



The Art of Pricing

Charge too much for a product, and buyers won't bite. Charge too little, and say goodbye to margins

The company: Pathogen Detection Systems has developed a novel tabletop system that detects E. coli bacteria in water quickly and accurately. Its flagship product enables any user to get laboratory-quality results, on site, without having to resort to lab facilities or skilled technicians.

The situation: PDS's innovative technology is aimed at a variety of markets. But each one has a different threshold for what it is willing to pay for testing. As PDS prepares to launch, CEO Peter Gallant needs to come up with a pricing strategy that ensures the company's technology is adopted widely — and quickly.

FOR THOSE CHARGED with ensuring the safety of water, the bacteria *Escherichia coli* is a constant worry, especially its potentially lethal strain, O157:H7. Known to most as E. coli, this pathogen has been the culprit behind numerous high-profile public-health tragedies, from the seven deaths attributed to tainted tap water in Walkerton, Ont., in 2000, to a rash of illnesses in 2005 from contaminated lettuce in Minneapolis, Minn.

To Peter Gallant, CEO of Pathogen Detection Systems (PDS), however, the problem of detecting a single E. coli cell in a water sample presented not only a technical challenge, but also a potentially major business opportunity. PDS had developed a technology that allowed anyone — scientists and laypeople alike — to test for the pernicious bacteria, quickly and easily onsite, and at less overall cost than any existing method.

Gallant knew PDS was sitting on an important innovation. Traditionally, tests for E. coli had to be done in labs. They took too long, demanded too much expertise from their operators and were susceptible to errors. PDS's system, in contrast, was a breeze — whether the user was a quality assurance staffer at a water-bottling firm, a municipal water-plant engineer or even a lifeguard at a public

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beach. All the user had to do was pour a water sample into a single-use cartridge, pre-filled with chemical reagents, and place it into an automated desktop analysis unit, about the size of a toaster. If *E. coli* was present, even in minute concentrations, it would react with the reagents in the cartridge, creating molecules that fluoresced. An optical scanner in the desktop unit would detect this glow. The result could even be sent to cell phones or pagers.

PDS's system may have been a breakthrough solution, but Gallant still faced a number of critical start-up business issues. Although the potential client base for PDS's system was large, it was also diverse. And winning in each market would be a challenge. The core of the problem was this: While PDS's system was cost-effective in the long run, the sticker price – thanks to the cost of manufacturing the desktop unit – was high enough to affect the buying decision for some potential customers. PDS could discount the upfront price of the unit and recover the money over time through sales of the single-use cartridges. But selling units at lower prices would burn through PDS's financing – hard-won capital raised by selling shares in the company to early stage investors. In the longer term, the strategy could lead to delays in the company's goal of becoming profitable quickly.

With PDS about to make the transition from the lab to the trade show, Gallant needed a pricing strategy that would get his product moving – and he needed one fast.

PATHOGEN DETECTION SYSTEMS got its start in the wake of the Walkerton tragedy, when a small group of environmental scientists and industrial partners, toiling away in university labs in Kingston, Ont., began hunting for new ways to detect *E. coli* quickly. Funded by government and industry, the group was led by

an affable chemistry professor named Stephen Brown, and by 2003 it had come up with the core technologies that would ultimately go into PDS's first systems.

Brown and his colleagues knew they were on to something and decided to form a company. But while they knew their science, they also realized that commercializing the technology would require a different set of skills. Enter Peter Gallant, a PhD in electrical and computer engineering who had left academic life in the late 1990s to form a search-engine software company. He had known some of PDS's founders before he left the university system to start his own business. In 2003, he connected with the group, ultimately overseeing the incorporation of PDS and joining the company as its president and CEO.

With a business leader at the helm, PDS spent the next two years on research and development, refining its technologies and testing production models with a wide variety of bacterial strains. By the spring of 2006, the young company was ready to go to market, with production agreements signed and its innovations protected by pending patents licensed from Parteq Innovations Inc., a leading university technology transfer agency.

Before embarking on a full launch, however, PDS decided to explore its market in more detail. First, it hired a market research firm to find out what drove the spending decisions of potential customers. Once armed with these insights, the company began selecting key "beachheads" – markets that it would pursue first. Specifically, it wanted customers who conducted large volumes of *E. coli* tests, needed faster results and would be drawn to the "labless" nature of the equipment.

Ultimately, PDS settled on three market sectors. First, there were municipalities, which needed faster and easier tests to avoid repeat-

ing tragedies such as Walkerton. Municipal waste-water treatment plants also needed to confirm that the water flowing out of their facilities was clean. Then there was the so-called "environmental market," which included a range of clients, from environmental groups to cottagers' associations and beach managers, who needed to test source water for ecological and recreational purposes. With faster results, these clients could react more quickly to source-water contamination, and post more timely swimming advisories at beaches. Finally, there was the commercial market, which included bottled water and packaged ice companies, whose businesses depended on effective product quality testing at every step of the manufacturing process.

Late in the spring of 2006, PDS shipped sleek, royal blue prototypes of its desktop unit to a handful of pilot clients covering each of its beachhead markets. At the same time, Gallant began pitching the technology at industry meetings and trade shows. The initial response was enthusiastic. Manufacturing companies were keen about the product's "time to result." The PDS system offered a verdict on water quality in about half a day on average, shaving up to 80% off the time taken by traditional testing methods. If high levels of *E. coli* were present, a positive result could sometimes even be detected in as little as four hours. Faster results could boost the pace of output on a client's production line. The accuracy of PDS's system was also appealing, as false positives could trigger costly and reputation-damaging recalls, while false negatives could mean that contaminated products would get shipped. Clients in the municipal and environmental markets, meanwhile, were excited by the "labless" approach to testing.

To help speed the adoption of the system, Gallant also began applying for regulatory ap-

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provals in Canada and the U.S., as well as voluntary certification for adherence to industry standards. Gallant recognized that approvals and certification would give the system an external validation that would help build confidence among potential clients.

BUT EVEN WITH the encouraging initial reaction to its technology, PDS was still grappling with how much to charge for its system. The

taking into account the cost of shipping samples to labs, or the cost of maintaining their own laboratory personnel and facilities."

Worse, each of PDS's three key markets had dramatically different expectations about the balance of capital costs and recurring service fees. Manufacturing clients were used to the issue, as they regularly bought microbiology instruments costing 10 times as much as PDS's desktop unit. Municipal customers, how-

tomers take a deeply subsidized unit just out of curiosity. If PDS was going to pay to place the instruments in the hands of customers, it needed assurances that they were serious about using the unit and regularly purchasing the high-margin cartridges. Hardware giveaways, he worried, might attract less desirable customers – infrequent users, prone to defecting to competing products or services. PDS's technology was unmatched, but the company

Gallant's team conducted a detailed study of PDS's key markets. They discovered that charging a single price for the firm's technology wouldn't work. PDS needed to tailor its prices to individual segments

lion's share of its profit margin would come from recurring sales of single-use cartridges. Even at a price point below what most labs would charge, the gross profit margins on the cartridges would be healthy from the very start, and those margins would only grow as PDS reached full production. Furthermore, each desktop unit sale would drive ever-increasing sales of cartridges.

But what to charge for the relatively costly desktop unit? Gallant was spending considerable time mulling over this dilemma. For seasonal users like summer beaches, the cost of the unit could take years to recoup. Even clients who would use the system throughout the year weren't always comparing apples to apples when they evaluated PDS's per-test cost to their existing methods. "Some customers just looked at the cost of the consumables of their current tests," Gallant says. "They weren't

ever, were price-sensitive, while environmental users weren't used to buying and owning equipment at all.

To resolve the issue, Gallant considered several options. For those used to the recurring, variable costs of laboratory fees – such as the municipal and the environmental markets – Gallant considered softening the capital blow by offering the desktop unit at cost or lower. That approach, he knew, was well-established in other industries. Mobile phones and inkjet printers were among products sold at discounts – even losses – in order to bolster the recurring sales of services or consumables.

But once PDS began to expand its sales, such subsidies would put a serious strain on its coffers. Gallant worried further that underpricing the desktop unit could leave customers without adequate ties to PDS's technology. The last thing Gallant wanted was to have a cus-

was going up against entrenched incumbents – the laboratory-based tests and the companies that supplied test kits to these labs.

The Outcome

THE PDS TEAM arrived at a value-based pricing approach. Instead of setting a price based on costs plus a markup, the company tailored prices to the value its technology delivered to customers. For water-treatment facilities, PDS calculated the average savings derived from not having to pay lab fees or the costs of transporting samples. For environmental users, they considered the benefit of shortened beach closures and reduced public risk resulting from more rapid on-site testing. For manufacturing companies, they considered the value added by reducing the time products spent in warehouses while testing took place, and the cost

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of bringing in staff on weekends to read results from tests that had begun earlier in the week.

Gallant's team also spent time conducting detailed investigations into the purchasing processes in each of PDS's key markets. They discovered that a single price for the desktop unit wasn't necessarily appropriate. In the environmental market, for example, buyers were more likely to be intimidated by instrument costs because they only needed the equipment during limited seasons. For those clients, PDS decided to offer a bundled package. For a flat monthly fee, they would get a leased desktop unit, a supply of single-use cartridges and customer support. In the manufacturing segment, where costs-per-test were the predominant concern, PDS offered the desktop unit at full price, but offset that investment by selling the cartridges at a lower price. A balance was struck for municipalities, with equipment subsidies being repaid through premium pricing for the consumable cartridges.

Each offering also took into account budgeting processes and service needs for each customer category. The prices of desktop units, for instance, were set at thresholds where they would not require complex approvals within most organizations – a move Gallant hoped would accelerate PDS's sales cycle.

Overall, PDS's pricing strategy placed the focus on customers, rather than on the company's own costs. But Gallant realized this approach would erode PDS's margins on the desktop units. To offset problems, he moved aggressively to minimize production costs. Where PDS had built early models by hand, for example, it switched to advanced manufacturing firms to scale up production. Gallant anticipated such moves, combined with the results of PDS's three pricing approaches, would allow the company to break even on desktop unit sales by 2008. After that, he hoped, PDS would benefit from margin growth, as unit production costs decreased with scale.

Gallant now says he plans to extend PDS's customized approach to pricing. And he'll support the strategy by tailoring PDS's products to specific market segments, allowing the technology to be priced with greater sensitivity to the niches it serves. For example, the company is now experimenting with a range of desktop units, with different capabilities and different prices, to address the needs of specific mar-

kets. Gallant says he hopes such customization will further support the pricing structure he has developed for PDS's market entry.

The Expert View

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The first commandment of marketing is this: Know thy customer. A deep and intimate understanding of customer needs will shape every element of the marketing mix. PDS has zeroed in on a small selection of key markets that it understands well. This is a very good sign. But while there's a growth-related appeal to deploying a product in multiple market segments, this approach can be dangerous. It takes time, energy and resources to adequately understand each segment. If you compromise, you risk a fatal misstep. In other words, you're better to succeed in one segment than fail in three. For PDS, the care with which it has selected a pricing strategy in each of its segments will be a key factor in its odds of success.

PDS's choice of a value-pricing strategy is a sage one. Value pricing, however, is hard to do, especially when the value offered to customers is difficult to quantify. For PDS's manufacturing clients, it may be possible to attach dollar signs to production speed, risk of recall and other factors. But what value do customers attach to things like the availability of public beaches, or reduced worry about water contamination? Value pricing requires an investment in research: You need to intimately understand customers' options, budgets, alternatives and price sensitivity. When customers fail to understand the value provided (as in the apples-to-oranges comparisons some of PDS's customers are making), the company must

communicate that value through promotion.

Sometimes companies try to gauge consumers' price sensitivity and willingness to pay after they've gone to market. This can be dangerous. Research shows that customers can react to price increases with outrage, particularly if increases appear arbitrary. Their sense of fair play is offended, and this predictable backlash goes beyond a simple reaction to the economics of the situation. The question of perceived fairness of price is something that PDS needs to bear carefully in mind, particularly if it's considering altering the price once its product has the added value of regulatory validation and approval.

There's another intersection between segmentation and "fair" pricing to which PDS needs to stay attuned. When selling a single product to multiple segments – especially at different price points – it is imperative that those markets remain "separable." When customers can see products priced for different segments, this can foster resentment and undermine the segmentation strategy. It's encouraging that PDS is looking at ways to further tailor and customize its product in each segment. Genuine customization greatly increases the freedom to develop pricing strategies.

The final decision that PDS has grappled with is the question of giveaway pricing. It's not unusual for companies to use low prices to penetrate a market or to offer one product in a complementary pair at a low price. In some cases, this strategy is appropriate. But it should be used judiciously. Giveaways assume a highly price-elastic market. That is, there are a large number of customers who would demur at a high price, but respond well to a lower one. In PDS's case, the customer need being met is for health and safety – an area where consumers can be quite insensitive to price. Companies in PDS's situation should follow Gallant's lead and think carefully about whether giving away their products will increase sales – or just represent an unnecessary consumer subsidy.

Note: The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The views represented here are solely those of the case authors and are based on their own professional judgment. Certain names, scenarios or identifying information may have been disguised to protect confidentiality.