D-REV EXISTS TO DESIGN AND DELIVER MEDICAL TECHNOLOGIES THAT CLOSE THE QUALITY HEALTHCARE GAP FOR UNDER-SERVED POPULATIONS

D-REV ANNUAL REPORT 2016
DEAR FRIENDS,

This year’s annual report gives not only an overview of our incredible progress and scale in 2016—but also the exciting direction we are moving in with new product development.

We know that technology alone does not create impact. Our design work isn’t complete until our products are scaling sustainably and reaching hospitals, clinics, and patients that most need our products—and the products get used (and used and used). The following pages take you through how we design for delivery and scale from the earliest stages of product development.

In 2016, D-Rev products entered their 50th country! Almost all of the markets we serve are high need and complex, and we continue to learn lessons everyday that inform our future work. Our first product Brilliance, which entered the market in late 2012, was named the “best health innovation to benefit humanity” by the Tech Museum as part of their 15 year retrospective of the social sector. Drawing from the successes of our early product lines, we are building a portfolio of medical devices. More patients than ever are coming to referral facilities, more mothers are giving birth in hospitals, and more than ever we are seeing demand for world class, radically affordable devices. Our goal is to provide medical caregivers the tools they need to best serve their patients, and our patients to have the opportunity to live their best lives.

Why do we do what we do? We believe that no one should suffer or die from an easily treatable illness or condition—and that there are tools, technology and know-how to achieve that. We hope that as you read about D-Rev’s last year, you too will be inspired and join us in creating impact next year and in the years to come.

With gratitude,

Krista Donaldson, CEO

OUR VISION IS FOR EQUAL ACCESS TO WORLD-CLASS HEALTHCARE EVERYWHERE.

Our mission is to design and deliver medical technologies that close the quality healthcare gap for under-served populations.
D-Rev by the Numbers

50 Countries with D-Rev products

2 New product lines in development

4 Years since our first product came to market

190,000 At risk babies treated with Brilliance devices who otherwise would not have received effective treatment

20 Steps in our acquisition framework developed with assistance from the Ripple-Works Foundation. (We don’t believe we need to reinvent the wheel.)

1 Passed FDA inspection

5 Products launched

3 D-Rev patents secured

217 Patients fit with the new ReMotion Knee

10 Staff at D-Rev (We leverage our partners well!)

70% Percentage of donated medical devices that are never used or end up in “equipment graveyards” because the devices don’t work in local conditions, per WHO data

1 Board members

$1.7M Annual budget

6+1 Board members

Observer
In the global South, the wealthy can fly to referral hospitals in the capital city or regional hubs for healthcare. However, the majority who can’t afford to travel must settle for treatment at local hospitals that either lack medical devices or have devices that are poor quality, homemade, or donated. Patients receive ineffective treatment that does not heal, and worse, can be dangerous and cause harm.

Quality medical devices transform your life regardless of where you are from and what you do: health enables people to be more productive, participate in their communities, care for their families, and live happier and longer lives. Yet, millions across the world don’t have access to the medical technology that can save them or their loved ones, resulting in widespread health inequity.

Founded in 2007 by Paul Polak and Kurt Kulmann, D-Rev was originally a general product development company focused on the needs of people living on less than $2 per day. In 2009, Krista Donaldson, D-Rev’s current CEO, was recruited to build a portfolio of products that created impact. Under her leadership, D-Rev tightened the organization’s scope to ensure that needed, user-centric products have their intended impact with an economically-sustainable scaling model. In 2014, we chose to focus on addressing global health inequities, recognizing that health is a prerequisite to autonomy and self-sufficiency, and becoming the first nonprofit medical device company focused on health issues disproportionately affecting the poor.

D-Rev designs and delivers affordable, quality medical devices that are not just world-class, but also designed specifically for the environmental, socio-economic, and cultural conditions of high-need facilities and the dedicated health professionals delivering care.

We address the quality healthcare gap through directly through the sale of context-specific and affordable devices to hospitals and clinicians, and indirectly impact through influencing and shaping markets.

**THE D-REV STORY**

At D-Rev, developing a product that solves a problem requires end-to-end design, starting with the need and ending when the product is sustainably scaling and creating impact globally.

**IDENTIFY**

Identify high-impact needs that will close global health inequities.

**DESIGN**

Design world-class products, incorporating manufacturing, distribution, and servicing.

**DELIVER**

Deliver products reliably and sustainably by leveraging markets to maximize impact and cost effectiveness.

**SCALE**

Scale products by investing product revenue into geographic expansion.

**MEASURE**

Measure impact to ensure the product reaches the people who need it most and learn lessons for future product development.
NEW PRODUCT DEVELOPMENT

D-Rev works across a range of health issues that disproportionately affect the poor. We are a user-obsessed organization driven by the needs and context on-the-ground. We design our products based on fieldwork and extensive input from patients, health practitioners, experts, service engineers, distributors, and purchasing decision-makers. Our focus is equipping hard-working healthcare professionals in referral facilities with the tools they need to provide world class healthcare to patients who need it most.

The successes of our first products, Brilliance and ReMotion Knee, demonstrate our repeatable model, and we are expanding our portfolio to a total of seven products in four lines by 2020. We are currently developing solutions that target nutrition, pneumonia, respiratory distress, and other critical health areas that result in preventable death and disability.

NEWBORN RESPIRATORY SUPPORT

SOLUTION SPACE  A way to address neonatal respiratory distress in referral facilities to ensure that babies survive and thrive.

FUNDING SOUGHT  $1.6M

IMPACT OPPORTUNITY  Respiratory distress is one of the largest contributors to infant mortality. We seek reductions in mortality from respiratory distress syndrome, pneumonia, and infection. Significant and limiting side effects such as retinopathy of prematurity, a disorder leading to blindness, will also drop. This collaboration will increase premature babies’ survival rates.

NEWBORN NUTRITION

SOLUTION SPACE  A way for doctors in under-resourced regions to safely treat malnourished newborns who are unable to nurse.

FUNDING SOUGHT  $1.6M–$2.4M

IMPACT OPPORTUNITY  Prematurity is the number one cause of neonatal mortality. Many premature babies are unable to nurse and need access to other nutrients to avoid poor brain development, infection, or death.
A repeatable approach launched five products in four years. We are adding two new products to our portfolio.

D-Rev’s key innovation is that we manage the product development process from problem identification to sustainable scaling, shaping markets and working with established global partners to deliver affordable medical devices to bring quality treatment to those who most need it. We leverage the latest technical research and design tools to deliver products at a fraction of the prevailing retail price, while performing on par or better than the best products on the market. We believe that selling our products, leveraging the market—rather than ongoing donations—for scale creates impact sustainably and cost-effectively. Furthermore, in selling products we are accountable to our purchasers and users: if our devices do not meet their needs, they will not purchase them. With our model, we strive to align incentives to ensure a needed solution will scale globally.

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<th>Year</th>
<th>BRILLIANCE</th>
<th>BRILLIANCE UNDERSIDE</th>
<th>BRILLIANCE PRO</th>
<th>BRILLIANCE LIGHT METER</th>
<th>REMOTION KNEE</th>
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+ Product development phase supported by philanthropic giving.
+ Product distribution phase supported by earned income.
We design for delivery from the earliest stages of product development, vetting potential partners. For example, we ask doctors and nurses “Which companies are reliable?” “Which distributors respond quickly when you have a servicing problem?” Great partners are key to our approach, and part of this work is ensuring motivation alignment.

The delivery model is based on how we can best serve our target facilities: referral hospitals and clinics serving low-income populations—everywhere the product is needed.

All of our products are designed to scale sustainably via the market—meaning that although our devices are radically affordable, they must be priced to include margins for manufacturing, distribution, marketing, and sales. We believe this approach, compared to traditional aid models, holds us accountable to our users.

**DELIVERY**

How do we design for delivery, ensuring that our products reach the hospitals and patients that most need them?

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**Licensed manufacturing, sales, and distribution:** D-Rev partners with an established company to manage manufacturing, sales, and distribution to customers and resellers.

**Contract manufacturing:** D-Rev manages a contract manufacturer

**Direct sales:** D-Rev sells directly to customers and distributors.

**Contract distribution:** D-Rev contracts with logistics companies for warehousing, inventory management, shipping, and customs clearance

Feedback from users is integrated into impact assessments, sales and distribution strategies, and future design work.

Products are delivered to health facilities, where they are put into use.
Phoenix Medical Systems, our delivery partner for the Brilliance phototherapy device, is a pioneer in the manufacturing of cost-effective and innovative neonatal care products. It is the largest manufacturer and distributor of newborn equipment in India with reach to markets across Asia, South America, and Africa.

**SASHI KUMAR**
Founder & Managing Director

*Why do you do what you do?* I love looking for new innovations in society, in the space we are in: mother and childcare. There are so many unaddressed problems today.

One of the mantras I keep is that the doctors and medical staff look after the baby—not the product. Childbirth is a happy event in a family. We want to keep it that way, making sure that whatever is done at the end of the day creates only happiness.

**VINOD NARAYANAN**
Head of the International Division

*Why do you do what you do?* I visit many hospitals. It gives me a great sense of pride when I see tiny babies—400, 600 grams—getting better under our phototherapy devices. And you hear the doctors saying look, under your Brilliance phototherapy, we actually could remove the baby in a day instead of a week.

So you feel happy! You feel proud, and a greater sense of responsibility sets in to see that consistency is maintained in our manufacturing.

**BASKAR B.**
Factory Operations Manager

*Why do you do what you do?* People who work at the factory have heart. Each one of us is saving the baby. We are part of a life-saving product company.

Any operator in training, we take to the NICU setup. We show them how the product is used and how the smallest mistake may cost a baby. People, after coming back from the NICU, automatically bring their heart to the task.

**SUBHASHREE RAJAN**
Marketing Manager

*Why do you do what you do?* I know my work has a direct impact. Our work is saving lives. Births and deaths can be controlled with the technology that we bring.

I like to see the joy in people’s faces. I can see the way the doctors feel—there is a pride factor when people own your product. I’ve got a great team. I know I am making a difference in someone else’s life and that makes me feel happy.
BRILLIANCE NAMED THE “BEST INNOVATION TO BENEFIT THE HEALTH OF HUMANITY”

For Brilliance, D-Rev received the Sutter Health Award for the best health innovation for the benefit of humanity. The award considers all health innovations created in the past 15 years.

When D-Rev received our first Tech Award, our data indicated that only 324 infants from four countries received treatment from Brilliance. When we were recognized in November, more than 175,000 newborns had received phototherapy and we had recorded sales to hospitals and distributors in 37 countries.

“The innovations of #TheTechAwards health laureates have saved and improved countless lives. Sutter Health admires D-Rev’s ability to use design thinking to scale solutions for populations in underserved or developing environments.”

Dr. Albert Chan, Sutter Health VP, Chief of Digital Patient Experience and Engagement. Sutter is one of the largest non-profit hospital systems in the U.S. and the sponsor of the award.

Krista Donaldson (second from right) with other awardees.
RWANDAN BABIES TO RECEIVE STATE-OF-THE-ART PHOTOTHERAPY

To address the need for quality phototherapy, the Ministry of Health of Rwanda, in partnership with D-Rev and Child Relief International Foundation, procured 106 Brilliance Pro units for all 46 district and teaching hospitals in Rwanda that have neonatal intensive care units or special newborn care units. This commitment aims to provide critical phototherapy for at least 4,350 newborns with severe jaundice over three years.

“...The partnership supports His Excellency Paul Kagame’s, President of Rwanda, focus on integrated approaches that benefit our people’s wellbeing and directly advances our poverty reduction and economic development strategy.”

Hon. Dr. Diane Gashumba, Rwanda’s Minister of Health
A doctor at a renowned public hospital in Northern India observed that despite significant improvements to secondary-level care, “outborn” babies were arriving in his ward, sometimes having received poor quality treatment, suffering from brain damage due to hyperbilirubinemia, or severe jaundice. **Newborn jaundice is easily treatable with the right screening and equipment, but in low-income countries, access to quality phototherapy is a challenge.**

D-Rev’s first line of products, the Brilliance family, was designed to address this need for world-class, affordable phototherapy devices to ensure that no baby died or suffered brain damage from what is called a “never event” in medical literature. **Brilliance Pro, priced at $500 (plus shipping and tariffs), is designed specifically for use in busy NICUs where inputs like electricity are not always consistent, while performing on-par or better than devices that are priced at $1,500-$3,500 or more.**

In 2016, the Brilliance Pro Light meter also launched, providing an affordable means for caregivers to check irradiance (brightness). While standard devices cost more than $1,400, our light meter costs $100 as an add-on device to Brilliance Pro.

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**DR. WINSOME SCOTT**  
Doctor at Georgetown Public Hospital (GPH) and President of the Guyana chapter of Guyana Help the Kids

**Why do you do what you do?**  
A seven-day-old baby boy was admitted to GPH this past weekend and had a bilirubin reading exceeding 35. We researched the situation on the Internet and decided to treat the baby boy with continuous light.

The bilirubin reading decreased from 35 to 26 with just a few days of treatment with the Brilliance Pro.
FEATURES

- **SMARTTILT TECHNOLOGY**
  automatically adjusts LED brightness for even footprint when head is tilted

- **INTEGRATION CAPABLE**
  integrates with other medical equipment, such as incubators and warmers

- **DURABLE & LOW MAINTENANCE**
  designed for ease of use and servicing

- **SELF-TRACKS USAGE DATA**
  records dosing information and impact data

- **ONE-HAND HEIGHT AND TILT ADJUSTMENT**
  designed for medical staff who rarely have both hands free

- **5-MINUTE ASSEMBLY**
  reliable and easy installation

- **TIGHT FOOTPRINT**
  minimizes light spill

- **ENERGY EFFICIENT**
  consumes less than half the electricity of other models

BABIES TREATED

240,000 180,000 120,000 60,000 0


- **225,400** babies treated with Brilliance
- **190,000** babies treated who would not otherwise have received effective treatment
- **3,000** newborn deaths and disabilities averted

At a hospital in Tamil Nadu a grandmother visits her granddaughter who is receiving phototherapy from Brilliance.
MOBILITY

Millions of above-knee amputees in low-income regions can’t afford a leg system that would remobilize them. Modern quality knees can cost $400-$6,000, a price that many patients and the clinics that serve them cannot afford. While there are lower cost knees, they do not support strenuous activities such as carrying heavy loads, walking long distances, or traversing uneven ground. This lack of mobility results in limited job opportunities and social stigma for amputees—many who are otherwise young, healthy, and in the prime of their lives.

D-Rev developed and launched its first Mobility product, the ReMotion Knee retailing at $80. ReMotion is a radically affordable prosthetic knee joint designed to perform on par with more expensive polycentric knees that match human gait. Our goal is to support above-knee amputees in regaining their independence to return to school, work, and society.

Dinesh Kumar
Chief Operational Officer at the Mukti Foundation in Chennai, India, which tested ReMotion Knees.

Why do you do what you do?
There was this couple that came in and sat—didn’t talk to anybody. They were very circumspect. What is this place? Will we really get our legs here?

The woman’s leg had been amputated, possibly due to a train accident. Once we got her leg fitted and everything was done, they wept.

Those tears, their hands folded in front of us, made my heart melt. Till that time I never felt such a way. I realized then we are doing something for society.
Aarif, a 20-year old computer science major studying in Ranpur, Uttar Pradesh, received prosthetic care with the ReMotion Knee at BMVSS in Jaipur, India under the “India Pilot Program” funded by The Wellcome Trust. Here he is receiving a new socket and trying out the ReMotion knee while Rob Weiss of the D-Rev team gets his feedback on its performance.

**JAIPUR KNEE**

6,800 patients (as of Apr 2015) and growing

Designed as part of a collaboration between ReMotion Designs (a student team at Stanford University acquired by D-Rev) and Bhagwan Mahaveer Vikland Sahayata Samiti (BMVSS) or the Jaipur Foot Organization, for use in their clinics across India.

The JaipurKnee is made and owned by BMVSS and D-Rev no longer works on it.

**REMOOTION KNEE**

217 patients (as of December 2016) and growing

Designed for centralized mass production to ensure quality, affordability, and global distribution.

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**Features**

- **Modern Design**
  - Utilizes modern prosthetic design principles, called the “modular” system, that enables superior adjustability

- **Durable**
  - Tested to international gold standard (ISO 10328: Structural Testing of Lower Limb Prosthetics) that rates the knee for 3-5 years of use

- **Water Resistant**
  - Made of materials that stand up to tough, muddy environments

- **Lightweight**
  - Weighs less than 1.5 lbs

- **Affordable**
  - Sold by D-Rev for $80 everywhere in the world

- **High Range of Motion**
  - 165 degrees of rotation to support activities like squatting

- **Noise Dampening**
  - Designed with integrated bumper that minimizes noise during normal walking
**2016 FINANCIALS**

**TOTAL REVENUE = $1.7M**  
**TOTAL EXPENSES = $1.5M**

**REVENUE BY SOURCE**
- 78% Foundations  
- 16% Bilateral  
- 4% Individuals  
- 2% Earned Revenue

**EXPENSES ALLOCATION**
- 67% Program  
- 21% Administration  
- 12% Fund Development

**PROGRAM ALLOCATION**
- 52% Mobility  
- 30% Newborn Health  
- 13% Impact  
- 5% New Product Development (NPD)

In 2016, D-Rev significantly invested in updating our internal systems and processes in preparation for growth and new projects.

We more than doubled our investment in NPD over the prior year.
OUR PARTNERS
THANK YOU FOR YOUR SUPPORT!

D-Rev

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