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<th>Description</th>
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<tr>
<td>Incorporation Status</td>
<td>ADVANCED PHARMA INTELLIGENCE GMBH</td>
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<tr>
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<tr>
<td>Team</td>
<td>TRANSPARENT IDENTITIES</td>
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<tr>
<td>Technical White Paper</td>
<td>TECHNICAL AND PLATFORM</td>
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<td>Proof of concept</td>
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<td>Mobile app</td>
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<tr>
<td>Trading platform</td>
<td>ARCHITECTURE PLAN</td>
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<td>Unsold Tokens</td>
<td>SUBJECT TO LOCKUP OF 5 YEARS</td>
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<td>Bonus Weeks 1 to 4</td>
<td>1ST + 2ND WEEK 20%, 3RD WEEK 15%, 4TH WEEK 10%, 5TH WEEK 5%</td>
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<tr>
<td>Week 6 - 9</td>
<td>FINISHING OCTOBER 23, 2017, NO BONUS TOKENS</td>
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About the company:
Advanced Pharma Intelligence GmbH
Founded in Zug, Switzerland March 2017
Introduction

Industry Background

- 7,000 drugs in development
- Industry set to grow from $800 Billion to $1.2 Trillion globally by 2020
- Generic, Pharmaceutical and Biotech remain in the top ten most profitable industries in the world
- With so many drugs in discovery, how do you bet on the breakthrough, and the financially profitable ones?

The biopharmaceutical industry is at a pivotal time in medical discovery, which has enormous potential to further revolutionize the treatment of costly and debilitating diseases like Alzheimer’s, cancer, heart disease, and hepatitis C. Our ability to harness recent scientific advances continues to accelerate, and the potential benefits to patients are becoming clearer.

Much of this progress is attributed to a deeper, molecular-level understanding of all different kinds of diseases. There are more than 7,000 medicines in clinical development around the world right now, more than ever before, and 70% of medicines have the potential to be best-in-class therapies. From 2000 to 2015, this pipeline spawned more than 550 new medicines that were approved by the US Food and Drug Administration (FDA).

A new approach in cancer therapy has the potential to be broadly applicable across a wide range of cancers. Researchers have long understood the metabolism of cancer cells is aggressively ramped up relative to normal cell metabolism, enabling mutated cancer cells to grow exponentially at the expense of healthy surrounding tissue. A number of investigative medicines in clinical development aim to disrupt cancer cell metabolism and impede cell growth.

Some of these medicines target genetic mutations involved in metabolic processes that may be more prevalent in certain cancers. Other cancer metabolism-targeting drugs in development aim to disrupt metabolic functions that occur in most types of cancer. The latter approach works by cutting off the energy supply to cancer cells, causing the cells to die. Medicines targeting cancer metabolism are being explored by researchers to address a range of different cancers, including acute myeloid leukaemia, glioma, lung cancer, pancreatic cancer, breast cancer, and many other blood cancers and solid tumors; these medicines and the many being explored in combination with other cancer therapies offer tremendous hope for patients.

The global Pharma and Biotech Industry ranks high among the most profitable industries in the world. The current market is estimated to grow from $800 Billion USD to $1.2 Trillion by 2022. The market cap of the top 100 pharmaceutical companies is $2.2 Trillion dollars.

USD Billion USD Market Cap 2009 - 2016

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Who we are, and what we do

- Seasoned team of industry experts based in Zug, Switzerland
- Combining industry, pricing, software and trading knowledge
- Translate global data into a single non-biased fact-based platform
- Seek and identify the highest profitable molecules in clinical development

The Problem

- There are 7,000 drugs in development, and 70% of those will be first in class\(^3\)
- Only 2 out of 10 drugs match or exceed R&D investment\(^4\)
- Evaluate Pharma lowers projections for next 5 years by $390 billion mainly due to pricing pressure\(^4\)
- Forecasting is becoming more and more complex due to bio-markers and orphan indications
- Trading and stock price volatility has been increasing as a result

Our Solution

- Single global drug pricing platform
- Disease and epidemiology database
- Drug forecasting platform
- Integrated – drug pricing and forecasting system through Blockchain
- Securities trading signals

Our Roadmap

- Development of scalable drug pricing system
- Commercialization of the drug pricing system
- Development and commercialization of the drug forecasting system
- Development of the X-App
- Development of the securities trading signals

The BioNT Token

- 140,000,000 BioNT Tokens
- 5-year lock up of unsold tokens
- 50% of annual software revenues for token buy back
  a. Those tokens will be deleted after buyback

\(^4\) [https://www.ft.com/content/b3cf320e-550d-11e7-8b66-9f6a4c183d27](https://www.ft.com/content/b3cf320e-550d-11e7-8b66-9f6a4c183d27)
Industry Problem

- $2.6 Billion to develop a single drug
- Long development cycles with high risks
- Increase of availability of generics & biosimilars due to onset of the patent cliff

The global pharmaceutical and biotech industry is transforming and migrating through significant changes, both internally and externally driven. The problem: Risk and volatility like we have never seen before!

The timeline to develop a drug is between 9 and 13 years, and potentially 15 years before commercial sales. Even at the last hurdle, many drugs fail approval and receive reimbursement.

$2.6 Billion to develop one drug, and costs are rising...

Noting the high cost of failure in drug development, the cost of unsuccessful projects is figured into this group analysis. Joseph A. DiMasi, director of economic analysis at CSDD was the principal investigator for this study.

John LaMattina, a senior partner at the venture capital firm PureTech and former head of R&D at Pfizer, quoted “the battle lines are forming” within hours of the report’s publication. “People are automatically saying that pharma, and the Pharmaceutical Research & Manufacturers of America in particular, is really going to use this to justify the high cost of drugs.” LaMattina counters that PRICING should be based not on R&D costs but on the VALUE a drug delivers to patients; the rise in drug development cost is exceeding efficiency efforts, which tend to address early-stage research.

Problems with current pharma and biotech drug pricing and financial forecasting

McKinsey confirms pharma forecasts fragile, the extent of imprecision is truly remarkable.

1. Commercially driven forecasts to secure budgets and investment
2. The internal silo impact reducing efficiency and accuracy
3. Lack of integration of pricing & reimbursement assumptions and the probability of pricing & reimbursement outcomes
4. Not using common global language across entire organization
5. Limited capabilities within the organization
6. Ignoring impact of data sources & external events, lack of catalogued references and assumptions

To improve outcomes and capabilities, companies need to integrate real-time accounts of their judgments, underlying assumptions, data sources, external events including trends in reimbursement.

Key drivers behind forecast failures are poor assumptions

“There’s no chance that the iPhone will gain any significant market share.” Steve Balmer, Microsoft 2007

New product forecasting (NPF) is inherently difficult, usually inaccurate, and past analogues do not incorporate emerging trends. It’s not what we know that leads to poor forecasting outcomes; it’s what we knew, ignored and didn’t communicate.” Global biotech forecaster, 2014
Our Solution and Development Roadmap to Drug Discovery

- Global Drug Pricing
- Global Disease and Epidemiology
- Clinical Trial Outcomes and Approvals
- Advanced Pharma Intel Algorithm
- Market and Drug Performance

The global drug pricing platform is designed to retrieve drug prices from global disparate sources. Sources are both public/government and private sources. The initial focus will be Oncology and Orphan diseases, paving the way for price setting and trends for new combination therapies.

Epidemiology data bank will store patient treatment pathways for key diseases, the data bank will also be populated with patient numbers to link new molecules to market potential.

Tracking both historical and upcoming outcomes and approvals will enable the platform to predict and report the sensitivity analysis. The key data blocks linked with historical data, will allow Advanced Pharma Intelligence not only the ability to deliver analysis to front end clients, but also the algorithm to predict outcomes based on Phase I and Phase II outcomes data.
Summary of Investment Allocation

The development and commercialization of the three core projects will be subject to the level of funding secured. The timeline outlined for development and delivery seeks to maximize both development and commercialization.

The X-APP will be detailed post development and prior to commercialization. The APP will provide a hub to link and retrieve global data for the platforms described above.
### Development Phasing

<table>
<thead>
<tr>
<th>PROJECT PHASE</th>
<th>CLIENT SEGMENT</th>
<th>TIMELINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BioNT Algorithm Patent</td>
<td>Pharma and Biotech Companies</td>
<td>1 month</td>
</tr>
<tr>
<td>1 Develop &amp; Commercialize the Drug Pricing Platform</td>
<td>Pharma and Biotech Companies</td>
<td>3 months</td>
</tr>
<tr>
<td>2 Develop Drug Forecasting Platform</td>
<td>Pharma and Biotech Companies, Investment &amp; Hedge funds</td>
<td>4-8 months</td>
</tr>
<tr>
<td>X Develop APP-X</td>
<td>Global Data Sourcing App</td>
<td>TBC</td>
</tr>
<tr>
<td>3 Develop Trading Platform</td>
<td>Investment and Hedge funds, Global Trading Hubs</td>
<td>8-16 months</td>
</tr>
</tbody>
</table>
BioNT Token

Token ICO starting 21-08-2017, at 08.08pm UTC, until sold out or till end of ICO period.

- 1st + 2nd weeks 20% additional tokens
- 3rd week 15% additional tokens
- 4th week 10% additional tokens
- 5th week 5% additional tokens
- 6th/9th week, finishing 23-10-2017, at 08.08pm UTC, no bonus tokens

Token Name: BioNT
Fixed Price: 300 BioNT per ETH

Issuing Entity: Advanced Pharma Intelligence GmbH
Jurisdiction of Issuance: Switzerland

Time to Issuance: Tokens are issued immediately to your Ether Wallet where you hold your private key. However, Tokens will have a transfer freeze until the tokens are listed on exchanges.

If any tokens left after that period, these “unsold tokens” will be held in “Treasury” of the Advanced Pharma Intelligence GmbH, available for a sale in secondary market, but with a lockup of 1825 days, basically five years (5*365), hard coded in the smart contract.

The number of tokens are capped, 140 million, (the maximum amount raised does depend on the additional bonus tokens in the first few weeks of the offering, this is automatically done in the smart contract settings too).

126 million tokens available for the crowd sale campaign.

14 million tokens, with a 6 month lock up, are reserved for Advanced Intelligence GmbH and founders team.

Advanced Pharma Intelligence GmbH develops and enhances its systems (existing and planned new systems) and business development (commercialization of existing beta tested and to be developed ones).

Advanced Pharma Intelligence GmbH will buy in the secondary market, both on the exchanges as well as in direct deals with participants at a price not exceeding the then market price, a minimum of 50% of the software revenues each year, for 25 years, those tokens will be deleted (“irreversibly moved to trash”) after buyback. This will be done in the second month after the year was finished, i.e. February 2018-2041. Announcement of how many tokens at what average price have been bought back will follow one month after the completion of those buybacks.

In February/April 2042, buyback in the open market will be done for a three-month period, and the total sum of buybacks will be divided by the number of still outstanding/not bought back tokens (possibly including any tokens that are still in the Treasury of Advanced Pharma Intelligence GmbH and haven’t been sold in a secondary offering). If any tokens haven’t been offered for sale at the secondary market, management of Advanced Pharma Intelligence GmbH will donate the remainder of the monies to a good cause of their choice (one or more not-for profit charitable organizations, e.g. World Cancer Research Fund, Red Cross).

In exceptional cases, in order to provide the most risk averse features, we may upgrade the smart contract code and update and transparently send the new valid token, e.g. in case the exchanges, where we’d like to list, demand such.

Gas limit is responsibility of the sender/contributor.
In case the cap (126 million tokens for sale in crowd sale) is reached, excess payments will be rejected and repaid.

Calculation example:

Assume in year 2027, total software revenues would be 160 million USD equivalent. Token buyback will be a minimum of 80 million USD in the open market during the month of February 2028.

Advanced Pharma Intelligence GmbH guarantees that the presented MVPs is fully owned and/or developed by Advanced Pharma Intelligence GmbH. That all software revenues generated with the presented solution will be communicated on their website, and part will be used according to the terms described above for the buyback of tokens in the secondary market.
Drug Pricing Platform
Beta version complete – Scalable platform to be built, enhanced using Blockchain

A Global pricing and reimbursement intelligence on a single platform

- An analytical strategic tool that enables automated competitor response alerts
- Improved visibility and response time to competitor price changes
- Advances intelligence on global competitor price changes
- Improves asset valuation throughout the development of pipeline
- Provides to focus your resources

The most powerful Launch Sequence Optimizer in the market

- Runs launch sequence simulations incorporating future AMNOG rebates
- Continuously tracks and adapts the optimal launch sequence
- Improved launch planning with automated intelligence from actual reimbursement timelines
- Rapidly achieves the optimal launch sequence
- Re-thinks and executes the global launch strategy

Tracks global drug prices across the world

With one click: Access all your competitor reimbursement prices, trends, launch sequence, AMNOG impact, and HTA influence.

Tracks global product launches across the world

Simply drag & drop countries to get instant results, and track changes of optimal global reimbursement timelines.
Drug Forecasting Platform

Probability adjusted financial forecast

Incorporates pricing & reimbursement assumptions
- Incorporates key internal and external events that have a fundamental impact on drug forecast/performance
- Single platform that incorporates different functions
- Global transparent communication tool
- Efficient process saving significant time preparing quarterly CEO/CFO reviews
- Catalogues all key references and assumptions

Clinical
- Incorporate clinical trial results (internal & external)
- Forecast multiple clinical scenarios
- Model sensitivity of trial outcomes
- Model impact of competitors’ trial outcomes
- Pricing and Reimbursement
- Reacts fast to changes in reimbursement assumptions
- Incorporate launch timelines prior to approval
- Assess the impact revenue versus volume maximization

Commercial
- The treatment patient pathway links the sources of business
- Refines the target population
- Flow charts that guide the forecast inputs and outputs
Drug Securities Trading Platform

- **Data, models and algorithms:**
  
  We will aggregate public data; using our models and algorithms we will be able to better predict events in the market; and even on a company level than the companies themselves.

  Through enhanced intelligence and improved information:
  
  Which of the 10 are the top 2 and flop 2; as well as improved revenue estimates (and through that volatility)

- **For companies:**
  
  Enhance predictability and stability of investments, revenue and earnings, hence better ROI (Return on Investment) and lower WACC (Weighted Average Cost of Capital)

- **For investors:**
  
  - There are several ways to improve your results in investment (& trading):
  - Reduce unexpected negative outcomes
  - Enhanced risk-adjusted returns
  - Better qualified investments for a certain risk category (aversion)
  - Better risk budgeting

- **Next to trading in itself:**
  
  - Short term trading positions
  - Long-/Short strategies
  - Volatility plays
  - Leveraged positions

Interested parties in such information (on a subscription basis):

Companies themselves (trying to optimize investor relations and capital raising efforts)

Buy-and-sell side investment companies (e.g. banks, hedge funds and family offices)
Core Team & Bios

Sabine Albrecht – CEO & Co-Founder

Based in Zurich, Switzerland, 2008-2012, in Los Angeles, USA, 2012 – 2017, in Zug, Switzerland since March 2017, Sabine is a global strategic and dynamic marketing executive and entrepreneur with over 16 years of experience in biotech & pharmaceutical marketing and pricing & access with a proven track record of delivering results in product launch and mature in-line brand strategy as well as biosimilar offensive and defensive strategies.

Sabine started her career at Simon Kucher & Partners, the world’s most renowned Pricing Consulting Company. During her 11 years at Amgen, the world’s biggest biotech company, she held various roles, both in the US as well as in Amgen’s European headquarters in Switzerland. She helped building the pricing & reimbursement market insights function and launched Amgen’s first oncology therapeutic product globally and orphan drug internationally. She is the primary inventor of a world-wide patent (in filing) for a smart device technology she developed at Amgen while leading Amgen’s biosimilar offensive and defensive commercial strategies.

Patrick Ranzijn – CFO/Investor

Based in Zug Switzerland for 15 years, Patrick is the Managing Partner at Orange Cherry Venture Capital, a boutique VC with an active role in its portfolio companies, as well as managing a multi asset hedge fund. He is a former global co-lead of products and finance education at UBS (authoring their books for several business divisions and programs). He previously served as MD, CEO and senior trader at All Options Helvetia AG.

Patrick has over two decades of trading and capital markets experience. He is Vice President of the Dutch Business Round Table, chair of the CAIA Switzerland chapter, board member of CFA Society Switzerland (executive committee member), board member of the Education Advisory Committee of CFA Institute (chair of the Standards and Advocacy committee) and active in other foundations too.
Over 25 years of experience, cumulating 15 years within the biotech sector

Extensive experience in oncology, hematology, and orphan product launches, mature in-line brand strategy, and offensive & defensive biosimilar pricing strategies


Jas Dosanjh – Co-Founder

Based in Zug, Switzerland, for over 10 years. Prior to that worked in London and Cambridge, originally from the city of Birmingham in England.

Jas has more than 20 years of experience in forecasting, analytics and business intelligence; he has developed and implemented decision making solutions across many industry sectors, with over 15 years specializing in the pharmaceutical industry.

Jas spent 13 years at Amgen, the world’s largest biotech with a market cap of $125Bn. In his international role, he launched Amgen’s first oncology therapeutic and Amgen’s first orphan drug.

The past few years, he consulted for global pharma and biotech using his vast experience from launching orphan drugs to maintaining the tail for mature products facing biosimilar competition, enabling his clients to confidently implement, launch & maintain defense strategies, with real time execution tracking.

Jas has consistently translated complex business problems into simple impactful solutions; he has transformed the way we manage the complex web and numerous data flows for International Reference Pricing and Launch Sequencing; with his focus on strategy, analytics and simplicity, he wants to ensure his clients are advantaged by his solutions.

He drives for analytical innovation and wants to empower business decision makers; he continuously strives to change the way the pharmaceutical industry thinks about forecasting, pricing, contracting and profit optimization.

Sam Brotherton – Software Architect & Engineer, and Data Scientist

Based in the USA, previously in LA, and now in Utah.

Sam is an experienced software engineer with a focus on machine learning, natural language processing, and scalable server-side systems. He has worked for Google and several tech startups, and now runs a boutique consulting firm providing cutting-edge software and AI expertise to established companies in multiple industries.

Among other projects, he is currently working on an automated trading bot that uses techniques from deep learning and Natural Language Processing to accurately predict future exchange rates between various cryptocurrencies.
Gautam Bajekal – Sales & Marketing Life Sciences Software, Advisor

Based in Zug, Switzerland, for over 20 years. Gautam has a software development background and worked on numerous software and technology projects catering to various industry verticals. For the past 17 years, he focused on the life science industry in sales & marketing working for companies such as Microsoft and Oracle Corporation, identifying impactful software solutions for life sciences for the top 10 pharmaceutical companies. He is passionate about Open Source based software and technologies initiatives.

Laurian Russo – Risk Manager, Trading Operations

Based in Zug, Switzerland, for over 15 years, Laurian has over 20 years of experience leading software development in both financials and pharmaceuticals, as well as running operations in a very demanding environment – algorithmic trading.

He focuses on streamlining processes and using automation to achieve the highest performance and reliability with the best quality.

He has completed and initiated risk and exchange and regulatory compliance reporting; initiated or led automation and monitoring projects for distributed trading systems with close to a dozen global locations.

Jean Fabrice Faria – Securities Traders

Jean-Fabrice Faria de Moura-Serra started his career as a research scientist in the space of numerical optimization and algorithmic in the US and Europe. He moved to finance in 2003 as an Investment and Risk Manager for Zurich Financial Services. In 2007, he joined IMC where he operated as a proprietary trader. Since then, Mr. Faria de Moura-Serra acquired experience in developing flagship trading strategies, running and heading multi-million dollars’ desks in both physical and derivatives energy products for companies like Omneo Trading AG and Raiffeisen Bank.

Jean-Fabrice Faria de Moura-Serra has also developed marketable products to support risk management, trading strategies and structuring derivative hedging solutions. Faria de Moura-Serra graduated from the Swiss Federal Institute of Technology – EPFL in 2000 where he completed a Masters in Telecom Engineering. He obtained a diploma in Quantitative Finance from the Swiss Finance Institute (HEC) in 2003. He is currently a certified Eurex Trader.
Ionut Dumitru—Web and Blockchain, Advisor

Based in Romania, Ionut is a Software Engineer with 20+ years of experience in the Software Industry. He is an expert in Building High Availability Clusters of Servers, Coding and Business Management.

He has vast experience in building high traffic websites and applications while also providing server and management infrastructure. He was the mastermind behind the software called ClusterCS, which allows to remotely manage your domain, traffic, servers, caching and much more, from a single friendly interface.

Ionut has been attracted to the Blockchain world and is an active Ethereum supporter in the mining community. He has a very good technical understanding of all the components involved in a token crowd sale process.

Marcel Kleene, Advisor

Based in and from Zug, Switzerland

Marcel started his career in accounting and finance in the healthcare industry. For the last 11 years, he worked as a Controller for a multinational company in the Oil & Gas Industry.

Marcel has developed various finance and supply chain flow models, optimizing the transaction speed and hedging of multi-currencies.

Marcel speaks 5 languages and is very passionate about Blockchain and cryptocurrencies.
Appendix 1 – Drug Price Optimization

The Drug Launch Sequence Optimization

The Problem

In today’s complex pricing and reimbursement landscape, the sequence in which a drug is launched has a significant impact on its overall success. Pharmaceutical companies need to understand not only the forces at play within each market, but also the cross-market dynamics that can impact the success of a launch. **81% of companies start their launch from scratch.**

During the past decade, the pressure on pipeline and increasing revenue loss due to generic competition escalated the need to ensure optimal price and product value is maintained throughout the course of a product’s life cycle. A Sub-optimal launch sequence leads to irreversible long-term revenue and profit loss. Each product launch is unique, dependent upon the class, competitive environment and reimbursement landscape. A sub-optimal launch sequence will lead to immediate price and value erosion. Slight changes to the reimbursed price or a delay in reimbursement timelines in any given market will lead to revenue and profit loss across the entire globe.

Post approval timelines for market authorization have increased over time, in some cases there are opportunities to submit earlier post positive CHMP opinion. Access to accurate and timely data is a significant challenge when faced with a global launch. Changes in reimbursement conditions, a delayed launch in a single market, changes from maximum price to reimbursed price and changes in referencing rules or baskets may impose a significant challenge for the pharmaceutical industry.

Dependent upon the strategic intent of the launch optimization goal, e.g. maximizing revenue or maximizing profitability, pharmaceutical/biotech companies will require access to, price data, volume data, product cost data, reimbursement timelines, currency exchange rates, global re-referencing rules, reference calculations, reference timing and frequency. The integration of these data sources in a systematic and well-defined structure also requires a powerful and well-structured model.

The level of complexity makes homegrown systems or Excel based solutions obsolete.

Scenario modelling can run for several hours to evaluate a single scenario.

Pharmaceutical companies have expressed a need for a solution that addresses this complex challenge. The solution should deliver a platform that accurately integrates complex data sources yet enables business users to remodel scenarios and rapidly adapt to the dynamic changes in reimbursement landscape, timelines and reimbursed prices.
D**rug International Reference Pricing**

**INFORM**

Importance of international reference pricing is intensifying every year. Governments across the globe continue to change calculations, rules, baskets, and review frequency timelines.

Pricing functions are required to keep abreast of these changes in order to understand, quantify and predict financial risks.

Keeping track of and forecasting the impacts due to reference pricing is becoming more complex.

Develop the capabilities to become proactive, plan, prepare and understand the problem.

**RESPOND**

Many governments that conduct regular reference price reviews are still using manual processes to update their price bulletins.

These manual processes can (and have) result(ed) in misguided short-term decisions leading to significant long-term margin leak.

Failure to respond in a timely manner may have far-reaching irreversible financial implications.

Keep abreast of market changes from across the globe, connect to automated feeds for rules, baskets, and review frequency.

**The Problem**

Government payers have used international reference pricing as mechanism to control drug prices for many years. International reference pricing is a multi-layered problem that increases in complexity and financial impact over time, as the downstream implications materialize.

Market prices will not remain in equilibrium. The relationship between primary price cuts and the downstream financial impacts of the reference price cuts can be driven by many factors and take up to several years to filter through the price reviews and submission process. It is therefore imperative that pharmaceutical companies are prepared and quantify the potential downstream financial impacts and risks.

Many international reference pricing models only look at price changes post-price bulletin announcement. This does not help manage the negative impact of price reductions or provide a robust process that can influence the trajectory of international reference pricing.

Primary price cut are driven by external factors. A single Government / Payer initiates the first trigger for the follow-on IRP erosion. Reimbursement re-evaluation is another primary source for a primary price reduction, expanding current indications to a larger patent pool or simply adding a new indication can lead to a price cut.

The downstream impact of a single primary price cut and the periodic referencing by other markets costs the industry billions in profit leakage each year. The total global impact is significantly higher than the single-source country trigger. The industry typically evaluates and reports this impact within a given financial year, however the long-term cumulative impact is substantially higher and irreversible.

Pharmaceutical companies require a solution that will enable decision makers to understand and manage international reference pricing and to have the ability to implement actionable strategies enabling them to minimize their margin leak and protect their long-term profitability.
There are numerous strategic steps that can be taken in order to reduce the impact of reference price margin leak. The range of options will differ dependent upon the product portfolio, stage in life cycle and product SKU mix.

The Advanced Pharma Intelligence team has extensive practical experience managing reference pricing, with the key objective to maximize profitability and minimize risk, helping to protect margins.

**Drug International Reference Pricing**

**The Solution**

Companies that understand and manage IRP have the ability to implement actionable strategies enabling them to minimize their margin leak and protect their long-term profitability.

The Advanced Pharma Intelligence IRP will provide pricing and market access teams with an easy-to-use tool that will improve internal price transparency, improve forecasts for list price change, and financial impacts allowing for scenario planning to aid in decision-making. The Advanced Pharma Intelligence will be a Cloud based IRP and list price management application that will be automatically updated with reference rules and baskets providing on-line access to all current and expected visible prices for any product.

The solution will provide pricing and market access teams an easy-to-use tool that will improve internal price transparency, improve forecasts for list price change, model financial impacts and allow for scenario planning to aid in decision-making. The model will provide a simple solution for maintaining both formal and informal reference rules, override and customization based on product class. The solution will enable pharmaceutical companies to quantify and predict their current and future financial risk, providing upstream risk analysis and identification of primary sources.

The Advanced Pharma Intelligence International Reference Pricing is an out of the box solution, will be operational instantly and will require no client customization. The source feed data; Ex-Factory prices and volumes are required, all product families, users, geographic mapping will be delivered via the built-in functionality.
Case Study – One Company GSK

"1% percent improvement in net price may lead up to a 12% improvement to the bottom line”

Case study: GSK Global Pharmaceutical and Vaccines turnover in £bn

<table>
<thead>
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<th>Year</th>
<th>Turnover (£bn)</th>
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<tbody>
<tr>
<td>2010</td>
<td>6.5</td>
</tr>
<tr>
<td>2011</td>
<td>5.7</td>
</tr>
<tr>
<td>2012</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Market: Europe

This represents 19% of group turnover in 2012.

1% improvement in net price would represent profitability improvement of £250 million for the European market (based on 5% range)

"In today’s competitive contracting environment pricing decisions need to be based on profitability, as opposed to top line net sales”

Drug Net Price Optimization

The Problem

The pricing and contracting landscape across the globe has significantly changed over the past decade. Both in market price transparency and the sub-optimal execution of pricing and contracting strategy has had a significant impact on the overall success of a brand.

The long-term implications on profitability and portfolio contribution can be significant. Pharmaceutical companies need to understand not only the forces at play within each market, but also the cross-market dynamics and competitor landscape. All of these factors will play a significant role in shaping the pricing strategy and the profitability of a given brand.

Incremental improvements in price may have an exponential improvement to the bottom line; a single percentage improvement in price may lead up to a twelve percent improvement in profitability⁹.

Pharmaceutical companies need to improve their organizational pricing execution, managing price and maintaining profitable margins in-line with both mid-term pricing strategy and long-term profitability. Increasing revenue loss due to patent expiration escalates the need for optimal price execution to ensure that the product value is optimally maintained throughout the course of its life cycle, from its launch phase through to maturity and the tail decline.

The global market place is complex, managing a diverse portfolio and dispersed net price band, ranging from US and European markets to developing markets across the world. Diverse price bands pose a significant contracting and pricing challenge, meeting market demand.

Sub-optimal pricing and contracting execution leads to irreversible long-term revenue and profit loss. Within each portfolio, products will require a pricing strategy that is unique, which will be dependent upon the class, competitive environment both national and regional, and the overarching objectives of the organization. Slight changes to the optimal contracting price or divergence from the governance of the cycle pricing strategy will lead to revenue and profit loss. The value and price loss due to excessive price erosion is irreversible, the cumulative profit leakage needs to be understood and managed effectively.

In addressing the need for improved pricing execution, the initial starting point for most organizations is the development and implementation of the Gross-to-Net. The Gross-to-Net alone will not address or resolve a sub-optimal pricing and strategy execution; it is merely a building block. Organizations need to have the ability to

⁹ Source: http://m.cio.com/article/697992/New_Mission_for_CIOs_the_Art_and_Science_of_Pricing
CASE STUDY – One Company GSK

Case study: GSK Pharmaceutical and Vaccines

Market: Europe

- Turnover declined -12% from £5.7bn to £5.0bn,
- Profitability declined by -19% from £3.2bn to £2.6bn in the same period from 2011 to 2012

"Gross-to-Net is a baseline building block for net price optimization, a structured pricing analytical framework is a key step"

"The execution of a pricing strategy is only as affective as the monitoring and governance"

"Inaccurate data assumptions are a common cause for poor decision making and actual business risk is realized historically"

"Net price trend erosion is accelerated in markets with high levels of internal price transparency, assessing the impact of potential risks prior to contracting / tendering will improve decision making and mitigate downward price spirals"

base pricing decisions on incremental profitability; however, the majority of Gross-to-Net implementations fall short stopping at net price (net sales). An incomplete Gross-to-Net lends itself to poor decision-making, a single missing block e.g., cost of goods by product may result in non-profitable contracting and pricing decisions.

Another key success factor leading to optimal pricing execution includes the access to timely accurate data. Pricing needs to adapt rapidly to changes in market dynamics and changes in the competitive environment improving their competitive capabilities.

Pharmaceutical companies require solutions that address this complex challenge. The solution should deliver a platform that accurately integrates complex data sources yet enables business users to remodel scenarios and rapidly adapt to the dynamic changes in the competitive landscape. The solution should facilitate the execution of a coherent pricing strategy, enable contracting and pricing decisions to be executed based on long-term profitability as opposed to other objectives, e.g. short-term market penetration.

The solution should provide access to and the flexibility to model pricing data, gross list prices, net prices, contract data, volume data, and product cost data. The integration of these data sources in a systematic and well-defined structure also requires access to timely accurate updates, an error in the data source feeds or inaccurate data assumptions and incomplete data will lead to sub-optimal decision making. The integration of these data sources expands the analytical challenge, tens of thousands, if not tens of million lines of transactional line data requires a powerful and well-structured model.

Limitations within internal governance of pricing strategy and in-market monitoring of contracting and pricing decisions increases the revenue @ risk. There is a strong correlation between negative price spiraling and poor internal governance. Exceptions within a market with high levels of internal price transparency leads to downward pressure across all customer segments. Assessment of this risk and monitoring is a crucial component to ensure long-term profitability. The solution should help support a governance framework for price execution, in and cross-market monitoring of pricing decisions and contract performance. The identification of profit leakage points by contract, customer, channel segments, markets and revenue @ risk.
Valuation of biotech forecasts - The Problem

Validation of biotech forecasts for orphan and oncology therapies requires the collection of a number of data points and development of a model to simulate the expected revenues. The most common considerations include the prevalence and incidence of the disease and the likely market uptake of both new and existing patients (potential market conversions). However, to adequately forecast expected revenues, a number of variables will be considered beyond an epidemiological based revenue projection by covering two main components, the reimbursement level and negotiated price. The prevalence, incidence and % diagnosed and treated will come from the activities #1 and #2.

From a reimbursement level, the insurer types across the globe vary significantly from public payers such as Medicare which institutes both National Coverage Decisions as well as Local Coverage Decisions through Medicare Administrative Contractors to State Medicaid systems which individually make coverage decisions and price decisions. However, given the retail, and generic nature of these products, Medicare Part D coverage will manage the coverage and price of these molecules through privately managed Prescription Drug Plans (PDPs) which are mandated by Medicare to cover a medication, but the level of coverage, price, and payer and patient burden will vary.

Additionally, there is private (e.g. Commercial) coverage spanning a multitude of national, regional and local insurers driving the formulary status and other safeguards to manage the utilization of such therapies including tier status, step edits and prior authorization requirements. All of these factors combined with price setting, which for generics is commonly a discounted rate off the Average Wholesale Price, Wholesale Acquisition Costs, is likely converted for each Commercial payer into a Maximum Allowable Cost (MAC).

The trend based forecast is the simplest of models, the modelling takes into account the impact of seasonality, smoothing of historical erratic trends and identification of events and their respective impacts is captured and continuously monitored. New market entrants and competitor price response utilizes analogues to form the initial baseline. We will use this model for the generic development molecule.
Patient Build

Patient build forecast models are primarily driven by an existing therapeutic class (disease area) and treated patient segment frame. The objective to identify opportunities for market penetration within the existing class, modelling share uptake based on payer and demand reimbursement channels. Class modelling is followed by analogue analysis for uptake, time to peak market share and loss of exclusivity. We will employ this method to model forecast for biosimilar development molecule.

The epidemiological model evaluates the patient flow incorporating prevalence of the condition/disease, diagnosis and treatment rates. The evaluation of current treatment options, their outcomes and cost coming from the treatment pathway analysis will enable to evaluate the full market potential. Changes in the treatment paradigm may have a significant impact on the forecast, e.g. the introduction or change of current guidelines or change in current best practices. Understanding the impact of key leverage points within the model facilitates the sensitivity analysis, thus evaluating areas of potential risk and opportunities.

Event Triggered Forecast and Modelling for Pipeline Portfolios

Timeline between phase 1 and reimbursement can vary from eight to twelve years. During this timeframe multiple market events will occur, including new competitors, changes in access and reimbursement, introduction of combination therapies, new innovative devices. The impact of these events will vary in both the magnitude and the time. In order to develop a base forecast, competitive intelligence (CI) is utilized to form key market events.

Each forecast model is linked to key milestones and the associated financial impact. The forecast models are dynamic in nature allowing the user to adapt their current plan and perform scenario analyses. Each event is linked to the net present value (NPV), for example the magnitude of changes in timeline or in access assumptions or in competitor landscape are already factored in the forecast models.
Probability adjusted financial forecast

The epi-based model evaluates prevalence of disease and current treatment options. Linked to a payer preference, the model provides a systematic flow to assess the treated population. There are multiple leverage points that impact the net sales forecast, a change to diagnosis, the use of bio-markers and updates to clinical guidelines. From a payer perspective, linking the disease area and current treatment options provides a leverage point that impacts the market volume.

The model flow for branded innovative molecules:
- Epi-based treatment flow / epidemiology analysis
- Competitive landscape
- Payer volume / reimbursement channels

Epidemiological and Trend-based market forecast model
Probability adjusted financial forecast

Based on the analogues of defensive and offensive biosimilar strategies that have been observed in Europe, the markets perform in two distinct ways. The first is a win-win, both originator and the Biosimilar entrants segment the markets and patients maintaining price, leading to an expansion of the market. The second analogue is known as the price war or price spiral. Lack of understanding of market dynamics and governance by both the originator and Biosimilar results in dramatic market contraction due the price war.

Example of docetaxel sales market share uptake. Hospira’s docetaxel is an infused chemotherapy agent that relied on product dilution innovations to drive substitution. Hospira rapidly eroded share of branded docetaxel “Taxotere” and has successfully maintained majority share.

Biosimilar

Trend-based market forecast model

The upper and lower bound market value forecast is linked to the therapeutic class and the existing players in the market place. Their historical behavior and the behavior of the new entrants drive the sensitivity analysis.

Generic

Analogue-based market forecast model
Legal & Contact Details

RISK FACTORS

The following is a disclosure of risk factors relating to Advanced Pharma Intelligence GmbH, Zug, Switzerland ("Advanced Pharma" or the "Issuer") and the 140,000,000 tokens newly issued by Advanced Pharma ("BIONT Tokens").

Prospective purchasers of BIONT Tokens should consider these risk factors and consult with their own professional advisers before deciding to purchase BIONT Tokens. The risk warnings set out below cannot serve as a substitute for individual advice and information which is tailored to the individual requirements, objectives, experience, knowledge and circumstances of each prospective purchaser. In addition, prospective purchasers should be aware that the described risks may combine and thus intensify. In any such case, the market price of the BIONT Tokens may be materially adversely affected and a purchaser could lose all or part of its original investment.

Purchase decisions should not be made solely on the basis of the risk warnings set out below, since such risk information does not purport to be an extensive and comprehensive list of all possible risks associated with a purchase of BIONT Tokens. Accordingly, the risks described below are not the only ones facing Advanced Pharma. The sequence in which the risk factors are presented below is not indicative of their likelihood of occurrence or the potential magnitude of their financial consequences. Additional considerations not currently known or which are currently deemed immaterial may also impair Advanced Pharma's business operations. The business, financial condition or results of operations of Advanced Pharma could be materially adversely affected by any of these risks.

In case of discrepancies, the English version of the risk factors shall prevail any version in a language other than English.

Risk Factors relating to Advanced Pharma

Dependence on Economic Developments

Advanced Pharma is, like any other service provider in the biotech, pharmaceutical and medical industry, subject to general macro-economic developments such as economic growth and inflation.

Even though the biotech, pharmaceutical and medical industry are expected to remain in the most profitable industries in the world, the economic environment may deteriorate at any time and may increase pressure on the biotech, pharmaceutical and medical industry.

Dependence on the Success of the Crowd Sale

Advanced Pharma sells BIONT Tokens to purchasers (the "Crowd Sale" or "Token Generating Event") to generate proceeds allowing Advanced Pharma to enhance its products and initiate the development of new products. The amount of the raised funds directly affects the possibility and rapidness of Advanced Pharma's product development.

Thus, if less proceeds are generated in the Crowd Sale than expected, Advanced Pharma's products may not or slower be developed than currently planned which may have an impact on Advanced Pharma's business, financial situation, cash flow and results of operations.

Dependence of Buy-Back of BIONT Tokens on Advanced Pharma's Revenues

Subject to the terms and conditions set forth in the Terms of the Tokens, Advanced Pharma has committed to buy BIONT Tokens back from their holders. The funds available for the buy-backs depend on the revenues achieved by Advanced Pharma in the business year most recently completed. If Advanced Pharma does not achieve revenues exceeding the thresholds set forth in the Terms of the Tokens, Advanced Pharma will not buy any BIONT Tokens back from their holders.

Dependence on Key Personnel

Advanced Pharma's success depends to a large extent on the continued involvement of Ms. Sabine Albrecht (CEO), Mr. Patrick Ranzi (CFO) and Jas Dosarhi, Sam Brotherton. Loss of one or more of these executives could have a negative impact on Advanced Pharma's business, financial situation, cash flow and results of operations.

Amendment to Laws or Regulations

Future changes in national and international laws and other regulations may affect Advanced Pharma's operational results and its value.

In Switzerland, Advanced Pharma is exposed in particular to federal, cantonal and municipal regulations embodied in laws and directives in the areas of tax, biotech, pharmaceutical and medical legislation. Further, it cannot be excluded that changes in the regulatory environment (such as legislation governing anti-money laundering, collective investment schemes and securities trading) will adversely affect Advanced Pharma's business activities. In particular, a more unified pricing regulation across countries may have a negative impact on the core part of Advanced Pharma's software solutions.

Advanced Pharma has institutionalised internal processes to ensure compliance with laws and regulations. If, despite these precautions, breaches of statutory or regulatory provisions occur, this could adversely affect Advanced Pharma's business activities and/or the price of the BIONT Tokens.

Competition

Even if Advanced Pharma is currently not aware of any competitor, it cannot be excluded that there are others conducting the same or similar business activities as Advanced Pharma. New competitors may also appear in the future.

It cannot be excluded that an increasing competition would have an adverse effect on the general economic conditions typical for the course of business of Advanced Pharma. Consequently, this may affect Advanced Pharma's business activities and market position, depending, in particular, on the financial ability of any such competitor.

Risk Factors relating to the BIONT Tokens

The specific risks of purchasing BIONT Tokens can only be assessed on the basis of a thorough and detailed assessment and analysis of the Terms of the Tokens and the individual situation of the purchaser. To understand the risks associated with a purchase of BIONT Tokens, each potential purchaser has to thoroughly and in detail assess and analyse the Terms of the Tokens and the implications the various features of the BIONT Tokens have for the potential purchaser in its individual situation.
The BIONT Tokens are unsecured and subordinated to secured Indebtedness

The BIONT Tokens will be unsecured and will rank equally in right of payment with all of Advanced Pharma’s future unsecured indebtedness, if any.

Debt incurred by Advanced Pharma may be secured by Advanced Pharma by pledging freely disposable assets or by guarantees. Any such pledged assets are primarily for the benefit of the pledgees, and the pledgees will have priority over the other creditors, including the holders of BIONT Tokens, with respect to the distribution of the enforcement proceeds of such pledged assets. Only the balance not required in order to fulfill the obligations towards the pledgees will be allocated to the remaining creditors of Advanced Pharma, including the holders of BIONT Tokens.

Advanced Pharma can incur Additional Debt

The Terms of the Tokens do not limit the amount of additional indebtedness that Advanced Pharma can create, incur, assume or guarantee. Therefore, Advanced Pharma may create, incur, assume or guarantee additional indebtedness and such debt may be privileged.

No Prior Market for the BIONT Tokens

Prior to the Crowd Sale, there has been no public market for the BIONT Tokens. Application will be made for listing of the BIONT Tokens on a secondary trading platform. Advanced Pharma cannot ensure that an active and liquid trading market for the BIONT Tokens will develop or be sustained and that the market price of the BIONT Tokens will not decline.

The liquidity of any market will depend on the number of purchasers and sellers, the market for similar instruments and other factors.

Volatility of the Market Price of the BIONT Tokens

The price at which the BIONT Tokens will trade will depend upon a number of factors, some of which are beyond Advanced Pharma’s control. These factors include, but are not limited to:

- market expectation concerning Advanced Pharma’s performance or financial condition;
- fluctuations in Advanced Pharma’s financial position or operating results;
- general market and economic conditions;
- announcements by Advanced Pharma and developments affecting Advanced Pharma, its business, customers and suppliers and the markets in which Advanced Pharma competes;
- changes in the management of Advanced Pharma; and
- the factors listed herein under “Risk Factors relating to Advanced Pharma”.

In addition, crypto currency markets in general often experience significant price and volume fluctuations. Such fluctuations as well as the economic situation of the financial markets as a whole may have a significant negative effect on the market price of the BIONT Tokens, regardless of the operating results and the financial position of Advanced Pharma.

Since the buyback of BIONT Tokens depends on revenues generated by Advanced Pharma in other currencies than the crypto currencies used to buy back BIONT Tokens from the holders of such tokens, fluctuations in the market price of such crypto currencies (in particular Bitcoin and Ether) may result in a negative impact on the market price of BIONT Tokens.

Further, developments in, and changes to recommendations by securities analysts regarding, Advanced Pharma’s industry segments may also influence volatility to the price of the BIONT Tokens in the market. Any such market fluctuations may adversely affect the trading price of the BIONT Tokens.

Future Sales of a Substantial Number of BIONT Tokens may negatively affect the Market Price of the BIONT Tokens

Advanced Pharma provided for technical measures which exclude that Advanced Pharma can sell BIONT Tokens during the period commencing on the date at which the Crowd Sale ends (“Crowd Sale End Date”) and ending on the date which is five years after the Crowd Sale End Date (the “Lock-Up Period”).

After expiration of the Lock-Up Period, Advanced Pharma may sell BIONT Tokens in the public market. Future sales of a substantial number of BIONT Tokens following the expiration of the Lock-Up Period may negatively affect the market price of the BIONT Tokens.

Taxes

Advanced Pharma cannot exclude that, in the relevant jurisdictions for purchasers/holders of BIONT Tokens, wealth taxes, income taxes, withholding taxes, stamp taxes or other taxes are levied on purchasers/holders of BIONT Tokens or in connection with a potential buyback of BIONT Tokens by Advanced Pharma.

It is the own responsibility of a purchaser/holder of BIONT Tokens to assess the tax consequences of an ownership of BIONT Tokens or the potential buyback of BIONT Tokens by Advanced Pharma and to pay any and all taxes resulting from such ownership or a potential buyback of BIONT Tokens by Advanced Pharma.

Prospective Purchasers are advised to consult with their own tax advisers concerning the overall tax consequences of their ownership of BIONT Tokens. No information provided in the White Paper constitute tax advice.

Loss of BIONT Tokens

BIONT Tokens may be lost or become inaccessible in particular if the holder of BIONT Tokens loses the respective private key to dispose of its BIONT Tokens or due to malfunctioning of the wallet in which the BIONT Tokens are stored.