

## **Simulating innovation: Using SimVenture Validate to develop innovation literacy in bioscience enterprise**

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### **Abstract**

This review explores the use of SimVenture Validate in a bioscience enterprise module aimed at enhancing innovation literacy. Through engagement with the Business Model Canvas, students develop interdisciplinary and enterprise skills. Student feedback has been positive, particularly in highlighting the platform's ability to create a structured, experiential learning environment. Although this trial focused on the biosciences, the interface appears adaptable for use across a wide range of disciplines where innovation and value creation are important. While the platform effectively simulates innovation processes, the review also highlights the need for broader integration of scientific, technical and regulatory contexts, in order to enrich the overall learning experience where similar discipline-related enhancements would likely be equally important when applying the platform to disciplines beyond business studies.

**Key words:** enterprise education, business canvas model, employability, innovation

### **Introduction**

In the rapidly changing context of bioscience today, innovation literacy is an essential graduate competency. Employers increasingly seek individuals who can think strategically, identify opportunities and lead the development of relevant and commercially viable products and services from ideation to commercialisation. One effective way to build this capability is through simulation-based learning. Platforms like SimVenture Validate ([simventure.com](https://simventure.com)) offer a structured, supportive environment that mirrors real-world innovation, helping students engage with enterprise in a meaningful and interdisciplinary way.

### **Challenges in teaching innovation**

Teaching innovation in bioscience is challenging, as traditional lectures often overlook its dynamic, iterative and interdisciplinary nature. Innovation involves ambiguity, experimentation and failure, requiring engagement beyond the traditional bioscience curriculum – such as business modelling, customer discovery and regulatory strategy. Enterprise education also focuses on developing individual skills, behaviours and attributes (Davis *et al.*, 2025), as well as on the aligning of bioscience education with industry needs – particularly in preparing students for roles that demand enterprise and innovatory skills – and on sharpening their understanding of bioscience market trends and actions (Lyons *et al.*, 2024). While experiential formats like hackathons and enterprise competitions foster creativity and teamwork, they often prioritise speed and pitching over deeper exploration. As a result, they may not fully capture the complexities of innovation or provide students with the time needed to reflect, iterate and refine their ideas meaningfully.

## Application of Validate

To address this gap, I integrated Validate into a level 6 bioscience enterprise module during the 2024/25 academic year. Delivered through interactive workshops and computing sessions, the platform complemented existing enterprise teaching by guiding students through the development of business ideas; it used an interactive Business Model Canvas (BMC) comprising ten core building blocks, including a unique sustainability block (figure 1).

Students began by identifying a real-world bioscience challenge aligned with both their interests and the module's learning objectives, providing a relevant foundation for their project work. Using Validate's interface (figure 1), they populated each BMC element through research, reflection and validation. These involved students' exploring customer needs, value propositions, market fit, key partners, activities and resources in a structured, step-by-step guided process.

Crucially, the platform enabled sustained, iterative engagement over several weeks, allowing students to refine their business models on the basis of feedback and evolving insights. The inclusion of a dedicated sustainability block further encouraged consideration of the benefits of sustainability, an increasingly vital aspect of bioscience innovation. This approach fostered a deeper understanding of the innovation process and its broader societal relevance.

**Business Model Canvas**

|                                                                                                                                                                |                                                                                                                                                                                                                       |                                                                                                                                                                                                 |                                                                                                                                                                 |                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Key Partners</b><br>National Health Service<br>Academic Institutions (Universities)<br>Patent Firms<br>Regulatory Bodies<br>Lab Suppliers<br>Funding Bodies | <b>Key Activities</b><br>Step 1<br>Research & Development<br>Step 2<br>Clinical Validation<br>Step 3<br><br><b>Key Resources</b><br>Scientific Expertise<br>Laboratory Facilities<br>Regulatory and Ethical Knowledge | <b>Value Proposition</b><br>What unique value does your innovation offer? Solves a specific bioscience-related problem: Offering a faster diagnosis for cancer patients using new technologies. | <b>Customer Relationships</b><br>How will you build and maintain relationships with users? Community Engagement, Training, Technical Support, Medical Referrals | <b>Customer Segments</b><br>Customer Name:<br>Who are the end users or beneficiaries? Patients, Clinicians, Researchers, Healthcare Providers, Public Health Agencies |
| <b>Costs</b><br>Annual Fixed Costs<br>0<br>Annual Variable Costs<br>0                                                                                          | <b>Revenue</b><br>Revenue Model<br>What is the economic model? Product sales, licensing, subscriptions, and service-based models.<br>Annual Units Sold<br>0<br>Annual Revenue                                         | <b>Sustainability</b><br>Good Health and Well Being<br>-                                                                                                                                        |                                                                                                                                                                 |                                                                                                                                                                       |

**Figure 1.** Example-completed interface for initiating the Business Model Canvas within Validate

## Evaluation of Validate

The integration of Validate brought several advantages over previously used approaches in bioscience enterprise teaching:

### 1. Structured exploration

The interactive BMC offered a clear, step-by-step framework that guided students through each of the ten building blocks. This structure supported deeper investigation of key partners, activities and resources, while encouraging critical evaluation of value propositions, customer segments and market opportunities.

### 2. Iterative and interdisciplinary learning

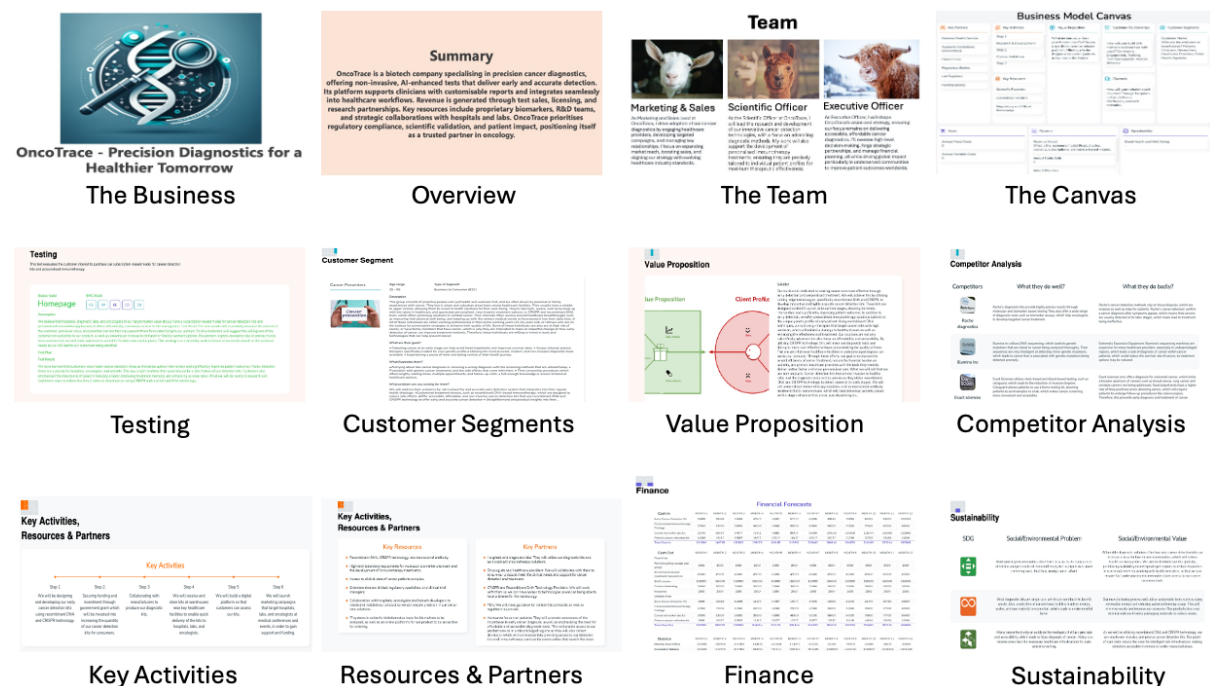
Validate facilitated an iterative learning process, allowing students to test and refine their ideas in a low-risk, supportive environment. It also promoted interdisciplinary thinking by drawing on worked examples from business, communication and sustainability, broadening students' understanding beyond the scientific domain. However, it lacked bioscience-specific examples, which could have contextualised learning.

### 3. Enhanced engagement and output

The tool's interactive interface increased student engagement and its educator dashboards allowed for real-time monitoring of progress. A striking feature was the ability to export customisable portfolios as data files, PowerPoint slides or web pages, which students could integrate into presentations and assessments (figure 2).

### 4. Career readiness

By simulating real-world innovation processes, students developed transferable skills relevant to careers in biotechnology, pharmaceuticals and related sectors. Inclusion of role-based team assignments (e.g., scientific officer, marketing director, regulatory lead) added authenticity and promoted collaborative, workplace-relevant experiences.



**Figure 2.** Visual thumbnail examples of some of the customisable resources that can be created, exported and shared from Validate

## Wishlist for future development

While Validate excels as a strategic tool, it currently lacks explicit support for scientific and technical dimensions fundamental to bioscience innovation. These aspects, though beyond the standard BMC structure, are critical for science-based enterprise education. The following wishlist is proposed:

1. **Scientific rationale**

A dedicated section for articulating the scientific basis of an innovation such as underlying research, methodology and supporting evidence would enable students to demonstrate the credibility, originality and feasibility of their ideas.

2. **Technical feasibility**

The platform currently assumes technical viability without requiring justification. To include features like proof-of-concept documentation, technical risk assessments or development milestones would better reflect the realities of bioscience innovation.

3. **Regulatory and ethical considerations**

Although these are touched on within existing BMC categories, a structured, standalone block like the sustainability block would encourage more rigorous engagement with regulatory pathways, ethical implications and compliance issues, as many students from my own observation tend to overlook these.

## Conclusions

Integrating Validate into the bioscience enterprise curriculum has been a valuable step in developing students' innovation literacy. Student feedback has been encouraging, with many highlighting the benefits of applying their ideas in a broader bioscience context. For many students, engaging with innovation and business was a new and challenging experience, where Validate proved to be a valuable tool in supporting their progress. Notably, eighty-three per cent of students agreed or strongly agreed that Validate enhanced their understanding of innovation and enterprise.

Next year, I plan to continue using Validate alongside activities like hackathons and competitions to support presentation preparation. There is also the potential to expand its role in assessment through individual or team-based portfolios. This year, I piloted a simple pass/fail assessment using team portfolios, which encouraged engagement and supported presentation development.

I particularly valued Validate's prompting of students to consider partners, resources and activities, key elements in encouraging their understanding of how their science discipline may be applied to find constructive solutions to real challenges in the workplace. However, the platform's lack of direct support for scientific rationale and technical feasibility highlights the need for thoughtful integration. To address this, I shall develop supplementary worksheets to help students articulate the underlying science, reference key literature and consider ethical and regulatory issues, such as data privacy, ensuring a balanced approach between business thinking and bioscience theory.

I began trialling Validate following a recommendation from our central enterprise education team and I have since become familiar with many of its distinctive features. These include the

sustainability block, dynamic dashboards for testing critical assumptions through surveys and interviews and the ability to monitor progress across different teams. In my exploration of alternative tools, ranging from high-powered BMC business software packages to simpler offerings like interactive Excel spreadsheets, none has matched Validate's level of interactivity and educational focus. While platforms such as Miro and Canva offer customisable BMC templates that support student participation and outputs, they are not specifically designed with enterprise education in mind.

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