Toolbox for research- output-based businesses

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Executive Summary:

This deliverable explain the toolbox developed by the Access2EIC project focused on businesses coming out from research in order to help them to frame better their way to market. The deliverable first explain the co-creation process launch within the FET community and then present the logic and the instructions to work with the three tools developed as part of this toolset:

- The business glossary, that defines the key business concepts in a number of dimensions (based on the Business Model Canvas frame) according to the different matureness levels of a business.
- The “TB.map tool” that helps to map the competitive landscape in terms of TRL (technology readiness level) and BRL (Business readiness level)
- The “Bsize tool” that helps to estimate the potential size of a business opportunity in a given market.

1 Background.

1.1 The business readiness level scale concept.

TRL level as commonly used in H2020 can be used to define if a technology is ready to go to market or not but it does not capture properly how "ready" is the business based on such technology to go to market. At the sight of such limitation, the Cloudwatchhub project (https://www.cloudwatchhub.eu/) developed the market readiness level scale. This scale measures the capacity of a business to be ready to go to market with useful, useable and trusted products/services/solutions.

As EIC main objective, across the three different instruments it includes (EIC Pathfinder, EIC Transition to Innovation and EIC Accelerator) is somehow looking towards the market, this scale is really useful to complement the TRL scale to understand in each programme what is expected both at technology and business levels (as input and output of the programme). Even more, as the ultimate purpose of achieving 'market readiness' is to develop a commercial offering for a group of customers, the proposed scale can be further discretized to only 3 states: business conceptualization, business testing and business deployment, as shown below:

Business conceptualization: (0-3)

Building a business is based on a perceived need that your offer can satisfy. At the end of this conceptualization you may have a candidate product/service, a collection of evidence from your clients and an idea on how to generate value to them.

Business testing: (4-5)

Market is the strongest "sparring" you will have for your business. Testing your business can involve close stakeholder or even early adopters. Your objective here is to measure & evolve if your actual "processes" match with your client's needs.

Business deployment: (6-9)

In this phase you have to consolidate paying customers and the product/service offering in the long run. In this step you become a trustful business for your clients and your cash flow starts to become predictable.

Figure 1: Market readiness level scale and associated three phases.

In order not to get confused with the Manufacturing Readiness Level Scale (MRL) which is also commonly used in some H2020 environments, we have renamed Market Readiness as Business Readiness (BRL) while maintaining the logic of the concept.

In this respect, it can be expected that EIC "transition to innovation" will allow participants to work around the conceptualization of their business, while the EIC accelerator will allow participants to test & deploy their business.

1.2 Toolbox scope definition.

Generating a toolbox to support research based business from scratch may have two main problems:

- On one side, trying to re-invent the wheel as research based business is not a new concept and there are already many tools available to support entrepreneurship to conceptualize businesses. (i.e. Business model canvas[1], Value proposition Canvas[2] or different mind maps templates)
- On the other, developing something which users may not need because it is either too complex or simple, or either because it is useful for something they do not really need to do.

To avoid these two issues, the ACCESS2EIC project defined a structured dialog with the FET community, both NCPs and potential applicants and evaluators for FET Launchpad and/or FET transition activities in order to select which tools and in which format would be useful for them according to their needs, but always in the frame and "the language" of what can be expected within the European Innovation Council.

This way, the tools to be developed would be the ones top raked by its potential users upfront but also would be "pluggable" directly in the future proposal document of the "EIC Transition to Innovation" calls in Horizon Europe, which seems to be the place where proposers would need to work in the conceptualization of their business.

With this in mind, a questionnaire was prepared and circulated to FET NCPs and some FET Open & FET Launchpad coordinators and was also discussed with FET Transition to Innovation evaluators during the 2019 evaluation week in Brussels (February 2020). The questionnaire[3] was built based on the "jobs to be done" concept of the Value proposition Canvas, taken into account the matureness of the technology at the end of FET Open or proactive projects and that the main objective per se of the FET Open projects is not creating a business. For that reason, apart from the top tools to be selected, the project decided to include "by default" as first tool a Business Glossary. This glossary includes the most common terms used in the business world at the three levels of business development (business conceptualization, business testing and business deployment).

[1] Osterwalder, Alexander; Pigneur, Yves; Clark, Tim (2010). Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers. Strategyzer series. Hoboken, NJ: John Wiley & Sons. ISBN 9780470876411. OCLC 648031756. With contributions from 470 practitioners from 45 countries

[2] Osterwalder, A; Pigneur, Y, et al (2014). Value Proposition Design (en inglés). Wiley. ISBN 978-1-118-96805-5.

3https://forms.office.com/Pages/ResponsePage.aspx?id=y9usw7vIN0uI6xdMkuMOF2yHqX1P5CpHpTOakxedWa5UM0Q3VERWNzJSQUs4Q1JCMUpIMjhLRldLSi4u

17 responses were collected from the online questionnaire suggesting the following "ranking" on outputs and formats, as well as a number of relevant insights useful for the development.

Question	Score
Would you find useful a tool that helps you to analyze your competitive advantages?	9,13
Would you find useful a tool that helps you to structure your relevant IP?	9,00
Would you find useful a tool that helps you to define the strength of your IP?	8,53
Would you find useful a tool that helps you to estimate the size of your business depending on potential sectors?	8,33
Would you find useful a tool that helps you to frame the scalability of your technology?	8,33
Would you find useful a tool that helps you to define your business model?	8,33
Would you find useful a tool that helps you to define the basic economics for your business?	8,27
Would you find useful a tool that helps you to analyze potential competitors?	8,07
Would you find useful a tool that helps you to select possible revenue models for your business?	7,60
Would you find useful a tool that helps you to verticalize your technology?	7,47

Table 1: Tool concepts prioritized.

Question	Score
I would prefer tools that run in excel format and include linked tables, sheets and figures.	7,60
I would prefer tools that run directly at the web level with subsequent step by step questions.	7,27
I would prefer tools that have a poster format to be used in group sessions using brainstorming methodologies.	6,20
I would prefer to work with tools that have a leisure format (play cards, role plays, board game, …)	4,60
I would prefer no new tools at all. The currently available ones are more than enough.	3,07

Table 2: Preferred tool format from the user perspective.

As the ACCESS4SME project already developed an SME toolbox[4], a cross-check has been done to guarantee that the tools to be developed here complement those from ACCESS4SME that were developed with the SME instrument phase 2 proposal templates in mind and covered:

- The **value proposition of the business**, which is the heart of the developed product, service or process within the project. This is covered with the "Value proposition tool". (this tool cover extensively the competitive advantages of a business)
- The **market and the competence for the business**, not only in the current situation but also into future scenarios. This is incorporated into the "market analysis & competitor tool". (this tool analyse competitors in detail at the level required when deploying a business)
- The **operations of the business** in a sense of how the business itself is created, sustained and maintained in time. This is covered with two complementary tools: the "Revenue model financial tool" and "guiding revenue model selection tool". (these tools helps to define the business model and the revenue model as well as to understand the basic economics of the business accordingly)

With that cross-check, it has been decided the following approach:

1 As analysing the competitive advantages is in the top of the needs and the level of detail of the value proposition tool is too high for the typical status of the business at the end of a FET Open or proactive project, a "lite" version of such tool has been designed to help companies just to map their competitive advantages under limited dimensions (TRL-BRL), This is the TB.Map tool.

2 As there are two relevant needs on IP to be covered we have conducted a state of the art research before developing something from scratch, looking specifically to the IP stakeholders specialists (EPO and WIPO). In that research the IPScore tool has been found and makes full sense to use it instead of creating something new. IPscore allows analyse, visualise and document the strengths and weaknesses of patents and research projects. The tool is available here, and some resources on how it works are accessible here and here.

3 As the next two ranked topics relate to size and scalability, they have been fused together in the B.Size tool, looking not only to the size of the opportunity but also to the potential capacity to take advantage of it. Apart from that, this tool can be very useful not only to estimate some market dimensions but also to think around the basic economics of the business or comparing how a technology may serve very different verticals.

[4] http://www.access4smes.eu/2018/02/08/the-access4smes-toolbox-set-is-on-line/

2 The business glossary.

2.1 Tool description and rationale.

This tool pretends to be a quick guide to the main business terms used in the business domain with a clear link towards the different stages where a business can be in their path from creation to sustainability. The ultimate objective of presenting the glossary this way is to ease the transition from a technology output to a sustainable business. In this sense, there is an acknowledged bias towards technology based business and its main features in the terms included in this glossary.

This glossary uses two concepts as starting point:

1. The Business Readiness Level. (BRL), as already explained.
2. The Business Model Canvas (BMC), which is a widely used & renowned tool for developing new or documenting existing business models[5]. It consists of a visual chart with 9 building blocks that assess the 4 key dimensions of any business (the company "infrastructure", its value proposition or offer, its target market and the main business finances)[6]

The glossary is defined taken the business model canvas as the tool to start the business conceptualization and the BRL to show its progression towards sustainability. In this sense, the glossary covers the main concepts in the 4 dimensions of the BMC frame (Company, offer, market and finance) for three separated business states: business conceptualization (BRL 1-3), business testing (BRL 4-5) and business deployment (BRL 6-9).

[5] Osterwalder, Alexander; Pigneur, Yves; Clark, Tim (2010). Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers. Strategyzer series. Hoboken, NJ: John Wiley & Sons. ISBN 9780470876411. OCLC 648031756. With contributions from 470 practitioners from 45 countries.

[6] *Osterwalder, Alexander (2005-11-05). "What is a business model?". business-model-design.blogspot.com.*

3 The TB.Map tool

3.1 Tool description and rationale.

When preparing the route to market of a technology, it is key to understand not only its main benefits to the client in order to define the business value proposition but also what others alternatives your client may have to solve the same need that your product or technology is solving.

Although in the pre-commercialization phase monitoring this would require a thorough competitive analysis in order to not only map your competitors but also develop proper marketing approaches, in more preliminary stages, where the technology is still "at promising stage", this competitive analysis can be just limited to highlight main potential competitors and their relative position towards the market compared with your solution.

The TB.Map has been built to help you in this mapping exercise but also to define a framework for you to research and learn on your competitive environment. The tool has selected two variables to output this learning, which are:

- The Technology Readiness level (TRL). This scale define, in terms of technology how robust is the solution or the product as it works/operates closer to their actual working conditions. TRL is a common scale used in H2020 environment but hard to estimate in non-commercial products.
- The Business Readiness level (BRL). As defined before, the business readiness level measures the business maturity. It can give you information for instance if your competitors' business is already with traction or not or if it is a brand new/ already established revenue stream for them.

Mapping your competitors against these two variables will give you relevant information about "race" towards the market to solve something similar to you. As the objective of this mapping is to be as wide as possible, the tool allows you to look into 4 different categories of competitors, asking you to prioritize 3 maximum cases in each of them:

3.1.1 Solutions:

They include those products/services which are already in the market. In most cases they will be in high TRL but their BRL can be rather variable. It is recommended to just focus in the golden standard in the market plus 1-2 main alternatives if any. Apart from defining both per each case (based on the information you would be able to find), the tools give you four extra non-mandatory fields: Solution description, Company name (that commercialize the solution), How do they sell (business model used) and what do they sell (what is their value proposition). Doing some research about these four fields can give you clues/hints about potential route to market strategies worth to explore for your solution.

3.1.2 Technologies:

They include technologies that can/could be used to solve the same customer need that you are solving. They can be available in the market or still at development stage. As in the previous case, there are 4 extra fields that allow you to frame your learning on them: (technology definition, technology flagholder (if any), technology potential barriers and technology potential drivers). As it can be easy to understand the two first fields are easy to find, the two last one require some research around these technologies. In this sense, although the TRL of these technologies may be easy to find, the BRL would be based on flagholder companies identified.

3.1.3 IP assets:

They include accessible IP assets which can be relevant for your solution, either because limits somehow your freedom to operate either because can give some of your competitors some competitive advantage now or in the future. The extra fields in this case help you to do some research in https://worldwide.espacenet.com/ around those IP assets. As in the previous case, TRL may be easy to identify while BRL will be based on the information you would be able to find about the owner of the IPR exploitation rights.

3.1.4 R&D projects:

They include relevant funded project that can be relevant for the development of potential competitors to your technology or solutions. In this case, BRL would be hard to find, so it is advisable that BRL1 is set if the project has a TRL up to 4, BRL3 is set if the project has a TRL up to 6 and, if TRL is more than 6, the BRL can be set at BRL4 unless your findings around them suggest different levels. (which can happen if projects ended some time ago).

Apart from your competitors, the tool has a dedicated entry for your solution. it allows you to think around the three main questions in any potential business (besides defining your TRL-BRL):

- Why do you sell? It aims to capture why you think your clients will select you among their possibilities.
- How do you sell? It aims to understand what are your business model and your main revenue streams.
- What do you sell? It aims to summarize what is your offer towards your clients.

Although the most important information that contains this tool is mainly contained in the non-mandatory fields, the one that relates TRL and BRL to all the entries can be output graphically by the tool and looks like the image below, giving a nice one-shot overview of all competition.

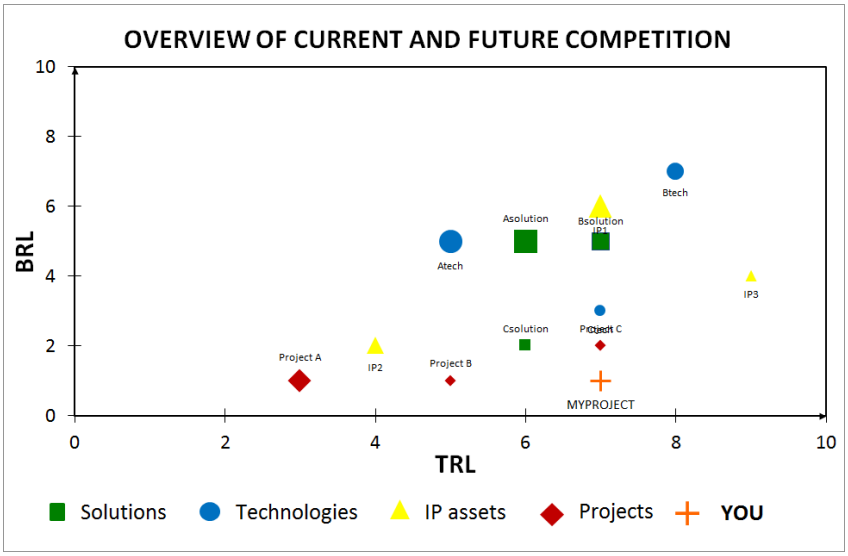

Figure 2: Graphical output of the TRL-BRL of the competition.

4 The B.Size tool

4.1 Tool description and rationale.

At some point in any technology development, the developer needs to understand how big their market opportunity could be. This is especially relevant in disruptive technologies developed by start-ups or spin-offs as, due to their innovativeness can tackle different markets, but typically due to the company size, they cannot cope with all of them at the same time.

The B.size tool is developed with such objective to help companies and/or researchers, with a guided process, to calculate roughly the order of magnitude of their business opportunities as well as a first estimate of their potential revenues in three different markets.

The tool is structured into 4 sections to help users to think around the main concepts that can determine the size of a business opportunity and their capacity to take benefit of it. While some questions require actual figures, most of them can be answered qualitatively, in general selecting into a 0 to 5 drop down field.

In order to include such quantifications in the output of the tool a number of weighting factors are used in the tool. Some of these weighting factors are obtained from here, and here, but they are kept unlocked in the tool in case the user may feel other weights may fit better in given markets.

4.1.1 Individuals section:

This section aims to estimate how big could become your client base. It includes a first question on your serviceable available market (SAM) in number of clients/year that will define the maximum number of clients you may able to have within this market.

The following four questions aim to measure quantitative your capacity to segment, reach and keep this client base. In these questions, the lower the response (0 to 5), the higher is the weighting factor that "discount" on the client base (up to 30% in each question). This way if you have identified many potential clients as SAM level but you are not good in segmenting, reaching or retaining them, your maximum client base defined via SAM will never be that high. Putting all them together, the tool calculated the "number of potential clients "corrected".

Finally this section asks about the expected serviceable obtainable market (SOM) in three year to use it later to calculate your potential turnover.

4.1.2 Repetitions section:

This section aims to capture how often your client needs to solve their need/problem per year and how often your solution is able to solve it. With this information you can transform clients into operations.

This section asks about segmentation and retention, this time at operation level instead of at client level. The objective is again to "discount" the number of annual operation per segmentation and reach, with the same logic than before (and the same weighting factors linked to the 0 to 5 responses).

The result is the average repetitions per year "corrected".

4.1.3 Expenditure section:

This section aims to set a first estimate of value and margins of your solution. The first question asks about the will to pay of the clients (in euros), while the second aims to qualitative consider how big the value you are generating them with your solution is. The higher the value, the higher chances that your price will be close or even higher to the will to pay "price" set by clients.

The result of these two questions gives the "average expenditure per client per repetition "corrected".

To further understand your margins, there are two more questions in this section apart from the one asking you directly on that; one question about the customer acquisition cost and a second one about the duration of such customer acquisition to quantitative discount on the margins to be used to calculate the potential revenues.

4.1.4 Trends section:

This final sections aims to cover also potential trends in your market worth to mention, not only at the current growth rate but also in a best case or worst case scenario. The quantitative questions in this section aim to capture the relative impact of such trends as well as their short-mid or long term nature, by adding weighting factors to the annually calculated CAGR of the market.

4.1.5 Tool results.

Putting together the information of all the sections the tool gives the following results:

- The Market opportunity size today corrected in Euros, as the number of potential clients corrected x average repetitions per year corrected x average expenditure per client per operation "corrected".
- The potential annual revenues in this market (euros), multiplying the Market opportunity with the SAM x the "corrected" margin per operation.
- The ratio between revenues and market opportunity (%)
- The future market opportunity size at three years on three scenarios:
    - The plausible one: calculated with the current market opportunity size growth annually with the weighted annual CAGRs depending on the impacts and timings of both the positive and the negative trend.
    - The maximum one: calculated with the current market opportunity size growth annually with the weighted annual CAGRs coming only from the positive trend.
    - The minimum one: calculated with the current market opportunity size growth annually with the weighted annual CAGRs coming only from the negative trend.