

Defining the Global Market Opportunity for a Chronic Wound Infection Diagnostic Device

Case in Brief

ITI Scotland needed to ensure that its proposed £7.9m investment in the development of new, advanced wound care technology was backed by a solid commercial and market case. Using Strategyn's Outcome-Driven Innovation (ODI) process, the organization was able to:

Reveal a clear market opportunity for superior chronic wound care solutions

Identify, with precision, the unmet needs of wound care practitioners across three continents

Discover four hidden practitioner segments with distinct patterns of need

Formulate a multi-platform innovation roadmap to focus research and development activities on addressing globally-relevant chronic wound care market opportunities

Client Challenge

In 2008, ITI Scotland announced it would invest £7.9m over three and a half years in the development of an advanced wound care technology platform. The ultimate goal was to develop a point-of-care diagnostic platform that could be readily applied to aid the diagnosis and monitoring of chronic wound infection, both in clinical and community environments. Specifically, diabetes-related wounds were recognized as a primary target for application.

According to the International Diabetes Federation, there are more than 240 million people worldwide with diabetes, a number expected to grow to close to 400 million by 2025. The lifetime risk of someone with diabetes developing a foot ulcer is thought to be as high as 25 percent, and it is believed that every 30 seconds someone in the world loses a lower limb due to diabetes.

Early diagnosis and appropriate treatment of infection in diabetic foot ulcers has a significant impact on amputation rates. However, diagnosis of foot ulcers currently relies on expert clinical judgment and use of decades-old microbiological techniques.

From a humanitarian standpoint, the case seemed clear for a superior technology that would expedite diagnosis, direct foot ulcer treatment decisions, and ultimately reduce amputations. But ITI Scotland, a publicly-funded organization, required more than epidemiological statistics before moving forward. A sound commercial argument based on proven market opportunity was needed. Uncovering the market opportunity for such a platform and identifying with precision the unmet needs of wound care practitioners became the first step in validating the commercial case.



How Strategyn Helped

To assess the market opportunity for a point of care diabetic foot ulcer diagnostic platform, ITI Scotland commissioned Strategyn UK to apply the ODI methodology.

Diabetic foot ulcer management is becoming increasingly multidisciplinary, with a number of practitioner types being involved at different stages of the wound management cycle. To enable a deep insight into the roles and requirements of all the stakeholders, Strategyn UK drew on the results of over 60 qualitative interviews with wound care practitioners, microbiology lab technicians, and purchase decision makers in four geographic locations: the UK, US, Germany and India. Practitioners were selected from a number of generalist and specialist wound care disciplines, and from within primary and secondary care settings. They included diabetologists, clinical microbiologists, nurses, orthopaedic surgeons, vascular surgeons and general practitioners.

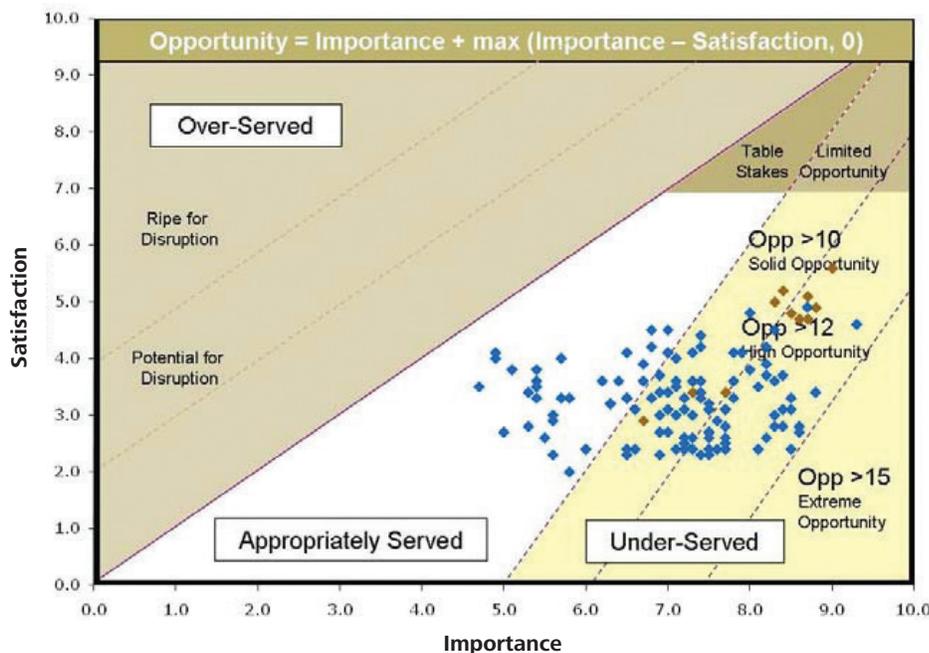
Strategyn UK dissected the job of managing a diabetic foot ulcer, uncovering 111 desired outcomes (customer needs) and 12 related jobs for practitioners, and 52 desired outcomes for microbiology lab technicians. The practitioner outcomes were categorized into one of 13 process steps undertaken when managing diabetic foot ulcers—from preventing formation of the ulcer in the first place through

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diagnosing infection, treating the ulcer, monitoring it, and reducing the associated healthcare cost burden. The microbiology lab technician outcomes were categorized into one of 8 process steps. Next, using ODI-based quantitative research techniques, 424 practitioners and 47 microbiology lab technicians prioritized the related jobs and outcomes.

Given the relatively primitive nature of current solutions, the results—not surprisingly—revealed dissatisfaction with current diabetic foot ulcer management practices with 78 of 111 practitioner outcomes and 15 of 52 microbiology lab technician outcomes being underserved. All 12 related jobs for practitioners were underserved.

The Opportunity Landscape



The opportunity landscape for managing a diabetic foot ulcer revealed a number of practitioner jobs and desired outcomes that were underserved. The total market opportunity was evident, paving the way for more detailed analysis to uncover precisely defined segments of opportunity.

To learn more about the opportunity landscape, see Anthony W. Ulwick, *What Customers Want* (New York: McGraw-Hill, 2005).

Legend
 ◆ Practitioner Jobs
 ◆ Practitioner Outcomes

It was evident immediately to ITI that there was significant market demand for a superior diabetic foot ulcer diagnostic platform and that funds invested in this area would not be wasted. Given the range of disciplines involved, however, and variations in foot ulcer management regimes across the globe, ITI recognized that a market segmentation process would enable them to gain a deeper insight into where the most valued solutions would lie.

Using Strategyn's powerful, needs-based segmentation approach, three distinct segments of diabetic foot ulcer practitioners were uncovered, along with one more general chronic wound segment. As well as having similar unmet needs, each segment shared common attributes such as practitioner type, location of care practice, and focus of tasks in the diabetic foot ulcer management job.

The four-segment model pointed naturally to a multi-platform wound care solution that would enable the needs of all segments to be addressed and appropriately served. To determine the required features of these platforms, the practitioner and microbiology lab technician outcomes were tagged with one of 52 diabetic foot ulcer management "themes," enabling a link to be formed between opportunities (unmet needs) and a user requirement specification which could be used during downstream product development stages. Further platform definition, and the temporal fit of each platform within an innovation roadmap, was provided by results of a detailed technology feasibility study and competitor review, both of which harnessed an efficient and focused approach enabled by the knowledge of prioritized unmet needs for each segment.

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Whilst the commercial argument for a diabetic foot ulcer care platform seemed clear even at the earliest stages of the ODI process, a sophisticated business case was developed using the diabetic foot ulcer care market ecosystem—wound care practitioners and the jobs they undertake whilst caring for a patient's ulcer, as the unit of analysis. By analyzing the practitioner's roles, and the resources currently used in foot ulcer care, a bottom-up approach to establishing the business case was taken, adding further rigour and confidence to the commercial argument.

The Results

Using Strategyn's ODI process, 78 unmet needs of diabetic foot ulcer care practitioners were uncovered at the total market level. This first-order analysis established a clearly underserved wound care market opportunity, providing ITI Scotland with the evidence they required to move ahead with a more detailed understanding of the diabetic foot ulcer care market.

The ODI process enabled ITI to establish a complete picture of how diabetic foot care practitioners think about the job they are trying to accomplish. They have formed a deep understanding of the market ecosystem for the job of managing diabetic foot ulcers, identifying—across three continents—the complex interaction of practitioners as the job is performed. This unique model of diabetic foot ulcer management has provided ITI with a rigorous business case and the deep understanding required to address this complex market.

ITI Scotland is now in a position to drive ahead confidently with its research and development program and is on target to deliver a revolutionary new approach to chronic wound care management.

“The analyses carried out by Strategyn UK ensured that there was a solid business case for the £7.9M programme funding and that the real unmet needs of healthcare practitioners were fully identified and addressed from the outset, before the programme technology research and development began.”

—Gillian Brydon, Programme Manager, ITI Scotland.



“Strategyn UK uncovered the core practitioner unmet needs and translated these into point of care diagnostic and theranostic platform concepts. This will ensure delivery of robust technology solutions which will enable faster and more targeted healthcare decisions, not only reducing this significant healthcare cost burden but providing much improved patient quality of life.”

—Gillian Brydon, Programme Manager, ITI Scotland

Learn More

Strategyn is an innovation consulting firm specializing in the management of innovation. To learn how to make Strategyn’s Outcome-Driven Innovation methodology the cornerstone of your company’s corporate innovation efforts, visit strategyn.com.

Publications that explain the details behind Strategyn’s methodology include:

- Anthony Ulwick, *What is Outcome-Driven Innovation?*, (White paper, March 2009).
- Anthony W. Ulwick, *Turn Customer Input into Innovation*, *Harvard Business Review* 80, No. 1 (January 2002).
- Anthony W. Ulwick, *What Customers Want*, (New York: McGraw-Hill, 2005).
- Anthony W. Ulwick and Lance Bettencourt, *Giving Customers a Fair Hearing*, *MIT Sloan Management Review* 49, No. 3 (Spring 2008).
- Lance Bettencourt and Anthony W. Ulwick, *The Customer-Centered Innovation Map*, *Harvard Business Review* 86, No. 5 (May 2008).
- Lance Bettencourt, PhD, *Service Innovation: How to Go From Customer Needs to Breakthrough Services*, (New York: McGraw-Hill, 2010).

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