Life Science Case Examples Using the Quick Screen Tool for Opportunity Assessments

Ryan Friedrich
Rutgers University

Joon Seok Lee
Rutgers University

Rayan K. Salih
Rutgers University

Arthur A. Boni
Carnegie Mellon University

John M. York
University of California, San Diego
Cranfield University
Rutgers University

Innovations are plentiful in the biopharma landscape but often fail to reach commercialization. This paper addresses the research question: How can a tool efficiently assess life science opportunities to go to market successfully? This paper analyzes three case studies using the quick screen tool, culminating in a scorecard that reflects commercial potential and readiness. COASTAR's score of 1.95 represents strong potential despite lacking clinical validation, while JD Bioscience's score of 2.87 reflects unique attributes and developmental risks. Reviva's score of 3.08 highlights strong intellectual property and competitive challenges. The quick screen tool simplifies decision-making, with simple rules enhancing heuristic strategies.

Keywords: biopharma, biotechnology, business analysis, business development, risk management, quick screen, heuristics

INTRODUCTION

Sull and Eisenhardt's (2016) book *Simple Rules* offers guidance to executives on making quick decisions. It is a strategy that allows users to save time and effort by focusing on simplifying information. For example, triage rules in the clinical setting help direct medical resources for the sickest patients without harming those with lower-priority issues. These scholars emphasize the importance of tailoring the rules or

process to a particular situation (Sull & Eisenhardt, 2016). One can apply such an ability to quickly process information, leading to decisions for many industries, including biopharma.

In this age of constant innovation and technological advances, copious amounts of information exist for many ventures. However, a significant challenge for many entrepreneurs and investors is using large amounts of information efficiently. Kruse et al. (2023) discuss essential conditions where heuristics work best, such as in the presence of noise, dynamic environments, and difficulty obtaining large amounts of information.

In life sciences innovation, managers need a method to assess the nuances unique to this field quickly and reliably. Boni's (2012, 2019) quick screen tool presents such an approach. This tool is a simple screening methodology entrepreneurs use to make decisions based on different opportunities (Boni, 2012). Extending this work, York et al. (2022) applied the quick screen tool to various case studies using the three sets of opportunities Boni first presented - project, product, and platform. This paper provides practical examples of Boni's (2019) framework but leaves the opportunity for further contribution by offering a scorecard for evaluating opportunities using the quick screen tool.

This paper aims to translate the quick screen framework into a practical scorecard tool and illustrate its use through case studies. Previous research and frameworks identified the necessary components to bring life science innovations to market in the form of case studies, but what is missing is the practical application of using the components in assessing real-world opportunities (Adamseged & Grundmann, 2020; Connors et al., 2021). How can a tool better quantify and assess different life science opportunities, from pre-clinical projects to refined platforms, quickly and efficiently to successfully make it to market?

This paper will first describe the quick screen tool and its conception, followed by the 3Ps and the initial framework set in previous literature. It will then illustrate the practical application of the quick screen tool and framework to assess life science innovation opportunities through case studies. This effort involves describing core methods, including online resources and semi-structured interviews, to gather data to analyze and evaluate using the quick screen tool. The analysis presents the three cases with critical findings and applications using the screening tool. The discussion will examine vital learnings, contributions, relevant literature, limitations, and implications of this research. Lastly, this paper ends with conclusions on the value of the scorecard and possible future impacts and research opportunities.

LITERATURE REVIEW

The Quick Screen

Previous work and case studies analyzed by Boni (2019) and York et al. (2022) applied the quick screen tool to business cases. These case studies provided empirical evidence involving a framework for assessing opportunity characteristics. They illustrated how individuals can use the quick screen tool to analyze relevant information and categorize where a venture resides on the project-product-platform continuum. Past work has focused on providing "real world" cases as examples to illustrate the framework in action (Boni, 2019). Past research previously described a risk-opportunity-maturity relationship model and identified scenarios of when and when not to use the quick screen tool.

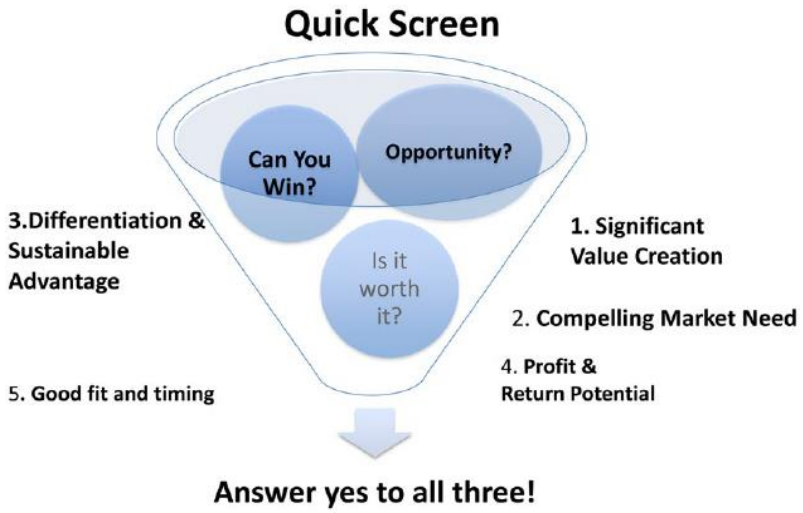
Many entrepreneurs, investors, and life science professionals have the necessary skills to bring their ideas to fruition. The common problems they encounter are identifying risks and the most appropriate way to get their ideas into the market. Multiple factors can overwhelm the decision-making process when considering a pharmaceutical investment opportunity. With a standardized evaluative framework, it is easier for investors and business development (BD) professionals to navigate this complex labyrinth of opportunities, especially considering the significant financial consequences often involved. Specific characteristics can differentiate an excellent innovation opportunity from the rest, and additional tools can aid pharmaceutical executives in efficiently identifying these opportunities. A few examples of existing tools include the strengths/weakness/opportunity/threat (SWOT) analysis, Porter's five forces, and the Boston Consulting Group (BCG) matrix.

One new framework is the quick screen tool, which is more specific to biopharma and can help entrepreneurs, executives, and investors more efficiently assess opportunities. Boni (2012) described this

framework in his original article, "Project, Product or Company." The article addressed the complexity of the commercialization strategies that translate a project into an innovative product or platform.

The quick screen tool (Figure 1) is a simple, structured screening methodology for identifying and evaluating ideas and potential opportunities for commercialization (Boni, 2019). It addresses three questions to answer: 'What is the opportunity?';' Can we win?'; and 'Is it worth it?'. These questions correspond to considerations of opportunity, competitiveness, and monetary value. The screen also includes five pillars utilized to assess an opportunity.

FIGURE 1
QUICK SCREEN AND FIVE ANCHORS OF A GOOD OPPORTUNITY



Boni, 2019

These five pillars are (Boni, 2019):

1. Creates or adds significant value to a customer or user.
2. Solves a significant problem in a large and growing market.
3. The opportunity characteristics are differentiable, offering a sustained competitive advantage.
4. The market has the potential for good margins and money-making characteristics.
5. At the time, there was a good fit with the founders and management team, balancing risk and reward and alignment of interest with all constituents, including investors.

Boni (2012, 2019) introduced the quick screen tool as a valuable set of rules. Since then, more work has developed the construct and improved its usefulness in evaluating opportunities. Boni first presented a straightforward screening methodology that can facilitate a quick but structured approach to understanding which commercialization options may be the most viable and lowest risk to pursue. This screening methodology introduced the 3Ps continuum to characterize an investment opportunity's maturity. In the context of the biopharmaceutical industry, a project includes assets in early development, such as pre-clinical drug molecules. Products characterize more developed assets but have not yet shown a pattern of repeated success (i.e., as a single commercialized drug or one in clinical trials). A platform involves an investment opportunity that offers the capability to provide a continuous stream of products. Within this continuum, projects typically involve the highest level of risk and uncertainty, while platforms involve the least.

The 3Ps: Project, Product, and Platform

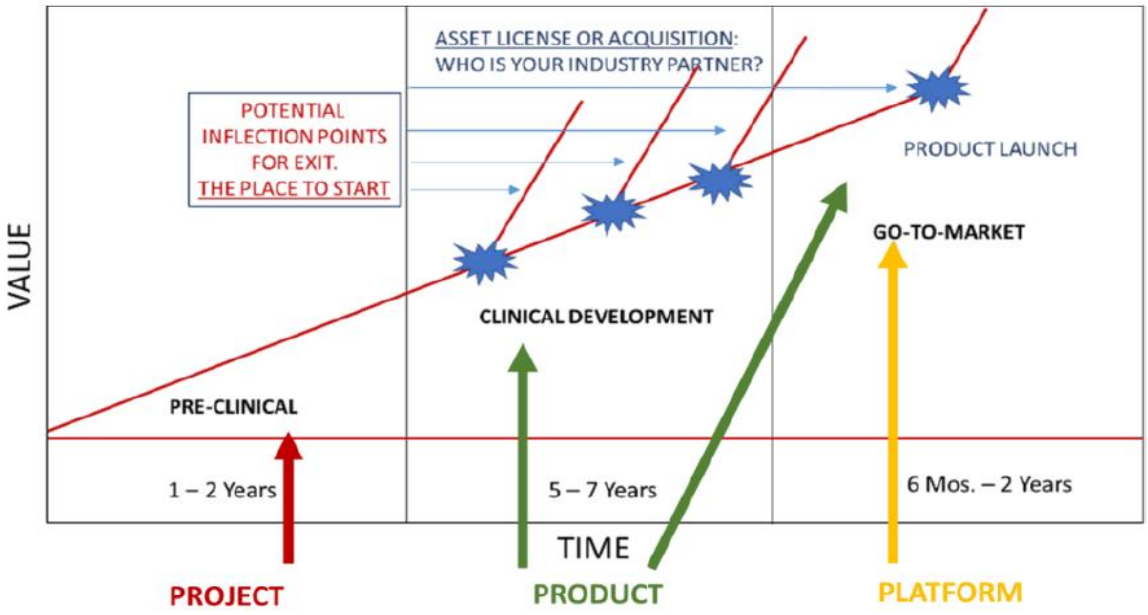
The 3Ps are metaphors to characterize prospective ventures or assets. The 3Ps include project, product, platform, and corresponding low, medium, and high maturity levels. Projects are the least developed opportunities (low) and are often pre-clinical phase assets. Projects include newer technologies and

molecules in the pre-clinical stages of drug development. Opportunities identified as projects usually use a licensing strategy. Projects complement existing offerings and can be managed well by commercial partners via licensing arrangements (Boni, 2019). Projects make up the bulk of opportunities presently developed. Examples of projects include early-stage, high-risk, usually pre-clinical assets, and early clinical trials. The criteria for projects all tend to measure as low. The opportunity is low due to the early stage of the asset, where the value is not fully defined and needs to be more compelling. Heavy investments are required to de-risk clinical, technological, and regulatory risks (York et al., 2022). The competitive advantage is low due to potential competitive options, limited intellectual property, and the early-stage nature of the asset.

Products are more advanced in their development (medium). Products are often more valuable and less risky opportunities. Molecule-considered products have at least entered clinical trials and are closer to potential commercialization than projects. Products are opportunities that have the potential for the development of an offering through research and development. Utilizing a partner company provides the product with resources that include testing, validation, regulatory validation, channels to the market, and marketing communications. An example of a product would be drugs that are in trials and unapproved. Products have medium scores because while there is interest in the opportunity, the value may not be significant due to the risks. At this stage, money reflects the need for further development regarding regulatory approval, manufacturing, and costs of going to market (York et al., 2022). There is a better competitive advantage when compared to products due to well-defined intellectual property and advanced proof of concept. However, barriers to regulation and going to market are still applicable.

Lastly, platforms are opportunities that have the appropriate infrastructure to develop multiple products and services, commercialize them, and bring them into the market. Artificial Intelligence, biotechnology, and biopharmaceutical companies are a few examples of platforms. Platforms have high scores across the board due to the large market with significant needs for which they present a solution. Platforms typically have a track record of success, such as an already commercialized product developed from the platform. Money may offer potentially high profits, margins, and a return on investment due to passing significant clinical-regulatory inflection points. The competitive advantage is high due to a unique solution presented, substantial intellectual property, experienced management, and potential future partnerships (York et al., 2022).

FIGURE 2
THE 3PS MATURITY LEVELS AND INFLECTION POINTS



York et al., 2022

The 3Ps largely reflect maturity levels and value inflection points (Figure 2). They encompass the life science field, from pre-clinical opportunities (projects) to going to market, where there is a continuous stream of products (platforms).

The Quick Screen Tool

The quick screen tool, paired with its scorecard, allows pharmaceutical executives, investors, and entrepreneurs to assess opportunities rapidly. Since executives and investors may sit through multiple pitches in a single day, efficiently processing all that information is challenging. The tool simplifies this process by offering a comprehensive yet concise evaluation of each opportunity's quantitative and qualitative worth.

The management scorecard and the Balanced Scorecard (BSC) stand out among the various scorecards management professionals utilize. The former provides a strategic snapshot of organizational performance, highlighting pivotal key performance indicators (KPIs) and their set targets. On the other hand, the BSC, introduced by David Norton and Robert Kaplan in 1992, is a structured system that synchronizes a company's overarching strategy with its tactical operations. It outlines core objectives, KPI evaluations, targeted outcomes, and essential initiatives to meet those outcomes. As an organizational compass, the BSC evaluates efficiency and verifies that management progresses toward its intended goals. It encompasses performance areas such as financial metrics, customer-centric values, and benchmarks related to internal business processes. This article aims to translate the BSC into practical use.

The quick screen tool evaluates companies based on three main aspects: market potential, competitive edge, and financial strength. Each element comprises numerous variables. For instance, 'opportunity' encompasses market size, growth potential, level of competition, developmental stage, and timing. These variables are individually assessed and culminate in a comprehensive score that reflects the quality of the opportunity.

METHODS

This paper uses a mixed-methods approach to critically examine the effectiveness of the quick screen tool in evaluating pharmaceutical and biotech opportunities in a series of case studies. These methods aim to understand better how the quick screen tool and scorecard can quantify and assess different life science opportunities, from pre-clinical projects to well-developed platforms, quickly and efficiently to make it to market successfully. The quick screen tool evaluation culminates in a scorecard, providing a quantitative analysis of each opportunity.

Instead of employing standard structured case study methods commonly used by researchers like Eisenhardt (1989, 2021), Gioia (2021), Langley (2012), or Rashid (2009) to develop theories, this paper focuses on identifying and categorizing case examples of new ventures in the life sciences field. By using the quick screen tool to quantify the final analyses better through a scorecard, traditional methods are not applicable. To stay within the previously developed framework accurately, the authors selectively and purposefully chose projects, products, and platforms that best fit the previously described characteristics of each type of opportunity. Previous works have used case studies to define the quick screen tool and the 3Ps. This paper builds on those earlier works to further illustrate how the quick screen tool, the 3Ps (Boni, 2012, 2019), and the resulting scorecard can be an efficient evaluative framework for business development professionals (York, 2022). Table 1 details the inclusion and exclusion criteria for each case example based on the definitions set for the 3Ps.

The methods include an independent assessment of case studies encompassing companies representing each category of the 3Ps. The assessments comprised quick screen elements and data gathered from various sources. The authors used the quick screen tool to independently evaluate each opportunity based on publicly available information and, when possible, information obtained from interviews with representatives from the respective company. The authors used sources such as Pitchbook, company websites, and PubMed to extract publicly available data on each opportunity. During interviews, the authors attempted to mimic questions that an interested business development professional would ask regarding

analyzing the opportunity for in-licensing or some form of partnering. To limit bias, the authors met following the independently conducted assessments for each case and agreed on inter-rater reliability.

The 3Ps' assessment involves three categories: opportunity, monetary, and competitive advantage. In the opportunity category, the authors assessed the following characteristics: market size, market growth, application (indication), stage (maturity), competition, and timing. The funds in, funds needed, funding sources, returns, and stage were all assessed for the monetary category. The third category of competitive advantages includes intellectual property (IP), point of differentiation (POD), unique mechanism of action (MOA), organizational, and enduring. The quick screen tool numerically grades an opportunity based on each characteristic, assigns a weight based on each characteristic's importance, and compiles the information to form a score for each category.

TABLE 1
CASE INCLUSION AND EXCLUSION CRITERIA

INCLUSION CRITERIA	EXCLUSION CRITERIA
1. Interview available with company stakeholders. 2. Adequate public information to inform an assessment. 3. Upon first glance, the case clearly appears to be either a project, product, or platform. 4. Relevant business databases list the company. 5. Life science company or asset. 6. A company representative provided consent for the inclusion of firm information and interviews in the paper.	1. Company/asset value exceeds a certain threshold, making the opportunity unrealistic. 2. Marketed products that are already FDA-approved. 3. Companies founded after January 1, 2022. 4. Non-pharmaceutical products and companies outside of the biotech/pharmaceutical industry. 5. Ongoing contentious situations within the company (e.g., major ongoing lawsuits).

RESULTS

The quick screen scorecard produces quantitative scores ranging from 1.00 to 4.00. Higher scores indicate more promising opportunities and greater status on the 3Ps continuum. Scores ranging from 1.00 to 2.00 represent project opportunities, scores from 2.00 to 3.00 represent product opportunities, and scores between 3.00 and 4.00 represent platform opportunities. This range encompasses all scores the quick screen framework is capable of outputting. The intentionally designed score ranges allow for equal distance between inflection points on the 3Ps continuum. This equal distance between inflection points should reduce bias by providing a given opportunity an equal chance of being deemed either a project, product, or platform.

COASTAR Therapeutics: A Project Opportunity

COASTAR Therapeutics is a pre-clinical stage biotech company based in San Diego, California, developing biological payload delivery technologies for cancer immunotherapy and gene therapies (Technology - COASTAR Therapeutics, 2024). Its proprietary ENHEnS (Erythro-Nanosome Host-adapted Encapsulation System) technology coats biological payloads with cell membranes, which help these entities evade recognition and clearance by the immune system and successfully deliver to tumors or other disease sites (Technology - COASTAR Therapeutics, 2024). This novel approach holds potential across various therapeutic areas, with work occurring in the highly competitive viral and non-viral gene delivery space.

Despite the groundbreaking nature of its technology, COASTAR is still in its early stages. With no clinical validation of the ENHEnS technology, COASTAR embodies biotech startups' typical high-risk, high-reward profile. However, COASTAR has demonstrated strong financials, securing over $5 million in

funding, with support from a mix of angel and venture capital investors, which signals a vote of confidence in the ENHEnS technology (PitchBook Data, 2024).

COASTAR formed several partnerships in oncology and rare diseases, reflecting its ENHEnS technology's versatility and continuous efforts to validate the technology (Technology - COASTAR Therapeutics, 2024). The company's strong intellectual property portfolio and technology's unique mechanism of action set it apart from its competitors. However, COASTAR's current lack of clinical validation places it in a precarious position despite the promise of its technology and the strategic partnerships it has forged. COASTAR's journey exemplifies the delicate balance between potentially groundbreaking science and the pragmatic side of bringing such innovations to market.

An objective assessment of COASTAR using the scorecard yields a weighted composite score of 1.95 out of 4.00 (See Table 2). This score suggests that while COASTAR is well-positioned competitively and has the potential to disrupt a large market, there remains room for growth, particularly in further validating its ENHEnS technology through clinical trials and further strengthening its financials for the long road ahead.

TABLE 2
COASTAR QUICK SCREEN SCORECARD

Opportunity	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Market Size	17%			3		0.50	0.67
Market Growth	17%			3		0.50	0.67
Application (Indication)	17%		2			0.33	0.67
Stage (Maturity)	17%	1				0.17	0.67
Competition	17%	1				0.17	0.67
Timing	17%	1				0.17	0.67
Composite Score						**1.83**	4.00

Monetary	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Funds in	20%		2			0.40	0.80
Funds Needed	20%	1				0.20	0.80
Funding Sources	20%		2			0.40	0.80
Returns	20%	1				0.20	0.80
Stage	20%	1				0.20	0.80
Composite Score						**1.40**	4.00

Competitive Advantage	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
IP	20%			3		0.60	0.80
POD	20%			3		0.60	0.80
Unique MOA	20%			3		0.60	0.80
Organizational	20%		2			0.40	0.80
Enduring	20%		2			0.40	0.80
Composite Score						**2.60**	4.00

Quick Screen	Weight	Score	Weighten Score	Benchmark	Net
Opportunity	33%	1.83	**0.61**	1.33	
Monetary	33%	1.40	**0.47**	1.33	
Competitive Advantage	33%	2.60	**0.87**	1.33	
Total QS Compsite Score		5.83	**1.95**	4.00	**Project**

	Score Range	Weighted
Project	0-4	1.00 - 2.00
Product	4.1-8	2.00 - 3.00
Platform	8.1-12	3.00 - 4.00

In conclusion, COASTAR Therapeutics represents a project opportunity on the 3P continuum. It is an early-stage biotech company with potentially groundbreaking technology. With a solid foundation but a clear need for further development and validation, its journey reflects the broader challenges and opportunities within the biotech sector. As it progresses towards its first-in-human studies, the true potential of COASTAR's ENHEnS technology will become more evident, potentially unlocking new horizons in drug delivery.

JD Bioscience: A Product Opportunity

JD Bioscience (JDB) is a biopharma company established in 2017 focusing on discovering and developing novel small-molecule therapeutics. With a team of highly experienced medicinal chemists, biologists, and clinicians in endocrine and metabolic diseases, JDB's therapeutic focus areas are metabolic diseases, especially inflammatory, fibrotic, and cardiovascular diseases, and oncology. Its lead asset, GM-60106, is preparing to enter phase 2 clinical trials and is a potential breakthrough treatment for metabolic dysfunction-associated steatohepatitis (MASH) – a market that could grow to $108.4 billion globally by 2030 (Prospective MASH market flips to overcrowded as Big Pharma GLP-1s cast a shadow over biotech breakthroughs, 2023).

Since its inception in 2017, JDB has navigated the biotech landscape with agility, building a team of around 30 people and advancing its MASH asset toward phase 2 clinical trials. The company differentiates itself by taking an innovative approach of focusing on essential biomarkers for MASH, which is critical to identify in the later stages of MASH, where treatment options are limited. Despite the exciting progress and potential, according to JDB, there is a cynical perception from the scientific community against the MASH asset mainly for its novelty. This consideration emphasizes JDB's need for solid results from the upcoming phase 2 trials to garner attention from the scientific community and gain confidence from investors and business development professionals.

Financially, JDB has demonstrated strong performance, having raised $19 million for its Series B (PitchBook Data, 2024). The company is raising its Series C, having already attracted strategic investments from pharmaceutical companies and received a grant from the Korean government. Recognizing the need for global expansion, JDB is actively planning to enter new markets and diversify its funding sources beyond non-US investors.

Competition-wise, JDB's MASH asset's unique mechanism of action and robust intellectual property portfolio place it in a unique position, especially in the later stages of MASH progression, where few innovators exist. The team's expertise is in endocrine and metabolic diseases related to unmet medical needs. In the future, JDB would like to expand to the US to solidify its competitive positioning further. However, the anticipation of phase 2 results casts a shadow of uncertainty, highlighting the innovative yet precarious path it treads in a market with high unmet medical needs awaiting breakthroughs.

An objective assessment of JDB using the scorecard yields a weighted composite score of 2.87 out of 4.00 (See Table 3). The score reflects a balanced view of its MASH asset's significant market potential and the company's financial resilience and competitive edge, tempered by its early development stage's inherent risks and challenges.

Overall, JD Bioscience represents a product opportunity on the 3P continuum. It reflects biotech innovation's high-stakes, high-reward nature, specifically in the MASH therapeutic domain. With a significant market opportunity driven by a clear unmet medical need and a novel approach to treatment, JDB has the potential to disrupt the MASH treatment landscape and represents a beacon of hope for MASH patients. However, realizing this opportunity potentially hinges on overcoming the inherent challenges of clinical development, market penetration, and sustaining a competitive edge in a fast-evolving landscape.

TABLE 3
JD BIOSCIENCE QUICK SCREEN SCORECARD

Opportunity	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Market Size	17%				4	0.67	0.67
Market Growth	17%				4	0.67	0.67
Application (Indication)	17%			3		0.50	0.67
Stage (Maturity)	17%		2			0.33	0.67
Competition	17%			3		0.50	0.67
Timing	17%		2			0.33	0.67
Composite Score						**3.00**	4.00

Monetary	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Funds in	20%			3		0.60	0.80
Funds Needed	20%			3		0.60	0.80
Funding Sources	20%			3		0.60	0.80
Returns	20%	1				0.20	0.80
Stage	20%			3		0.60	0.80
Composite Score						**2.60**	4.00

Competitive Advantage	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
IP	20%			3		0.60	0.80
POD	20%			3		0.60	0.80
Unique MOA	20%				4	0.80	0.80
Organizational	20%			3		0.60	0.80
Enduring	20%		2			0.40	0.80
Composite Score						**3.00**	4.00

Quick Screen	Weight	Score	Weighten Score	Benchmark	Net
Opportunity	33%	3.00	**1.00**	1.33	
Monetary	33%	2.60	**0.87**	1.33	
Competitive Advantage	33%	3.00	**1.00**	1.33	
Total QS Compsite Score		8.60	**2.87**	4.00	**Product**

	Score Range	Weighted
Project	0-4	1.00 - 2.00
Product	4.1-8	2.00 - 3.00
Platform	8.1-12	3.00 - 4.00

Reviva Pharmaceuticals: A Platform Opportunity

Reviva Pharmaceuticals is a California-based late-stage pharmaceutical company that develops therapies for neurotransmitter-related diseases. Reviva was founded in 2006 and has since established proof of concept in schizophrenia with its lead asset, brilaroxazine. More recently, Reviva published positive top-line results from the brilaroxazine phase three RECOVER trial. Reviva's pipeline also includes a pre-clinical asset the company is investigating for various neurotransmitter dysfunctions.

In addition to Reviva's encouraging clinical trial results, the schizophrenia market appears to provide an attractive opportunity. The 2023 market value was $7.4 billion, and expectations have been for it to reach $9.46 billion by 2030 (Yahoo Finance, 2024). The schizophrenia treatment landscape has lacked innovation over the last several years, and significant unmet needs remain. Brilaroxazine has the potential to be one of the very few contemporary FDA-approved branded treatments for schizophrenia.

Reviva expects its first FDA approval for brilaroxazine in the upcoming years. Physicians, regulators, and patients will be enthusiastic about the arrival of an innovative therapy, which puts Reviva in an exciting position. In December 2023, Bristol Myers Squibb acquired Karuna Therapeutics for a total equity value

of $14 billion. Karuna's most valuable asset, KarXT (combined xanomeline [$M_{1,4}$agonist], trospium [non-selective muscarinic antagonist that does not cross the central nervous system]), a potential first-in-class novel schizophrenia treatment (Bristol Myers Squibb, 2024). This acquisition may mark a renewed interest in schizophrenia from big pharma and indicate that Reviva is entering the landscape at just the right time.

Despite big pharma's renewed interest in schizophrenia, Reviva's most significant challenge regarding competition will be gaining market share from lower-priced generic options. Despite the lack of innovation around schizophrenia, several well-established generic antipsychotics hold substantial market shares. Branded entrants must prove to have benefits unavailable from the generic competition to justify an increased price. Therefore, differentiation will be significant for Reviva, as low-cost treatment options are already available.

Reviva (RVPH) is a publicly traded company on the NASDAQ stock exchange, with a market cap of $37M (PitchBook Data, 2024). According to the CEO, Reviva has raised over $150M since its inception in 2006, which has enabled Reviva to conduct clinical trials and develop brilaroxazine up to this point without partnering.

Reviva has solid intellectual property backing for its critical assets. Patents are in place for brilaroxazine, and the Reviva leadership team has extensive patenting experience. Reviva's team consists of dedicated scientists who plan to be part of Reviva's future. This strength will allow Reviva to maintain its expertise and retain critical team members. As a platform opportunity, Reviva is a more enduring opportunity than many others. Reviva now has the experience of bringing an asset through discovery and each phase of clinical trials. The company's current position allows it to get multiple products to market in several indications.

Based on Reviva's current positioning, an objective scorecard assessment grants Reviva Pharmaceuticals a weighted composite score of 3.08 out of 4.00 (See Table 4). Reviva's lead asset is nearing regulatory approval, presenting an opportunity to impact schizophrenia significantly, but competition is likely to be fierce. Overall, Reviva is an excellent example of a platform opportunity, as its pipeline represents an opportunity to bring multiple medicines to market in different indications with much of their development risk already passed.

TABLE 4
REVIVA QUICK SCREEN SCORECARD

Opportunity	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Market Size	17%			3		0.50	0.67
Market Growth	17%		2			0.33	0.67
Application (Indication)	17%			3		0.50	0.67
Stage (Maturity)	17%			3		0.50	0.67
Competition	17%		2			0.33	0.67
Timing	17%				4	0.67	0.67
Composite Score						**2.83**	4.00

Monetary	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
Funds in	20%			3		0.60	0.80
Funds Needed	20%		2			0.40	0.80
Funding Sources	20%				4	0.80	0.80
Returns	20%		2			0.40	0.80
Stage	20%			3		0.60	0.80
Composite Score						**2.80**	4.00

Competitive Advantage	Weight	Low	Med	High	Super High	Weighted Score	Benchmark
		1	2	3	4		
IP	20%				4	0.80	0.80
POD	20%			3		0.60	0.80
Unique MOA	20%				4	0.80	0.80
Organizational	20%			3		0.60	0.80
Enduring	20%				4	0.80	0.80
Composite Score						**3.60**	4.00

Quick Screen	Weight	Score	Weighten Score	Benchmark	Net
Opportunity	33%	2.83	**0.94**	1.33	
Monetary	33%	2.80	**0.93**	1.33	
Competitive Advantage	33%	3.60	**1.20**	1.33	
Total QS Compsite Score		9.23	**3.08**	4.00	**Platform**

	Score Range	Weighted
Project	0-4	1.00 - 2.00
Product	4.1-8	2.00 - 3.00
Platform	8.1-12	3.00 - 4.00

DISCUSSION

After conducting three independent case studies, the authors believe the quick screen tool has valuable applications for business development professionals, investors, and entrepreneurs. The quick screen tool guided their assessments and improved efficiency. Without the quick screen tool, assessing the case study opportunities would have required a more significant time commitment due to a less organized process. The quick screen tool helped distill quantitative and qualitative pearls from each opportunity into numerical values. The quick screen tool can assist business development professionals by facilitating a quick and comprehensive initial screening to enable future discussion.

In recent years, increased access to data and innovative opportunities have encouraged executives, entrepreneurs, and investors to build diverse and dynamic partnerships (PwC's 27th Annual CEO Survey: US Version, 2024). Framework tools like the quick screen tool and its scorecard can aid these

entrepreneurial ventures. Such can help assess status, perform gap analysis, and position their ventures to make the best decisions for further investment and partnership opportunities with venture capitalists, biopharma firms, or government agencies.

The quick screen is not the first tool developed to assist with business development decision-making. The market opportunity navigator is a comparable tool that Marc Gruber, Ph.D., and Sharon Tal, Ph.D created. The market opportunity navigator is a tool that guides its users through a process to prioritize multiple market opportunities (York JM, Pradhan V, et al., 2022). The quick screen tool adds to the small pool of existing decision-making tools for biotech and business development professionals. The quick screen tool builds on the research around the market opportunity navigator and takes its assessments to the next level by providing numerical values for opportunities.

Many BD professionals utilize two other relevant business management scorecards: the management scorecard and the balanced scorecard (BSC). The management scorecard provides a strategic snapshot of organizational performance, highlighting pivotal key performance indicators (KPIs) and their set targets. David Norton and Robert Kaplan introduced the BSC in 1992, a structured system synchronizing a company's overarching strategy with its tactical operations. It outlines core objectives, KPI evaluations, targeted outcomes, and essential initiatives to meet those outcomes. As an organizational compass, the BSC evaluates efficiency and verifies that management progresses toward its intended goals. It encompasses performance areas such as financial metrics, customer-centric values, and benchmarks related to internal business processes. This study aims to translate the BSC into practical use through the quick screen tool and its resulting scorecard.

Through this research, several insights have emerged that illustrate crucial learnings. The quick screen tool has shown an ability to improve the efficiency of business development professionals assessing licensing opportunities. The quick screen can speed up initial assessments, allowing business development to focus on its most relevant opportunities. The quick screen tool was otherwise helpful by guiding its user through essential details that should be considered in an assessment, helping to ensure the capture of crucial factors. The quick screen framework can also be a helpful tool for entrepreneurial decision-making. An executive can use the quick screen to conduct a facilitated self-assessment of their company to identify weaknesses and strengths. Finally, investors can benefit from the quick screen by using the tool to benchmark opportunities and compare their characteristics.

As demonstrated above in this paper, the quick screen tool and the final scorecard utilize simple rules to come to a final decision. The different components of the quick screen tool assessed information pulled from cases in this study, but they can also apply to many other opportunities. As an innovation strategy tool, the quick screen and scorecard can be easily integrated into the life science innovation ecosystem and help shape how business development professionals, entrepreneurs, and investors evaluate ventures and assets by using simple rules to identify where they fit among the 3Ps and to identify gaps to build on moving forward.

The basis of the quick screen tool and its final scorecard is heuristic decision-making. Opportunities undergo a quick and efficient assessment to produce a well-rounded result that entrepreneurs, business development professionals, and investors can utilize in decision-making. Analytical frameworks, like the one proposed by Sheth and Sinfield (2022), enable the user to build on the what and why with the how.

Previous research indicates that individuals and organizations often adaptively rely on simple heuristics. Simplifying parts of the decision-making process can lead to more accurate judgments. By streamlining some parts of the process, the user bypasses the need to weigh and add all of the gathered information, making it a more efficient and timely method (Gigrenzer & Gaissmaier, 2011).

Limitations

As with all research, although the authors believe in the quality of this research, there are several limitations worth mentioning. While the authors did conduct interviews with company representatives, they did not perform detailed output coding. An AI platform transcribed the interviews, allowing the authors to refer to the discussion later. Another limitation is that equivalent information is unavailable for each case study opportunity. Different interviewees are willing to disclose different levels of information, and the

amount of publicly available information varies by opportunity. Users of the quick screen tool and scorecard can rectify this limitation by adjusting the simple rules that are put in place to assist in heuristic decision-making following the final score. However, this limitation does lead to future research opportunities to test the quick screen tool further via practical application against different opportunities.

Additionally, the generalizability of this research is limited due to a small sample size of just three case studies, using only one case example per 3P definition. This sample size limits the generalizability of the results to companies and opportunities with backgrounds similar to those of the companies analyzed. Cases will differ but largely follow the quick screening and objective assessment of those components. Lastly, this research used a non-standard case study methodology and did not use standard case methods for theory development (Eisenhardt, 2021; Gioia et al., 2013; Langley & Stensaker, 2012).

Contributions

This paper uses current life science opportunities to add several practical applications of the quick screen tool and scorecard. Due to the large amount of data and life science opportunities in biopharmaceutical and business development, frameworks like the quick screen tool and its scorecard assist in assessing opportunities. Because of this exponential growth in the entrepreneurial space, there are plenty of organic opportunities to utilize the quick screen tool and produce scorecards that can further validate this analytical framework. Hence, this work offers practical, real-life examples through detailed analysis using the quick screen tool to highlight its place in development and the underlying drivers relevant to opportunity, money, and competitive advantage.

Further, these case studies add to the existing literature on heuristic decision-making. The authors identified and described the unique mechanisms of action, inherent risks, and challenges in the three case study examples through the quick screen tool and scorecard results. This analysis allows investors and executives to improve and choose a business strategy to advance efforts. Using the quick screen tool as an analytical framework for heuristic decision-making, the user can quickly and efficiently identify specific components to focus on improving. The above case studies provided a practical application of the quick screen tool to evaluate opportunities. This research also provided a chance to field feedback on the usefulness of the quick screen tool and gather improvement suggestions.

CONCLUSION

This study examined COASTAR, JD Bioscience, and Reviva Pharmaceuticals through the quick screen tool and final scorecard. The quick screen framework and scorecard provide a valuable and efficient tool for assessing an emerging life science opportunity. This paper illustrates an example of utilizing an efficient framework, the quick screen tool, in a practical application using a real-life scenario. This effort drew from existing literature (Boni & York, 2019; Sheth & Sinfield, 2022) to validate the effectiveness of our analytical framework in thoroughly assessing a life science opportunity. Based on the quick screen tool and resulting scorecard, all the companies in the case studies have room and opportunity to build upon business development strategies to develop their respective drug candidates further.

Using strategic heuristics, life science startups, investors, and biopharmaceutical companies can simplify decision-making in today's complex information overload while retaining a solid foundational analytical framework. Future work should build on this case study and its findings to better implement an efficient and reliable BD assessment tool in life science ventures.

This paper builds on these contributions to further illustrate how the quick screen tool, the 3Ps, and the resulting scorecard can be an efficient evaluative framework for business development professionals in different environments. The quick screen framework and scorecard provide a valuable and efficient tool for assessing emerging life science opportunities at various stages of development. Each case was unique and detailed, and the differences between the 3Ps were detailed. The overarching components that were a part of the assessment included opportunity, monetary, and competitive advantage.

This research should not be the end of assessing the quick screen tool's applicability. The following steps for our research include applying the quick screen tool to a more extensive set of case studies

consisting of project, product, and platform opportunities. Future research should search for opportunities to improve the quick screen tool and optimize an efficient and reliable business development assessment tool. Finally, applying the quick screen in a legitimate business development setting would be the ideal test of its merit. The authors would also like to use the quick screen tool to assess in-market product opportunities. Up to this point, the quick screen tool assessed pipeline products without regulatory approval, but the quick screen tool could also successfully assess marketed products.

ACKNOWLEDGEMENTS

We want to acknowledge and thank the representatives from each respective company who took the time to engage in an in-depth interview. We would also like to thank Drs. Boni and Toscani for reviewing our work. Lastly, we thank Dr. York for his mentorship and guidance.

REFERENCES

Boni, A. (2012). Project, product, or company. *Journal of Commercial Biotechnology, 18*(2).

Boni, A.A. (2019). Evolution of the screening metaphor: Project, product, or platform? *Journal of Commercial Biotechnology*, *24*(4).

Bristol Myers Squibb. (2023, December). *Bristol Myers Squibb strengthens its neuroscience portfolio with the acquisition of Karuna Therapeutics.* Retrieved from https://news.bms.com/news/corporate-financial/2023/Bristol-Myers-Squibb-Strengthens-Neuroscience-Portfolio-with-Acquisition-of-Karuna-Therapeutics/default.aspx

COASTAR Therapeutics. (2024, March). *Technology – COASTAR Therapeutics*. Retrieved from https://coastartherapeutics.com/technology/

Eisenhardt, K., & Sull, D.S. (2016). *Simple rules: How to thrive in a complex world*. New York, New York: Harper Business.

Eisenhardt, K.M. (2021). What is the Eisenhardt method, really? *Strategic Organization, 19*(1).

FierceBiotech. (2023, August). *Prospective NASH market flips to overcrowded as Big Pharma GLP-1s cast a shadow over biotech breakthroughs*. Retrieved from https://www.fiercebiotech.com/biotech/prospective-nash-market-flips-failure-over-crowded-big-pharma-glp-1s-cast-shadow-over

Gioia, D. (2021). A systematic methodology for doing qualitative research. *The Journal of Applied Behavioral Science, 57*(1).

Kruse, S., Bendig, D., & Brettel, M. (2023, September). The potency of shortcuts in decision-making. *MIT Sloan Management Review*.

Langley, A., & Stensaker, I. (2012). Longitudinal research and analysis. In G. Symon, & C. Cassell (Eds.), *Organizational research core methods and current challenges* (pp. 149–167). London.

PricewaterhouseCoopers. (2024, January). *PwC's 27th annual CEO survey: US version*. Retrieved from https://www.pwc.com/us/en/library/ceo-survey.html

Rashid, Y., Rashid, A., Warraich, M.A., Sabir, S.S., & Waseem, A. (2019). Case study method: A step-by-step guide for business researchers. *International Journal of Qualitative Methods, 18.* doi:10.1177/1609406919862424

ResearchAndMarkets.com. (2024, January). *The schizophrenia drugs market is forecasted at $9.46 billion by 2030, driven by the rising focus on injectable treatments and second-generation therapeutics.* Retrieved from https://finance.yahoo.com/news/schizophrenia-drugs-market-forecasted-9-144200166.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAE5eFPCLtl6SekmNwdvDJyHy_ZFxV1Wuf7ub7uB-jJqQeCNvliVplH5-9OkU51JJxXNk7Q6Pxi5EyUh4NG-gx5g4iTtbASg4hxvOe5d3pbxkmwemywAlioKnBWMC-hG-x5Zxso6SLIcgGZoXLUKwt76vGPcHLiJeBbOcgZ8C4V42

Reviva Pharmaceuticals. (2024, April). *PitchBook Data*. Retrieved from https://my.pitchbook.com/profile/56394-28/company/profile#recent-notes

Spinelli, S., & Adams, R. (2016). *New venture creation: Entrepreneurship for the 21st century* (10th Ed.). McGraw-Hill/Irwin.

York, J.M., Abremski, D., Aboujaoude, E., Muthirulan, A., Lipka, E., Patel, K., . . . Luo, P. (2022). The quick screen in action: Project, product, or platform case examples. *Journal of Commercial Biotechnology*, *27*(4).

York, J.M., Pradhan, V., Luo, P., & Toscani, M. (2022). Market selection for MyoTecSci: How to decide "where to play" from multiple options. *Journal of Commercial Biotechnology*, *27*(1).