and workshop was the Industry 4.0 Readiness Model with six dimensions (Figure 5) and six levels of readiness, ranging from Outsider to Top performer. The Readiness Model was aligned closely with the four dimensions of Industry 4.0 definition, complemented with two additional dimensions that were identified in the workshop: strategy and organisation, and human resources (employees). Each of the six dimensions was further delineated into fields, which in turn were operationalised with appropriate indicators.

To collect data to test the model, a survey was designed to explore the following themes:

- Structural attributes of the companies
- General questions on Industry 4.0
- Degree to which companies satisfy the dimensions of Industry 4.0
- Motivators and obstacles on the road to Industry 4.0

The survey was initially sent to members of the German Engineering Federation, but was subsequently sent to a wider set of firms through other surveys (see previous section). The benchmarking tool was launched at the 8th German Mechanical Engineering Summit in Berlin in October 2015. As of February 2020, the benchmarking data have not yet been updated.

Costs

The development costs are confidential.

Impact

Nearly 7 000 firms completed the tool between fiscal year 2017-18 and October 2019. About 45% of these respondents were assessed at Levels 2 and 3. Only 1.6% of firms achieved Level 4 and none reached Level 5. More than half of responding firms were Outsiders (Level 0) or Beginners (Level 1). The average level mechanical and plant engineering was 1.4 and the average in manufacturing was 1.3. Overall, the lowest levels were achieve in the Smart Factory and Data-driven services dimensions at 0.8 and 1.1. The dimension with the highest assessment score was Employees at 1.7.

Success factors

The tool is an intensive tool, requiring the user to input details on different aspects of the businesses structure and organisation. This, however, allows for detailed feedback. The tool is well-known in the mechanical engineering and manufacturing sectors because the industry sectors were heavily involved in its development.

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13. Case 10 SizeUp Initiative, United States

Box 10. Snapshot of SizeUp Initiative

Address: https://company.sizeup.com/
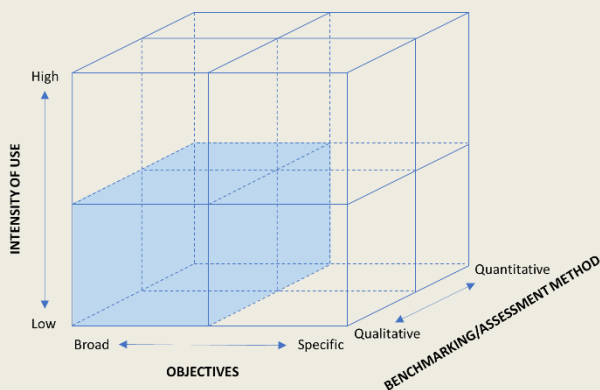
Operated by: GIS Planning, a private consulting company. However the tool was developed with, and originally hosted by, the US Small Business Administration.

Target users: All SMEs.

Main objectives: Improve profitability.

Overview: The tool contains three main components. The first component ("My Business") offers benchmarking so that users can compare the performance of their business against the performance of others. Other section offer tools to map other competitors ("Competition") or gain insights improving the effectiveness of advertising ("Advertising"). Users are provided with an overview report and are directed to various resources.

Benchmarking/assessment approach: Qualitative and quantitative.

Objectives

The USA Small Business Administration (SBA) established the SizeUp Initiative in 2012 in partnership with a private company, offering a free online benchmarking and assessment tool for SMEs. The tools allows users to benchmark their business performance against other SMEs, as well as map their main customers, find the best places to locate their products/services, and advertise them in a more efficient way.

SizeUp was originally made available only to companies with the ability to pay for it, as a privately developed tool that would support such companies to become more competitive. With the U.S. Small Business Administration decision to use and make it available online and for free, SizeUp became available to all companies from all parts of the country, regardless of their size, sector of activity and location. This intended to help increase SME competitiveness in rural areas and laggard regions.

Rationale

Small Businesses are typically qualified in their specific business domain but usually need external advice to assess, manage or grow the company in the medium- and long-term. Without having the time and expertise to think on long-term grow prospects, or the resources to conduct business intelligence, SMEs face considerable challenges in remaining competitive. Large enterprises can generally build internal knowledge, acquire consultancy services or bring in temporary experts, while SMEs are not able to do so, which puts them in a competitive disadvantage. Understanding this market gap and the importance of supporting SMEs, the U.S. Small Business Administration decided to partner with a private consultancy (GISPlanning) in order to make the SizeUp methodology widely available across the country and to all interested companies.

Overview of the tool

SizeUp is a free online tool that consists of three main components in order to assist SMEs in gaining insights into their specific markets and local context, with specific benchmarks computed taking into account concrete locations of interest or certain business decisions. This tool contains three main sections, so that each SME can maximise its use in accordance with its business needs and priorities, which are the following:

- *My Business Section:* The scoreboard determines and reports how a users' firm compares with what should be expected based on data form similar firms. It indicates if it underperforms or outperforms when compared with others, as well as what would be appropriate expectations for its outcomes (e.g. revenue, jobs, or salaries). SizeUP generates detailed reports comparing the SME results with comparable local establishments, allowing appropriate data based expectations and targets to be defines. Such reports can be based on the SME annual revenue, year of incorporation, and typical worker's average annual salary. After filling in the online form with the corresponding information and defining what comparisons the SME would like to be provided, SizeUp builds a visual comparison and benchmark, but also gives some recommendations on how to improve its performance and competitiveness.
- *Competition Section:* SizeUP comes up with a map view that includes a list of the local competitors with relevant information about their businesses. The SME using this online tool can also provide information about suppliers in order to find more businesses that it could work with. By providing customer profiles, SizeUP will also produce a list of potential customers in the area where the SME is located or for whatever map area that the SME wants to target. In doing so, the SME is able to understand what can be the best locations to expand its business, or where to target a future marketing campaign.
- *Advertising Section:* As another map function, SizeUP also can help online any given SME to find ideal places to advertise its products and services. The function allows SMEs to simulate the expected business impacts of its marketing decisions, and then come up with optimal choices regarding where to advertise for its products or services, taking into account several useful criteria, such as expected highest total revenue, household income, most underserved markets, highest average revenue or revenue per capita.

Since each of these three areas can be customised, SizeUp could be a useful tool for small business owners across many different industries and geographical areas. Its function could also be relevant for entrepreneurs aimed at starting a new business or going after new market opportunities.

In order to extract the greatest benefit from the tool, it was designed to be used at least a couple of times per year. It aims to offer a number of useful insights, suggestions or recommendations, based upon accurate information regarding competition and markets. In addition, SizeUp can also link the SME to a

set of additional advisory services, given its profile and specific priorities (e.g. loan providers, the network of USA Small Business Development Centers).

Benchmark data

SizeUp helps SMEs to identify good business decisions, new customers and compare its performance against other similar businesses in the same industry. All of these insights are provided online based on models that are supported by data collected from hundreds of private and public sources. More specifically, SizeUp uses millions of data points and integrates information from different USA governmental agencies (e.g. IRS, U.S. Postal Service, Bureau of Labor Statistics, U.S. Patent and Trademark Office, Census Bureau) and private sources (e.g. phone directories, business publications and commercial data providers). This allows SizeUp to provide comparisons at disaggregated levels.

Development process

The tool was presented in late 2011 at the TechCrunch Disrupt event, which attracts global leaders in Internet related companies as well as investors that want to see disruptive new technology companies launching for the first time their live demonstrations. The tool was a TechCrunch Disrupt finalist and was selected as a Top 10 Data Startup at the Data 2.0 Summit in 2012.

Early users of the SizeUp technology included organisations such as the USA Small Business Administration (SBA), the President of the United States' BusinessUSA programme, Bloomberg BusinessWeek, Staples, power companies, local economic development organisations, and Chambers of Commerce. The U.S. Small Business Administration began offering SMEs and entrepreneurs free access to this tool in September 2012.

Costs

Budget investment is confidential. However, SizeUp is designed to require no staff management other than the promotion (marketing/advertising) SizeUp as SizeUp is a software as a service (SaaS) that provides direct service to SMEs. Government and non-governmental organisations license SizeUp for a fee, which results in all of the data being updated and the services being maintained by SizeUp.

SizeUp software and the associated API can be used by SMEs that want to dramatically increase customers' engagement and interact with them in a genuine and impactful way. Enterprises that integrate the SizeUp software or API into their online offerings provide valuable individualized insight and develop stronger relationships with their customers. SizeUp works across many industries, including financial services, insurance, government, utilities, chambers of commerce, software, accounting, and small business portals.

Impact

SizeUp has an internal evaluation tool that does not require surveys. Evaluation results have not been published.

Success factors

One of the major advantages of the SizeUp digital tool is its ability to utilise business data coming from public and private sources, thus creatign one of the most complete databases available for performance analysis, benchmarking and competitive studies in the USA. It allows each SME to compare itself online against the competition, understanding its competitive advantage and improving performance. This tool also gives advice on how to improve performance and competitiveness through a number of useful recommendations. At the same time, SizeUp offers the opportunity of mapping expected results, helping SMEs to identify the best places to advertise their services, thus maximising efficiency.

Users are not charged a fee to use the tool, which offers a benefit to SMEs that would not otherwise be able to afford professional consultancy services. Through the use of SizeUp, SMEs can better select their investments, become more efficient and advertise where that is really needed, with the best possible benefits/costs returns.

Furthermore, SizeUp can also provide added value to national, regional or local governments, as they can identify regions or sectors where greater support is needed, thus leading to new programmes or targeted incentives. SizeUp can also contribute to a better planning and management of cities or regions, taking into account insights that can be extracted by the big data explored by the tool.

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14. Case 11 Small Business Assessment Tool (SBAT), France

Box 11. Snapshot of Small Business Assessment Tool

Address: https://opee-sbat.org/en/?lang=en
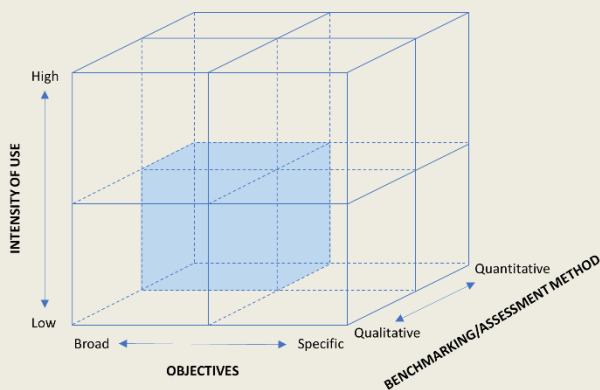
Operated by: Observatory on Practices of Entrepreneurs and Enterprise, which is a team of researchers and practitioners.

Target users: SMEs with fewer than 50 employees, as well as business advisors, investors, banks, policy makers.

Main objectives: Identify management strengths and weaknesses, and benchmark performance with similar firms.

Overview: The tool uses a questionnaire with up to 29 questions to assess SMEs' performance. The tool categorises SMEs into one of four different business models, and then benchmarks it against the norms for each model. A diagnostic report is provided that indicates the SMEs positioning relative to other SMEs with the same model.

Benchmarking/assessment approach: Quantitative.

Objectives

The Small Business Assessment Tool (SBAT) is owned and operated by the Observatory on Practices of Entrepreneurs and Enterprises (OPEE). OPEE was created by a group of economists, management and statisticians and currently consists of four volunteers. OPEE's objectives are twofold:

(1) to set up micro enterprise/SME indicators in countries where SBAT users are located;

(2) to provide continuous analysis for public policymakers to support implementation of SME programmes using SBAT data. OPEE is entirely funded from public sources, notably through European grants.

The SBAT is both an assessment and a benchmarking tool, enabling business users to identify management strengths and weaknesses, and to compare performance with similar firms. The tool enables small companies to provide banks and other partners with better information when seeking financial and non-financial advice and support. The primary target users are small firms, defined as independent firms employing 1-50 employees, in France and abroad. However, any firm can use the tool, irrespective of size, industry or growth path.

Rationale

SMEs are perceived as critical to economic growth and job creation, but they face challenges in being able to innovate. These include: accessing affordable finance and paying higher interest rates than larger companies; lack of innovation management capacity; and lack of networking skills. The tool seeks to help SMEs by helping managers identify their strengths and weaknesses so that they can make adjustments and improve the business' performance. It also enables small companies to provide banks and other partners with better information when seeking financial and non-financial advice and support.

Overview of the tool

To use SBAT, businesses must register and provide information on the following: name; company name; country; business founding date; address and postcode; SIRET code (for French businesses only); business activity/sector (selected from a drop-down menu of 75 sectors); legal status; number of employees; manager's gender; and type of business (defined in terms of whether operated domestically, independent or part of a national or international group). The tool is free to use for all users.

SBAT diagnoses user businesses at two separate levels. The first level, enabling users to identify their business model, is mandatory. At the second level, users may then choose one or more of three optional assessment tools: innovation; finance; and internationalisation. If users stop after the first level, the report generated just describes the business model and its characteristics. To use the benchmarking facility, user businesses must take at least one of the level two assessment tools. These permit comparison of user businesses with others in the database in the same industry adopting the same business model.

Each of the four sections (business model, innovation, finance and internationalisation) requires users to answer 17 to 29 single- or multi-part questions (93 questions in total) in order to assess entrepreneurs' strengths and weaknesses in different managerial tasks. These questions provide only qualitative, non-financial data because SMEs are perceived to be reluctant to provide accurate financial data. Comparisons of official data on business sales with declared sales produce very different findings and therefore declared sales were considered unreliable as the basis for identifying firms' strengths and weaknesses. The decision was therefore taken to exclude the use of financial information. The intention is to go beyond a superficial financial analysis to provide a richer, more detailed portrait of businesses, their performance and prospects, based on multiple qualitative criteria.

The business model section of SBAT draws on the theoretical ideas of two academic scholars, Michael Storper and Robert Salais, to produce a typology of four business models, distinguished on two dimensions, market and production process characteristics:

- *Price competitiveness model*: businesses operate in relatively predictable markets and offer generic/standard products and use standardised production methods in order to minimise costs;
- *Innovative business model*: businesses offer novel products, or new uses for existing products, and create knowledge that can be used to adapt production processes;
- *Economies of scope model*: businesses possess considerable flexibility, adapting generic/standard products for particular customers, addressing their specific needs; and
- *Customer relationship business model*: businesses offer specific products using highly specialised production processes relying on specialist knowledge.

To give an example of a question in the Business model section, users are asked: "How do you position the products offered by your company" and invited to select one answer from a drop-down menu of five responses:

- Unique products

- Original products
- Very improved standard products
- Products adapted to the taste of a particular customer
- Very standard products

Once the business model has been identified, SBAT explores three aspects of business activity in some depth – financing, innovation, internationalisation – in order to determine the entrepreneur's capacity to improve business practices. For instance, in relation to accessing finance, users are asked the multiple-choice question: "Can you identify in the past three years the contribution of each of the following sources of financing for your business (in percentage)." Users are than asked to indicate a percentage in each of two columns, one for working capital and one for new investments, for each of the following response categories:

- Internal funds or retained earnings Local commercial banks (loan, overdraft)
- Commercial banks with foreign capital
- Leasing agreement signed
- Investment fund/special development funding/Or other state funding mechanism
- Trade debt (loan from a supplier or advance from customers)
- Use of deferred debit credit cards
- Business angels
- Sale of shares
- Family, friends
- Informal sources (e.g. money lender)

Using an algorithm, user businesses are compared with other firms in the SBAT dataset, which covers other users of the tool. OPEE need to continuously re-calibrate the algorithm in order to generate better benchmarks for users by sector, country, region and across the entire database. One OPEE member, a professor of statistics and machine learning, implemented the algorithm and continues to improve it using the user data collected. Increasing data enables better calibration of the algorithm and improved results for user companies.

After completing SBAT, users receive a 20-25 page diagnostic report presented in three sections covering: company profile; Level 1 analysis, business model; and Level 2 analysis, covering innovation, finance and/or internationalisation. Reports use text and graphics to illustrate the principal features of the business model. Firms may use the report to understand their own businesses better and to negotiate with banks, but it is not known firms are able to secure credit on better terms as a consequence of using SBAT. Reports offer limited advice to user businesses; this usually consists of suggesting entrepreneurs take further advice from specialist consultants, for instance, on finance or foreign trade.

SBAT is a stand-alone product. It does not funnel users through to other support providers, or provide information and advice on how to find them. The SBAT team have had discussions whether to supply support organisations' addresses but, at the moment, this is difficult and has been postponed.

Benchmark data

Initially, the dataset comprised only World Bank Enterprise Survey proxies on 2 000 companies in selected countries. This data was free to access. Over a three-year timeline, these proxies have been gradually eliminated from the dataset and replaced with real companies. Today, only SBAT user businesses are included in the dataset. SBAT has been "trained" to profile SME users without financial data. User businesses can be compared with their "nearest neighbours" in the dataset using kernel analysis (identified

by whether they give similar answers to particular questions). Neighbours are identified using non-deterministic techniques and neural network methods.

Development process

Work on an SBAT prototype started in 2015. By 2016 a minimum viable product was available, and work progressed on a second version of the questionnaire. By September 2017, SBAT was launched online using a third questionnaire and the option to generate an online report on completion of the assessment tools. Current development work aims to build additional tools related to leadership, human resources and corporate social responsibility.

Before developing SBAT, a stand-alone tool was considered that could be provided to consulting firms and other business professionals that interact with small businesses (e.g. accountants). This technical solution was not, however, developed for two main reasons. First, because the computations required an updated dataset, a condition incompatible with a stand-alone system. Second, transferring the assessment tool to customers exposes the tool developers to the risk of intellectual property loss because the data processing algorithms might be copied, transformed and sold by competitors. Any new copied version might also generate a further commercial risk and a loss of reputation for the original SBAT if it leads to poorer user results and these are attributed to the original SBAT. The SBAT team quickly decided that an online tool would be the best solution.

The initial idea for SBAT arose from the view that firms are usually compared in terms of only two criteria – business size and industry – because statisticians find this useful. But such information provides only limited insight into the entrepreneur's point of view.

There have been many challenges in developing the dataset as it was a long and costly process. Some of the challenges included:

- Financial/HR skills: these were needed to fund an advanced researcher to develop the best data mining techniques. CNRS (*Centre National de la Recherche Scientifique*) provided all of the necessary hardware and software.

- Data security: secure systems are required to avoid data theft by potential competitors or to suffer dataset corruption by robot 'fake entrepreneurs' (OPEE staff noticed some 'users' were completing the tool in the inhuman time of less than one minute!). These cases were excluded from the dataset.

- Questionnaire testing: the tool had to be tested with entrepreneurs in France and in several developing countries.

- Theoretical challenges: the algorithm is continuously updated to ensure the robustness of the model when new data is added.

The core development team were based in CNRS and in the French Higher Education system. There were some contacts with business angels to discuss the relevance of the questions and the questionnaire was tested with real entrepreneurs in France and in five developing countries (Morocco, Lebanon, Jordan, Egypt, Tunisia; and also in Mexico and Brazil). Participation in a European project enabled the SBAT team to reach entrepreneurs in these developing countries.

SBAT was created in French, then an English version was developed. There are plans to develop Italian and Portuguese versions, and possibly Arabic and Chinese versions, extending the potential global reach of SBAT. Regional French public bodies (Provence) subsidised the translation of the English version, covering almost the complete cost.

The SBAT has been promoted using three primary methods. First, through networking with entrepreneurs at events, conferences and in research projects. For example, the first version of the tool was presented and tested with a group of entrepreneurs in Provence where the local government administration provided

financial support. Subsequently, a large number of companies were identified during a European Project (The Next society) funded by the European Commission's Directorate-General for Neighbourhood and Enlargement Negotiations (DG NEAR) aiming to develop high quality entrepreneurship in North Africa and the Middle East (Morocco, Tunisia, Egypt, Lebanon, Jordan, West Bank). Second, one member of the OPEE team used SBAT as a pedagogical tool to teach non-financial assessment of companies at Kedge Business School in Marseille and Bordeaux. Every year several hundred students are asked to assess a business from a financial and non-financial point of view, using SBAT for the non-financial assessment, and to receive the entrepreneur's feedback on the analysis. Some companies requested more support from students on certain points raised in the SBAT report. A few students used SBAT for their own start-up businesses. Third, some companies arrived at SBAT apparently through word-of-mouth, although it is likely some had attended conferences and workshop where SBAT was presented. No formal advertising was undertaken.

Costs

CNRS and other higher education establishments pay OPEE staff wages but the SBAT project also obtained funding from applications to various public programmes. The involvement in a European project able to hire a statistician for 2.5 years and another skilled in R software. Development costs have been EUR 300 000 over five years on non-tenured staff, software licenses, new computers and travel costs to interview entrepreneurs. Future costs likely need to cover building a larger dataset, by developing contacts with AI companies and companies who advise SMEs. In the medium-term, a more complete non-financial rating for small companies needs to be developed, which will be the main challenge for the next two years.

Impact

SBAT is evaluated in terms of service user satisfaction using offline methods. A subset of users is asked whether they are satisfied with using the tool a few days after use. Users are emailed to request a short contact to estimate user satisfaction. The SBAT team acknowledge that this practice is not entirely satisfactory and that more systematic reporting practices are required for a proper evaluation. User satisfaction is generally reported to be good. Users commonly report that answering the SBAT questionnaire encourages them to think about issues they have not considered and to deepen their knowledge of their businesses. Some users ask if they can use the SBAT report to negotiate with their banks – this is encouraged but it is unknown whether users obtain credit more easily, or at better interest rates, as a consequence.

All 3 000 firms in the dataset today have used the tool. The SBAT team are now looking to enlarge the dataset by contacting advisors (for example, accountants and development agencies) to reach more SMEs and to incentivise them to use SBAT, but it is unknown this will succeed. The SBAT team has obtained a new grant from the CNRS in April 2020 to develop this work.

SBAT users are more likely to be very small businesses, although proportionately, larger small firms are more likely to use SBAT. The business size breakdown (for whom data is available) is as follows:

- 1-9 employees: 1 922
- 10-19 employees: 399
- 20 and 49 employees: 439
- 50 or more employees: 391

Most SBAT users are French businesses, with smaller numbers in another 50 countries in Europe, Africa, Asia, North and South America and the Middle East. Non-French companies are anticipated to be the

largest market in future. Most user businesses are in the retail trade (75 official European industry categories are used); this user profile has changed little over time.

Success factors

The success of SBAT is due to a number of characteristics. First, being entirely online, SBAT is readily accessible for most entrepreneurs with access to a computer and to the internet. Second, the tool is generally perceived by users as an easy-to-use tool. Third, SBAT is relevant to all types of SME and entrepreneurs. Fourth, entrepreneurs do not have to provide financial data, which may constrain take-up from business owners reluctant to divulge sensitive business information.

Conditions for transfer

Successful transfer of the SBAT model to other countries depends on meeting at least two conditions. First, suitably skilled data scientists capable of adapting SBAT to a specific context need to be recruited. This is perceived as relatively easy to achieve in most developed countries. Second, the language used might need to be adjusted for speakers of languages other than French or English. There are no serious technical constraints on transfer. SBAT uses standard programming languages that are used all over the world.

Sources

Interview with Prof. Nadine Levratto, Observatory on Practices of Entrepreneurs and Enterprise, CNRS and University Paris Nanterre.

15. Case 12 Smart Diag', France

Box 12. Snapshot of Smart Diag'

Address: https://smartdiag.opcoep.fr/
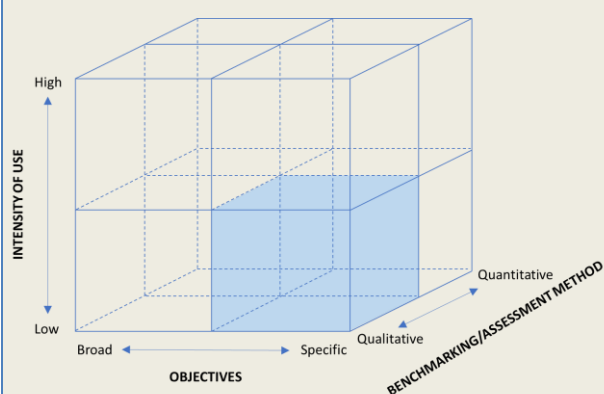
Operated by: *France Num*, an initiative managed by the Ministry of Economy and Finance.

Target users: All SMEs and self-employed.

Main objectives: Identify level digital maturity.

Overview: 5-minute survey about adoption of digital technologies. It provides an assessment of digital maturity and suggests some actions. Follow-up support is offered as part of the Smart SME initiative and links to support providers are also provided.

Benchmarking/assessment approach: Qualitative.

Objectives

The Smart Diag' tool aims to help SMEs quickly identify their level of digital maturity, including areas of relative strength and weakness. It highlights areas where further progress can be made and directs users to potential follow-up support services. The tool aims to provide a diagnosis for one million SMEs over its first three years of operation.

Rationale

The digital economy opens a range of new opportunities for scaling-up, reducing costs, and enabling the creation of new business models that can challenge existing ones in radically novel ways. SMEs can draw many potential benefits from digital technologies, such as better access to skills, talent or markets, better collaboration and communication, or greater access to novel technologies and applications. Recent evidence shows that the use of digital tools enables access to international market also for micro enterprises. However, compared to large firms, SMEs' uptake of ICT is lower and they face higher barriers to the adoption of several digital technologies in their operational activities.

Adoption of digital technologies is relatively slow among French SMEs, especially micro firms. The national statistics bureau of France (*Institut national de la statistique et des études économiques*, INSEE) estimates that only one-third of micro firms have a website. Moreover, the European Commission's Digital Economy and Society Index indicator ranked France 15th out of the 28 EU countries in terms of use of digital technologies in 2019 (European Commission, 2019).

Overview of the tool

The Smart Diag' tool launched in October 2018. It is the first stage in the Smart SME initiative (Smart PME), which was launched to increase the use of digital tools and technologies in SMEs. The tool and the Smart SME initiative are managed by France Num, a new initiative launched by the Directorate General of Enterprise in the Ministry of Economy and Finance. France Num is managed in partnership with Régions de France, an organisation of French regions. It was created in response to recommendations from the national government's National Digital Council and aims to support digitalisation in micro firms and SMEs.

The Smart Diag' tool was designed to be used in three steps. The first step is for users to complete the questionnaire, which covers two main themes: Business environment and market conditions, and Company performance (Figure 6). Completion of the two modules takes approximately five minutes. The second step is the visualisation of results. The tool generates a report with graphics and basic commentary that compare the user's SME with other SMEs in the same sector, size and/or region. Finally, users can export the results in PDF format. This can facilitate discussion with business advisors and professionals.

Users are required to enter the SIRET number (i.e. business number) to be able to complete the questionnaire and receive the results. This is used as a validation mechanism to ensure that the business exists. Users can create an account using an email address, which will enable them to interrupt use of the tool and return later. Creating an account also facilitates multiple uses and comparisons over time.

Figure 6. Overview of Smart Diag' modules
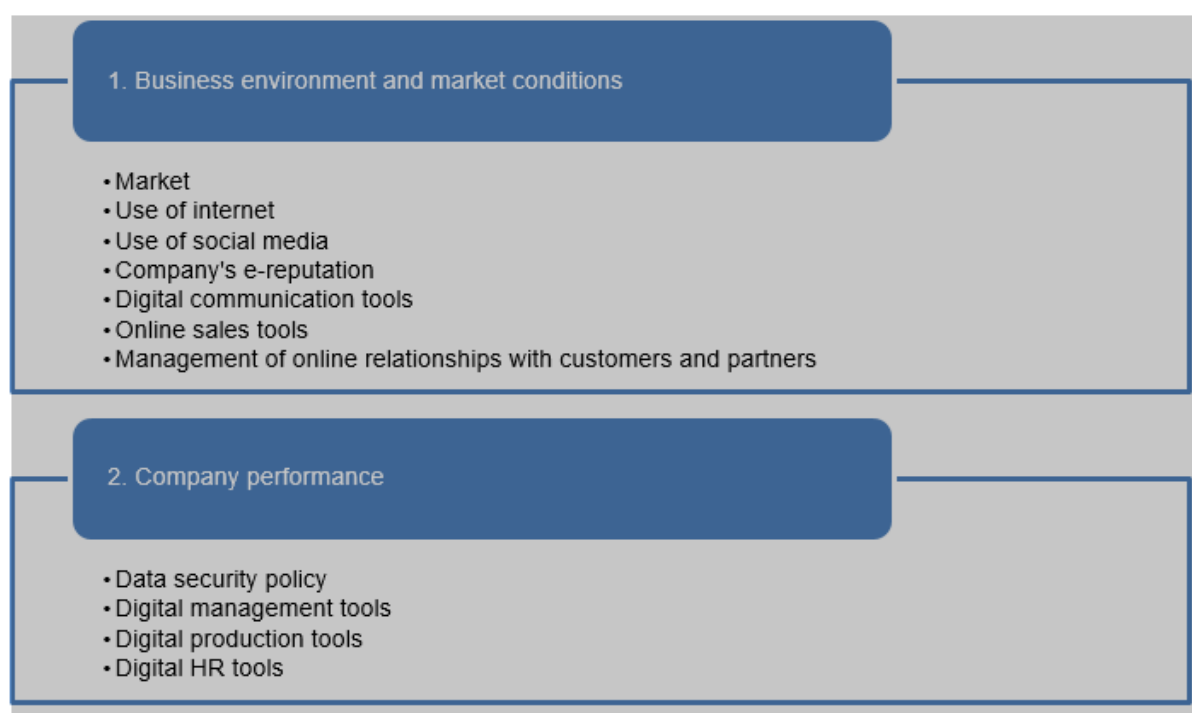
Following use of the tool, SMEs may be able to access further support that is offered through the Smart SME initiative. This programme contains three levels of support to initiate or reinforce the digital transformation within SMEs (Figure 7). The Smart Diag' tool is the first step of the initiative.

Smart Diag' provides information to SMEs about digital transformation and the benefits of digitalisation for SMEs. It also provides links about public initiatives that support SMEs in digitalisation. Those that are

interested in further information and support are directed to support providers that are part of the Smart SME initiative.

Figure 7. Overview of the Smart SME initiative
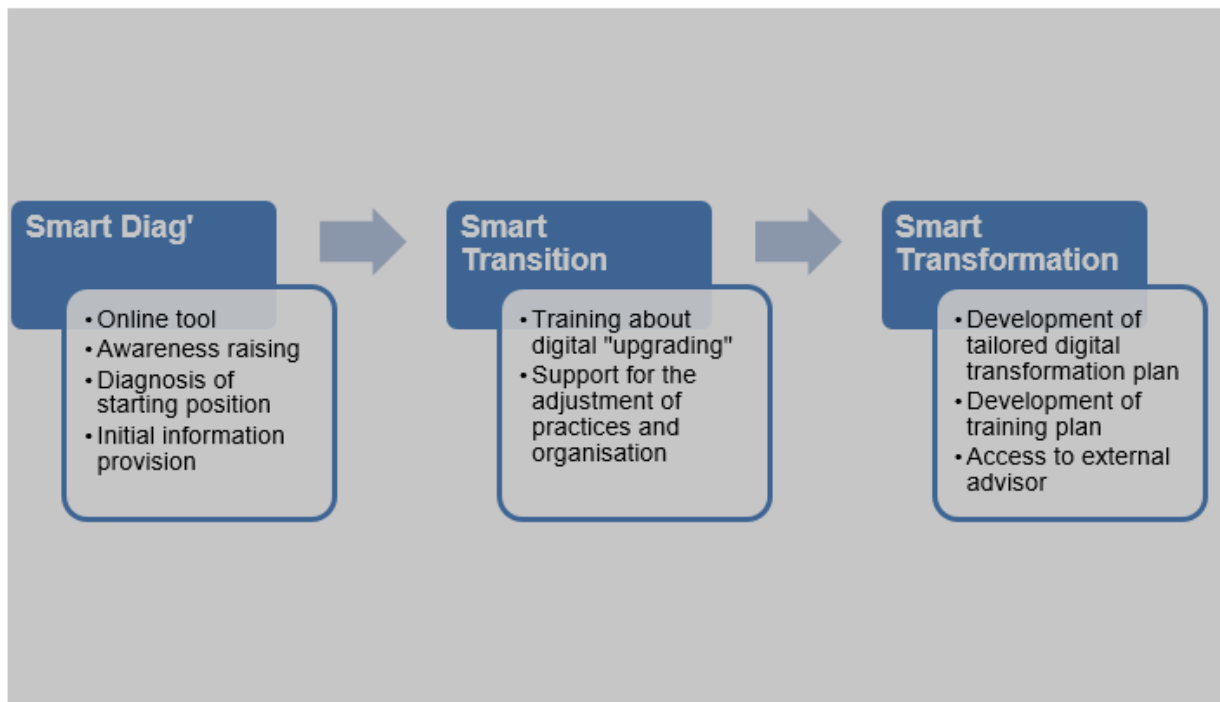
Benchmark data

The Smart Diag' tool assesses business practices that were developed by members of France Num.

Development process

France Num was created following a year-long consultation launched by the National Digital Council. It was designed as a reference portal that gathers all actors that support business in the digital transformation. This network has a membership of approximately 1 700 business support professionals (e.g. regional governments, chambers of commerce, accountants). The initiative was designed to strengthen support at the regional level, where very small firms are more likely to interact with support services.

France Num has four main activities, which all support its mission to support digitalisation in SMEs. Overall, it seeks to i) unite all business development service providers that support digitalistion and their initiatives to increase visibility of existing initiatives; ii) build a network of public and private sector actors; iii) create a resource platform for SMEs; and iv) facilitate access to EUR 1 billion to finance for digitalisation through a loan guarantee programme.

The Smart Diag' tool was developed as part of the France Num's Smart SME initiative that seeks to inspire and support the digital transformation within SMEs. The initiative is complemented by further actions, including a new loan guarantee scheme that seeks to improve access to financing to support the adoption of digital technologies by SMEs.

Costs

Direct development costs of the tool are not available. France Num has a budget of EUR 700 000 for 2020 to cover all of its costs and activities, including the maintenance of the Smart Diag' tool (France, 2020).

Impact

An impact study was launched by France Num in July 2019 to assess the impact of its activities, including the Smart Diag' tool. The number of social media followers is increasing, but remain relatively low. As of March 2019, France Num had fewer than 500 followers on Facebook and fewer than 4 000 followers on Twitter (France Num, 2019). These metrics suggest that the initiative, overall, has a low level of visibility among SMEs.

Success factors

The main success factor for this tool is to have a high level of visibility so that SMEs are aware of the tools and its benefits. To date, this appears to have been a challenge since use of the tool remains quite low despite its objective of being used by more than one million SMEs in the next three years.

The second success factor is to ensure that the broader objective is achieved, i.e. supporting the digitalisation of SMEs. This requires substantial take-up of support services and financing programmes to increase the adoption of digital technologies in SMEs.

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