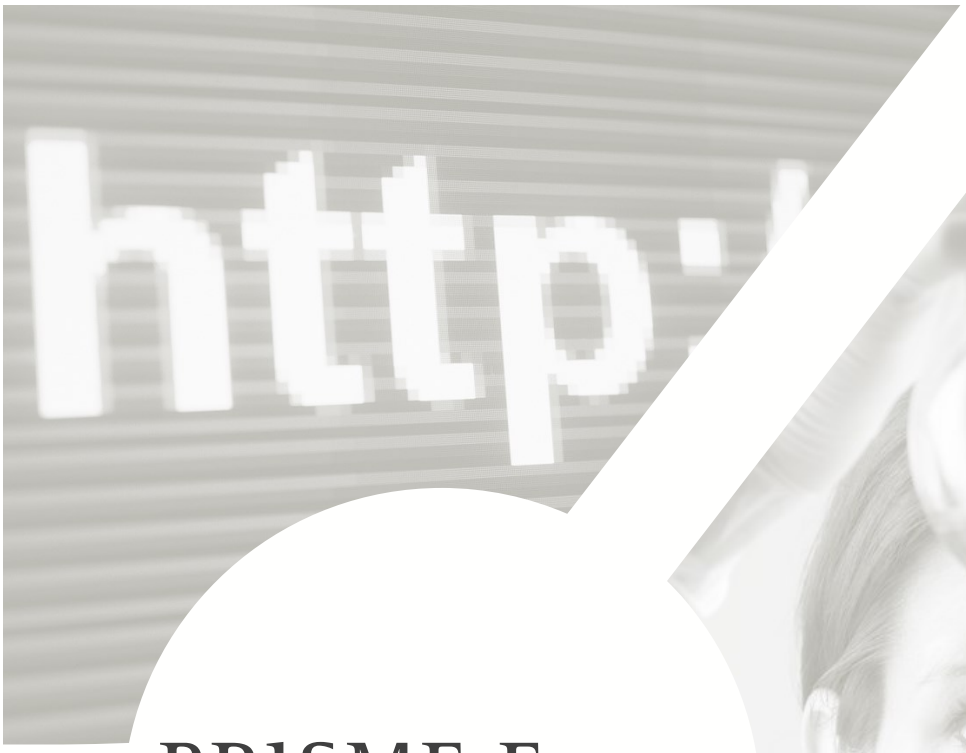
5th PRISME Forum

SIG/TECH MEETING

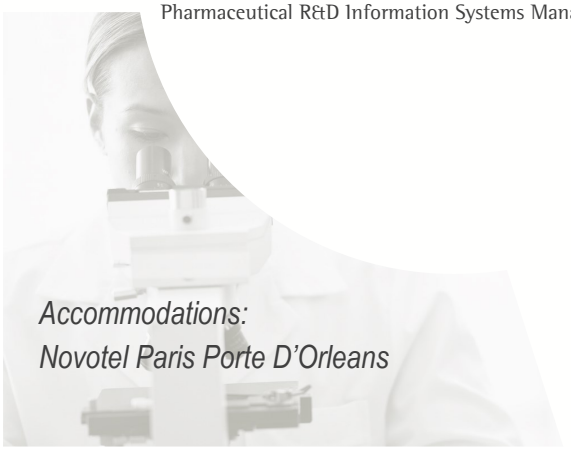
PRISME Forum Chair: Matteo di Tommaso, *Pfizer Inc.*



Hosted by Sanofi

PRISME Forum

Pharmaceutical R&D Information Systems Management Executives



May 15, 7pm -

May 16, 2013, 5pm

Paris, France

Accommodations:
Novotel Paris Porte D'Orleans

Download our PRISME Forum 2013 SIG/TECH Meeting App

or access it through: http://my.yapp.us/PRISMETECH

Program Coordinator: programme@prismeforum.org

Logistics: logistics@prismeforum.org

THEME: How Is Pharma R&D Exploiting Big Data?

Analysis and visualisation of internally generated and externally hosted big data is critical to the on-going success of the Pharma R&D organisation as it searches for patterns, trends and sequences in the drug discovery and clinical trials process.

The 'Big Data' challenge is rapidly becoming a key strategic theme for the pharmaceutical sector as the industry is faced with an explosion of biomedical data being generated and made available for R&D use. Across the pharmaceutical industry, five key data domains have been identified:

1) externally-sourced molecular life science data
2) internally-generated clinical trial data with patient-centric genetic and molecular profile data
3) Real World Evidence data, including EHR and insurance claim data
4) Business intelligence data (to support R&D portfolio and in-licensing decisions)
5) Telemedicine and the potential future impact of data from remote monitoring of patients on pharmaceutical delivery and R&D.

In some biomarker discovery studies over 6TB of data is already being generated per patient. Such a volume of data creates significant challenges in data security and protection, storage, sharing, integration, analysis and visualization, not to mention challenges for existing physical compute capabilities and networks.

Given much of the data in question is external to any individual pharma company, new business models will need to be established involving collaboration between a multiplicity of entities including academia, CROs, government agencies, health providers, technology companies and even between the Pharmaceutical companies themselves. Only through innovative, cross-organisational cooperation will the sector be able to derive the necessary insights to translate the 'big data' opportunity into new medicines and improved patient health and treatment outcomes.

MEETING STRUCTURE

Session 1
Consultant-led review of technologies that are being deployed across industry verticals to derive value from "big data."

Session 2
Industry professionals - skilled in some particular aspect of "big data" management and analytics - will facilitate 4 interactive poster sessions on 4 different use cases. Participants will be split into 4 groups. Each session is given 20 minutes and will be repeated twice before the morning break and twice after. Each of the 4 participant groups will visit each of the 4 interactive poster presentations.

Session 3
Pre-lunch, the participants will be split into four new and different groups. Each group will be facilitated by one of the interactive poster presenters. The objective of this session is to enable the groups to derive clear ideas about how to manage and exploit "big data".
Post-lunch, we will have a presentation from a senior industry scientist to outline the scientific challenges that might be met by appropriate exploitation of "big data."
This session will conclude with feedback given to the plenary meeting of the findings derived by the four participants' groups.

Session 4
he evening session will be dedicated to presentations by two technology companies who have a particular skill in life science "big data" management and analysis.
This will be followed by Q&A, meeting summary and close.

New Feature - Networking exhibition
The networking breaks have been extended and technology companies—who have expertise in the "big data" domain—have been invited to set up table-top demonstrations / presentations in the networking area and will engage with delegates during the breaks.

PRISME Forum Meeting Steering Committee

Alastair Binnie, *Vice-President, Research Informatics & Automation, Bristol-Myers Squibb*

Matteo di Tommaso, *Vice-President, Research Informatics, Pfizer Inc.*

Olivier Gien, *Global Head of R&D Health Information Technologies, Sanofi*

Errol Sandler, *Treasurer/Board Secretary, PRISME Forum*

Susie Stephens, *Senior Director, Oncology & West Coast Business Technology, Pfizer Inc.*

Jason D. Swift, *Director, R&D Information, AstraZeneca*

John C. M. Wise, *Program Coordinator, PRISME Forum*

PRISME Forum Host

The Steering Committee of the PRISME Forum would like to thank Sanofi for hosting its SPRING 2013 meeting.

PRISME Forum Statement of Compliance

"All meetings, working groups and communications will be open to all Members and any records thereof will be non-confidential and available for inspection by any Member. The Members acknowledge that discussing any commercially sensitive topics, including costs, volumes, inventories, sales level methods, channels of distribution, access to future products, markets, current or future prices, profitability, ***contract pricing or trading terms*** is prohibited. The Members of PRISME will strictly comply with all laws relevant to their activities, including US state and federal anti-trust laws and European competition laws."

PROGRAM

Sessions will be held at Sanofi's Chilly-Mazarin Campus: 1, avenue Pierre-Brossolette, 91385, Chilly-Mazarin

WEDNESDAY, MAY 15, 2013

18:20	*Gather in hotel lobby (Novotel Paris Porte D'Orleans) for transfer to restaurant*	
19:00	*Group dinner—PRISME Forum and Tech Group (L'Autobus Imperial, 14 Rue Mondétour, 75001 Paris)*	

THURSDAY, MAY 16, 2013

7:00	*Gather in hotel lobby (Novotel Porte D'Orleans) for departure to Sanofi campus (bus will depart promptly at 7:10am)*	
8:25	Welcome Notes **Matteo di Tommaso**, *VP, Research Informatics, Pfizer Inc.* **Olivier Gien**, *Leader Software Development & Architecture*	
SESSION 1	Chair: **Olivier Gien**, *Global Head, R&D Health Information Technologies, Sanofi*	
08:30	**Big Data- A Cross-Industry Technology Perspective of Current Status and Future Directions**	**Michael Shanler**, *Research Director, Gartner*
SESSION 2	Chair: **Sebastien Lefebvre**, *Head of R&D Information Architecture Practice, AstraZeneca*	
9:15	**NGS, Targeting Populations – Patient Segmentation-Drug Repurposing**	**Pankaj Agarwal**, *Director, Systematic Drug Repositioning, Computational Biology, GlaxoSmithKline* **Philippe Sanseau**, *Computational Biology, GlaxoSmithKline*
	***In Silico* Drug Repurposing in Parkinson's Disease**	**Matt Page**, *Principal Scientist, UCB*
9:55	*Coffee Break*	
10:40	**Identification of Drug Responder Population by Genomics Signatures and Genetics Classifiers**	**Vincent Mikol**, *Lead Generation Coordinator, France R&D Hub, Sanofi* **Sylvain Nicolas**, *Head of Early Development Biostatistics, Sanofi* **Lars Greiffenberg**, *R&D IS, Head of Translational Medicine Domain, Sanofi*
	Multiple Technology Pilots Supporting a Big Data Framework	**Sebastien Lefebvre**, *Director /Head of Architecture Practice, AstraZeneca R&D* **Jason Swift**, *Director, AstraZeneca*
SESSION 3	Chair: **Hall Gregg**, *Vice President Research & Development Informatics, Amgen*	
11:20	**Round-table discussions**—*The case-study presenters will be the facilitators for each break-out session* - One facilitator/table (60 mins)	
12:20	*Lunch*	
13:15	**Big Data - What Is the Science Challenge?**	**Andy Plump**, *Vice President, Research & Translational Medicine and Deputy to the President of Global R&D, Sanofi*
14:00	**Round-table feedback**—*The table captains will provide feedback from the round-table discussions* 15 minutes each including Q&A (60 mins)	
15:00	*Coffee Break*	
SESSION 4	Chair: **Dan Chapman**, *Leader Software Development & Architecture, UCB*	
16:00	**Big Data and the Advent of a New Collaborative Intelligence and Experience**	**Jean Colombel**, *General Manager, Life Sciences Industry, Dassault Systèmes*
16:45	**Extracting Insights from Big Data**	**Pek Lum**, *Vice President, Product, Ayasdi*
17:15	**Summary and Close** **Dan Chapman**, *Leader Software Development & Architecture* **Olivier Gien**, *Global Head, R&D Health Information Technologies, Sanofi*	

BIOS AND ABSTRACTS

Matteo di Tommaso

Chair, PRISME Forum; VP, Research Informatics, Pfizer Inc.

Matteo leads Research Business Technology for Pfizer where he is responsible for strategy and implementation of IT and informatics services for Pfizer Research. At Pfizer, he has led efforts on cloud solutions for high performance computing (HPC), systems integration resulting from mergers and acquisitions, systems separations as a result of divestitures and IPOs, drug discovery data integration for decision making and insight, translational informatics solutions for patient stratification and integration of clinical and molecular data, laboratory automation services, and data center simplification. His efforts in pre-competitive collaboration have led to opensource tools for Chemistry eNotebook and biomolecule discovery and contributions to efforts including OpenBEL, Pistoia Alliance and tranSMART.

Before joining Pfizer, in 2004, Matteo led the team at Celera Genomics responsible for building Celera's scientific information products and Applied Biosystems' eCommerce solutions. Prior to that he led the development of the "SeqStore" product line for Genetics Computer Group, a set of products and services for pharmaceutical drug discovery. Before GCG, he spent 3 years at the European Bioinformatics Institute (EBI) at the start of the institute in Cambridge, UK. Matteo began his career in IT, at Warner-Lambert Parke-Davis, with a degree in Chemistry from Indiana University, leading the migration and replacement of pre-clinical information systems to improve data quality and usability.

SESSION 1

CHAIR and Meeting Host: Olivier Gien

Global Head of R&D Health Information Technologies, Sanofi

Olivier is the Global Head of R&D Health Information Technologies at Sanofi, in charge of IS for all Sanofi's R&D Therapeutic Units and Divisions. He is a Chemical Engineer by training and holds a PhD in Organic Chemistry. His PhD work focused on leveraging Artificial Intelligence technologies and retrosynthetic analysis to build a system helping chemists in the design of synthetic routes.

Olivier started his career in the Exploratory Unit of Sanofi's Hungarian affiliate in Budapest then took charge of Information Systems for Industrial Chemical development at Sanofi's Sisteron site. He led then Global Discovery Research Information Systems at Sanofi-Synthelabo, then Sanofi-Aventis in Montpellier, before taking on his new role in Paris area in 2010.

Michael Shanler

Research Director, Gartner

Michael Shanler's primary responsibility is strategic R&D IT. Specific analyst coverage areas include innovation, collaboration, engineering systems, scientific software, and laboratory informatics. Prior to joining Gartner, Michael was at BD where he supervised scientific and engineering R&D staff focused on new product development (NPD), technology development and continuous improvement activities. He drove new scientific initiatives and assessed external technologies and acquisition candidates, and oversaw efforts that led to multiple patents and commercial successes. Michael also has experience in developing strategic technology and product road maps; leading NPD programs and managing project teams (concept-launch) for instruments, reagents, and consumables; developing automated systems; managing innovation efforts for new product ideas; and driving global collaboration. Earlier, Michael worked for Genetics Institute (now Pfizer) where he automated analytical processes for small molecule drug discovery and analytical chemistry.

Michael has a degree in biomedical engineering from Boston University.

Big Data-A Cross-Industry Technology Perspective of Current Status and Future Directions

The Big Data trend represents a new era in which information plays an increasingly central and critical role in business success and competitive advantage. Technology advances are rapidly creating new sources of content, while the processes for using analytics to make decisions hits the mainstream. However, there are common misconceptions about what is "Big Data," and there is a lot of hype around how can it be leveraged to develop innovation. Decisions on how to harness the supply of big data and change existing mindsets are challenging the ability of pharma R&D groups to consume, process, and develop insights.

To have impact, R&D leaders must overcome multiple hurdles and embrace the Nexus of Forces (social, mobile, cloud, and information) before big data strategies will lead to success.

Topics addressed include:

- What is Big Data and what are the dimensions?
- What can Pharma R&D learn from other industries to realize the full potential of big data?
- What are Gartner's views on the "hype" of big data?
- What are the implications to your organization, as big Data and the Nexus of Forces accelerate?

SESSION 2

CHAIR: Sebastien Lefebvre

Head of R&D Information Architecture Practice, AstraZeneca

Sebastien Lefebvre has been in the pharma industry for over 14 years working closely with scientists in all parts of R&D helping them with their day to day challenges trying to cope with an ever changing environment both scientifically and technologically. He has played many roles in the information sciences and technologies space. As a leader, he had the opportunity to be part of the site leadership team in AstraZeneca R&D Montreal center and led the implementation of various site improvement initiatives to fruition.

As the head of R&D Information Architecture Practice, Sebastien leads a team of 35 architects deployed across R&D programmes and he personally focuses on the design of the IS/IT landscape that will enable R&D to implement its three years strategy with current focus on BigData and data management in Cloud. Sebastien has recently relocated to Waltham/MA to co-lead and architect an informatics platform that enables the orchestration of a fully integrated pharmaceutical network (termed FIPnet) essential to the operation of our newly created virtual neuroscience innovative medicine unit. Sebastien has an MSc in Computer Science and an MSc in Chemistry.

Pankaj Agarwal

Director, Systematic Drug Repositioning, GlaxoSmithKline

Pankaj Agarwal obtained a Bachelor degree in Computer Science & Engineering from IIT, Delhi. His PhD is in Computer Science from the Courant Institute, New York University. His thesis was on "Cell-based Computer Models in Developmental Biology." Pankaj did post-doctoral research in Bioinformatics at the Washington University, St. Louis, MO. He was one of the founding members and directors of the International Society for Computational Biology (ISCB).

Since 1996, Pankaj has been at GlaxoSmithKline, and has led on a number of projects to mine biological data to identify new drugs. He leads the Systematic Drug Repositioning group at GSK and his research is focused on finding the right disease indication for drugs.

Philippe Sanseau

Director, Computational Biology, GlaxoSmithKline

Philippe has a PhD from University of Rennes in France. His post-doctoral training was at the Imperial Cancer Research Fund in London (now Cancer Research UK) with a focus on Immunogenetics. He joined GSK to work initially in the Genetics and Genomics Departments. Since 2001 he has had various senior roles in bioinformatics and computational biology. Since 2009 he is leading the Computational Biology (CB) Department with scientists located in the UK and US. CB works on multiple therapeutic areas supporting projects at all phases of the pipeline using biomedical internal and external data. Philippe is a member of several international advisory boards and different UK and international funding committees.

Systematic Drug Repositioning

Pankaj Agarwal, Philippe Sanseau
Computational Biology, GlaxoSmithKline

Identifying the correct indications for a drug is a crucial step in drug discovery. In fact, it has been estimated that at least 28% of revenue or $131 billion in 2011 sales of the top 12 pharma came from repositioning or indication expansion. A number of computational techniques have been developed that leverage existing and new data to find these indication systematically (Clin Pharmacol Ther. 2013 Apr;93(4)). Public funding for projects such as LINCS is generating transcriptomic data on an unprecedented scale on actual drugs. We have also shown that genetics data from large scale association studies can be used systematically to reposition drugs (Nat Biotechnol. 2012 Apr 10;30(4):317-20). The internal organization of data and knowledge within an organization can be a key enabler of these approaches often finding existing experimental data to validate, support, or refute these hypotheses.

Matthew Page

Principal Scientist, Informatics Computational Research, UCB

Matthew Page is a Principal Scientist within the Informatics Computational Research group at UCB and has eight years of experience working as a broad-skilled bioinformatician within the pharmaceutical industry. Matthew's roles have variously included operation as an embedded bioinformatician within therapeutic project teams, establishment of a global automated image analysis environment, and more recently defining strategy for multi-omic data integration and the identification and prosecution of impact points within UCB.

Externally, Matthew is UCB Project Lead for the D10 computational biomarker discovery project as part of the Neuroallianz consortium; a public-private research collaboration in conjunction with the Pharmaceutical Initiative for Germany. He also participates as a bioinformatics expert on UK (RA-MAP) and European (BT-Cure) translational medicine initiatives.

Matthew graduated from Oxford University in Biological Sciences, before undertaking an MRes in Bioinformatics at York University.

In Silico Drug Repurposing in Parkinson's Disease

It can take 10 to 17 years to develop a drug *de novo* [1], at a cost of over $900 million [2]. Yet despite such considerable investment of time and money, the attrition rate for drugs in clinical development is high. This has led the pharmaceutical industry to explore drug repurposing (or repositioning) strategies, which attempt to diversify an existing drug to new indications. Drug repurposing has potential to accelerate drug development and mitigate clinical risk.

In this project an *in silico*, integrative approach was developed to identify drug repurposing candidates for Parkinson's Disease (PD). A number of classification and prediction approaches were investigated using features derived from network properties of PD transcriptional regulatory networks and *a priori* knowledge of molecular actors in PD based on reported biomarkers and curated, canonical pathway maps. Drug, biomarker and pathway information were retrieved from Thomson Reuters' Integrity and MetaBase databases. The classifier was trained using a positive control set of 32 targets for drugs with a "validated" status in PD within Integrity and a negative set of 320 drug targets that are not associated with PD either directly or indirectly through related compounds or genes.

A Random Forrest classifier, incorporating the whole set of 146 input features, was selected with the highest observed top hit rate. This classifier was run on all the available 1423 drug targets in Integrity and predicted a total of126 repurposing candidates for PD. Of these, 23 are products undergoing active clinical development with no existing consideration for PD. This category of repurposing candidates is of interest because clinical safety and tolerance data is available but the potential remains to be first in class in PD. The 23 repurposing candidates were reviewed in detail and a sub-set selected for follow-up i*n vivo*.

1. Tobinick, E.L. (2009). The value of drug repositioning in the current pharmaceutical market. *Drug News Perspect.* **22**, 119–125.
2. Kola, I. & Landis, J. (2004). Can the pharmaceutical industry reduce attrition rates? *Nat Rev Drug Discov* **3**, 711–715.

Lars Greiffenberg

Global Head, Translational Medicine Solution Center, Sanofi

Lars is the Global Head Translational Medicine Solution Center at Sanofi R&D-IS. In his current role, Lars is responsible for implementing a global core technical platform to support all business units in their execution of individual translational medicine/informatics approaches in sanofi. For this goal, he is working closely with leading scientists and bioinformaticians but also with best in class third party software companies.
Prior to this position, Lars served as Sanofi's Global Head Biology Solution center (covering all kind of biological solutions from screening towards genomics applications); Aventis' program manger for large global implementations for in-vitro and phenotypic screening solutions (600+ users) and, project manager for the implementation of global biological screening IT solutions (high throughput screening).

Lars is a molecular biologist with a PhD in Microbiology from the University of Wuerzburg.

Sylvain Nicolas

Head, Early Development Biostatistics, Sanofi

Sylvain has been working as a statistician in the pharmaceutical industry for 18 years. After several years in Phase3 projects, he moved to early clinical development.

He is currently Head of the Early Development Biostatistics group of Sanofi. In this position, he is covering the Phase1 projects, the preclinical activities, as well as some expert work about M&S and Biomarkers. These activities have Biomarkers and Translational medicine as common points. Sylvain believes that these areas will bring great progress and innovative treatments in a near future, but a rigorous work is needed in order to prevent from false findings.

Vincent Mikol

Lead Generation Coordinator, France R&D Hub, Sanofi

Identification of Drug Responder Population by Genomics Signatures and Genetics Classifiers

The recent development of bioassay technologies allows the availability of massive genetic and genomic data to researchers. It is expected that this will contribute to a better understanding of the diseases as well as the mechanism of action of pharmaceutical treatments under development. This is also expected to facilitate the research about Personalized Medicine: to give the right treatment to the right patients. Indeed, for many diseases we observe that only a part of the patient population "respond" to a treatment, while the other part does not respond to this treatment.

One objective for the researchers is to use the now available genetic and genomic data to define the subgroup of patients "responders" to the treatment. This question is getting increasing interest in the pharmaceutical research, as it will improve the medical value of the treatments for the patients and the payors.

We will present the activities performed to obtain a classifier or signature, as well as we will elaborate on what statistical methods / approaches can be applied, with illustration on one compound in multiple sclerosis. In addition, we will map the data flow on the informatics infrastructure we are currently building under the framework of our "Translational Medicine for Patient" program (TM4P). This will allow illustrating the technical framework in which we will run data analysis for personalized medicine approaches in the future in sanofi.

Jason Swift

Director, R&D Information, AstraZeneca

Jason has 18 years experience in the Pharmaceutical business working closely with scientists and clinicians across multiple R&D domains and business processes. He has a scientific background with a PhD in computational molecular biology (before it was called Bioinformatics) from Leeds University in the UK. He has held a number of Informatics and IS leadership roles in AstraZeneca from scientific software developer, global programme manager, and head of Scientific Information Services.

Jason is currently Director Business Deliver, R&D Information based in Alderley Park UK. In this role he is responsible for the delivery of a global portfolio of IS and Informatics projects and services to the pre-clinical enabling functions (Discovery Sciences, Global Safety Assessment and Global DMPK) in AstraZeneca. He has led the efforts for global harmonization of IS/IT platforms across the Design, Make, Test and Analyse processes – including Small molecule Screening, Chemistry Platforms and Bio Asset supply. Most recently Jason has led components of the FIPNet (Fully Integrated Pharmaceutical Network) programme within AZ to virtualize and externalize R&D capabilities.

Externally he represents AZ within the PRISME Forum and sits on the board of Pistoia. Jason is also a member of AMIA and has recently spent a short period of time exploring Clinical Informatics approaches at Harvard (DCI).

Multiple Technology Pilots Supporting a Big Data Framework

Sebastien Lefebvre, Jason Swift

PROBLEM STATEMENT:
How quickly can I make indirect associations between gene sequence features and structural fingerprints (iterative advance analytics or Informatics tooling)?

- Easily import an initial cut of data from different sources, including spread sheets
- Ability to query data in a more raw format, query that data and massage it into a more useful format, Rinse, wash, repeat
- Ability to decorate data, adding fields and additional datastores quickly
- Ability to run non index queries rather quickly

PROBLEM STATEMENT:
NGS case…from Sequencing to Experiment management?

- Horizontal Elasticity, Large File Storage and Network in the cloud gives us a start. Once we are at scale, mining Metadata and results can give us an advantage.
- Horizontal Compute: Horizontal and Elastic compute in Amazon EC2 will give us the ability to run many experiments at once.
- Large File Storage: Glacier and S3 will give us the ability to store our files without worry about space. Glacier is potentially game changer in this area. Network capacity to deal with this file size is also included in Amazon, though we need better connectivity.
- Find/Link: Metadata Storage helps us track the experiments that we have run.

We will show a simple framework to combine these various pieces in a holistic view to support a return on Investment approach.

SESSION 3

CHAIR: Mary "Hall" Gregg

Vice President, Research & Development Informatics and Global ERP, Amgen

As Vice President of Research & Development Informatics, Dr. Hall Gregg works closely with the head of R&D and the CIO to provide operational and strategic leadership in support of Amgen's worldwide initiatives in drug discovery and development. She also leads the Global ERP function. Hall joined Amgen in May 2011 as Vice President of IS Enterprise Applications Services where she was responsible for managing enterprise resource planning, document and content management, web and collaboration tools, information management and analytics, and development and testing.

Before coming to Amgen, Hall held a variety of roles in information technology and business functions at Quest Diagnostics. Among her positions at Quest Diagnostics, Hall served as CIO and then as VP for global central laboratory services and South American laboratory operations. Prior to joining Quest Diagnostics, Hall was the VP Business Information Systems and Deputy CIO at the American Red Cross. She began her career at Merck as a biostatistician designing and analyzing clinical trials. Hall received her Ph.D. in biostatistics from Virginia Commonwealth University, and her bachelor's in mathematics from Vanderbilt University.

In 2009, Hall was appointed by the Governor of NJ to serve as a commissioner on the NJ Healthcare IT Commission and participated in the development of the statewide healthcare IT plan.

Andrew S. Plump

VP Research & Translational Medicine and Deputy to the President of Global R&D, Sanofi

Andrew Plump received his MD from the University of California, San Francisco; his PhD in cardiovascular genetics at the Rockefeller University; and his B.S. from the Massachusetts Institute of Technology. He completed a residency in Internal Medicine and a Fellowship in Medical Genetics at U.C.S.F. Following his clinical training, Andrew trained as a Howard Hughes postdoctoral fellow with Dr. Marc Tessier-Lavigne in the department of Anatomy and Neuroscience at U.C.S.F., after which he assumed faculty responsibilities as an Adjunct Clinical Instructor in the department of Medical Genetics.

Andrew Plump joined Sanofi after eleven years in the pharmaceutical industry where he held various positions at Merck, initially as Director in the Department of Clinical Pharmacology and subsequently in Clinical Molecular Profiling and subsequently as Vice President and head of translational medicine and discovery in the Cardiovascular Disease Franchise. In the Cardiovascular Franchise at Merck Andrew was responsible for the Merck Cardiovascular Early Development, Translational Medicine and Discovery portfolios. In this role, Andrew led the discovery and advancement of several programs in the Merck portfolio. He was appointed to his present position on July 2012.

SESSION 4

CHAIR: Dan Chapman

Leader, Leader Software Development & Architecture, UCB

Dan Chapman is part of the leadership team within Informatics at UCB with responsibility for Software Development and Architecture and Therapeutic Informatics (UK). Dan has 15 years experience working within the Pharmaceutical industry in a variety of roles.

After completing a PhD in Chemistry at Warwick University, Dan transitioned to informatics during post doctoral research at Cambridge University as part of the CLIC consortium. Dan joined AstraZeneca in 1997 and worked on a variety of global projects before joining UCB in his present role in 2005. Since then, Dan has driven several projects to revolutionize the informatics platform within UCB and is currently actively involved in promoting Data Science across UCB.

Jean Colombel

Vice-President, Life Sciences Industry, Dassault Systèmes

Jean Colombel is currently the Vice President of the Life Sciences Industry at Dassault Systèmes . His organization is responsible for creating and developing Dassault Systèmes Patient-centric strategy and associated solutions for pharmaceutical, medical device and patient care industry segments. Since joining the company in 2009, Jean has grown the Life Sciences footprint significantly by enhancing the Experience solution portfolio through collaboration with leading pharmaceutical, medical device and healthcare organizations, while partnering and acquiring multiple business operations.

Jean has over 20 years of experience in the life sciences industry, serving various executive worldwide level positions including senior vice president at MDL Elsevier. During the late 1980's, he studied Medicinal Chemistry in Montpellier, France and led research activities at the Pharmaceutical Institute in Tubingen, Germany.

Big Data and the Advent of a New Collaborative Intelligence and Experience

While IT is leveraging Big Data in its current agenda, there is an imperative need to position it as a prerequisite strongly driven by business focus and precise sets of usages.

Dassault Systèmes will highlight how intelligent information approaches (semantic indexing, content recommendation, dashboarding, etc.), but also key related modeling & simulation and collaboration next practices are instrumental in tackling the Big Data era and make it an efficient reality in the pharmaceutical sector.

Selected examples from a diversity of industries as well as from Life Sciences will illustrate Dassault Systèmes approach.

Morgan Zimmermann

Vice-President, Exalead, Dassault Systèmes

Morgan joined Exalead in 2005, with a track record of driving growth and success in technology driven companies and the ambition and belief that Technology can transform the way people work and interact in their companies while delivering tangible bottom line impacts. Within the last 8 years at Exalead, Morgan has been helping 100's of companies to re-consider the way they build solution, by decoupling data lifeycle from user experience, and by securing that any new project was driven by the experience rather than build from the data! These disruptive approaches (known as Search Based Applications), supported by unmatched technology have set trends within the industry, with a good drive and great recognition from Analysts and Customers.

Pek Lum

VP Solutions, Ayasdi

Pek Lum leads Ayasdi's products and solutions team, where she provides leadership on product, data acquisition and analytics. Her team's responsibilities include product research and design as well as providing analytical solutions to customers. After more than a decade in the life sciences industry, Pek has the passion to help find cures for cancer and for other diseases in her lifetime. She believes that Ayasdi's technology may help solve these challenging problems.

Pek was trained in molecular genetics and cell biology for her PhD at the University of Washington. Her work has been widely published in scientific journals, and her research has contributed to discoveries in drug development and the understanding of complex diseases. Pek spent 10 years at Rosetta Inpharmatics, which was one of the companies that played an important part in the genomics revolution with its bioinformatics solutions for deciphering large amounts of gene expression data, and was part of Merck's acquisition of Rosetta in 2001.

Pek also has a Master of Science in Biochemistry and Bachelor of Science from Hokkaido University in Japan.

Extracting Insights from Big Data

There is more data than ever in the world today. The sheer amount of data being collected is tremendous and coupled with complexity, has made it almost impossible for current tools and approaches to manage. Query-based approaches will reach their limits rather quickly in this big data world because it is impossible to think of every possible query needed to extract information from such data. We cannot query what we don't know!

The approach that will be introduced to tackle this problem is called TDA or Topological Data Analysis. TDA originates from a branch of mathematics called topology. Until recently, topology was only used to study abstract shapes and surfaces. However, over the last 15 years, there has been a concerted effort to adapt topological methods to study large and high-dimensional data sets. These methods, taken together, are referred to as Topological Data Analysis, or TDA.

Ayasdi has taken the principles of TDA and implemented them as commercially available software called Iris. Iris is a cloud-based platform that allows users very quickly and automatically to analyze and explore large and complex data without writing a single line of code, leading to fast extraction of insights. This presentation will review the technology behind TDA as well as some use cases that are relevant to pharmaceutical companies such as identifying biomarkers for patient segmentation, handling clinical data and integrating phenotypic data with next generation sequencing data.

EXHIBITORS

Objective: To provide inspiration on how "Big Data" can be exploited

LESS ABOUT THE TECHNOLOGY – MORE ABOUT WHAT THE TECHNOLOGY CAN DO

HP

Health and Life Sciences continue to evolve as Information Technology provides new breakthroughs to make R&D more effective and accessible. Application Specific Computing, Big Analytics, Meaning Based Computing and Science Clouds are quickly changing how and where science is done. On the road to "Information Driven Medicine", HP Life Sciences solutions help you accelerate new drug discovery development processes, increase productivity with the Augmented Lab, help your organization enable FDA compliance, increase application and network availability and maximize the value of R&D processes.

www8.hp.com/us/en/industries/healthcare-life-sciences.html?compURI=1091452#.UXPvwbXkv2s

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Etzard Stolte is CTO for the Life Sciences at Hewlett Packard, where he is responsible for the definition and implementation of HP's Life Sciences strategy, as well as, the portfolio of HP Life Sciences solutions across hardware, software, services, and partners. Before joining HP, Etzard was Global Head Strategy & Architecture for R&D Informatics at Hoffman La Roche. Previously, he worked as Director of the Computer Science department at Unilever Research, helped NASA launch a satellite, and ran his own company of administrative software for medical institutions.

Etzard has earned academic degrees in both Biology and Informatics, with a PhD in Computer Science from ETH Zurich. He has published papers in all major IS journals and conferences, mostly on the optimization of very large, scientific information systems.

HYPERCUBE

Hypercube Research is a start-up innovative technology company recently acquired by BearingPoint, a leading European management consulting group.

HyperCube Research develops and commercializes a breakthrough Analytics solution, HyperCube® and associated data mining services.

HyperCube® is built on an original sub-group discovery algorithm based on innovative (non-euclidean, non-statistical) mathematical principles, which key features is to identify remarkable sub-populations with respect to a specific outcome variable, and uncover interactions between influent variables.

HyperCube® has many applications in biomedical research, including bioinformatics, and is used in particular to analyze genome-wide data (SNPs, gene expression) for biomarker discovery.

HyperCube® methodology's added value for biomedical research has been validated in the case of malaria research in a recent peer-reviewed paper published with Institut Pasteur (http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0024085)

http://www.bearingpoint.com/en-uk/7-5295/hypercube/?

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Yann has an academic background in mathematics and biology and an extensive and diversified Pharma experience, both in R&D and Information Technology.

Yann started his career in Servier R&D department, where he was in charge of developing R&D IS/IT. He was then a consultant at Capgemini Consulting for 5 years, focusing on Life Sciences and Healthcare and IS/IT topics.

In 2006, he joined Ipsen as Director of IT Governance. He developed a global IT management framework including a company-wide IT strategic plan.
Yann became Director of Research Strategic Planning in Ipsen in 2009. In this role, he was instrumental in reshaping the Research strategy, organization, processes and IT.
in the context of a major strategic and organizational change at company level, Yann was appointed R&D Transformation Project Leader reporting to the ExCom.

In 2012, Yann joined Hypercube Research, taking the challenge to develop the notoriety and business of a high-potential technology in the Life Sciences area.

IBM

IBM Watson

Almost two years ago, the IBM Watson system gained fame by beating human contestants on the US television quiz show Jeopardy! Using advances in natural language processing and analytics, the Watson technology processes information similar to the way people think, representing a significant shift in the ability for organizations to quickly analyze, understand and respond to vast amounts of Big Data. We believe that the ability to use Watson to answer complex questions posed in natural language with speed, accuracy and confidence has enormous potential to improve decision making across a variety of industries especially in health care. IBM has recently taken a major step forward with its partners, Memorial Sloan Kettering and WellPoint, in putting IBM's Watson technology to work in the area of oncology.

We will introduce the audience to IBM Research activities in Healthcare and will discuss how IBM develops Knowledge-Driven and Data -drivern methods to help transform the quality and speed of care through individualized evidence-based medicine.

www-03.ibm.com/innovation/us/watson/

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Tony has 14 years of experience in IT companies, with special focus on Services (CRM, Billing, AMS,etc.) & Consulting (Functional & technical), at Sales functions.

Since joining IBM in 2002, Tony dedicated on Telco Industry at GBS Associate Partner job role, and spent 3 years managing an IBM Agency (full IBM portfolio and multi-industries clients). And, since the creation of a "Life Sciences cluster" in September 2010, in French IBM organization, Tony is totally focused on SANOFI Group relationship.

Pascal Sempé
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No matter where discovery takes place, IBM researchers push the boundaries of science, technology and business to make the world work better. Today, IBM researchers are redefining where discovery happens by stepping outside of the laboratory and challenging the status quo to solve some of the world's most complex problems. From monitoring energy and water desalinization in the deserts of the Middle East to using nanopolymers to fight bacteria, IBM Research is a global community of forward-thinkers working towards a common goal: progress. Pascal is responsible for building strategic partnerships with mid and large size corporations worldwide, increasing the Value of IBM Research by getting technologies to market.
www.research.ibm.com/

INFOSYS

Infosys' Big Data practice has performed multiple engagements for the world's leading companies in multiple industries such as electronics, consumer goods, and banking. We recently launched a significant innovation in this area—**Infosys BigDataEdge**—a platform that makes it much easier and faster for customers to transform data into insights.

We are now leveraging our Big Data expertise and platform to enable new ways of improving drug development and health outcomes. Examples and demos will be shown.

Meanwhile please enjoy Ten Big Data Trends for 2013:
www.infosys.com/building-tomorrows-enterprise/trends/Pages/big-data-trends-infographic-2013.aspx

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Ed Currie is Associate Vice President, Life Sciences at Infosys, and is based in Basel, Switzerland. Ed trained as a medical doctor in London and specialised in infectious diseases. He has 25 years of pharmaceutical, diagnostics, medical device and consulting/IT industry experience, in the areas of research and development, personalised medicine, strategic marketing and corporate development, in both large public and small venture-backed companies.

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Arnauld Moreau is Associate Business Consulting, BI at Infosys, and is based in Paris, France. Arnauld has 7 years of experience in Business Intelligence consulting (functional & technical) spanning from roadmap definition, through requirement gathering, design, development, and testing, to end-user training, for transversal projects in the area of data integration, data warehousing, reporting, business analytics, big data and visualization. He is Infosys France's representative for the newly launched Infosys BigDataEdge platform.

www.infosys.com/bigdataedge/

ORACLE

Oracle Health Sciences

Oracle is a leading strategic software solutions provider to the health sciences industry, helping pharmaceutical, biotechnology, medical device, and healthcare organizations become the most successful in the world by offering the most innovative products and services that deliver the most compelling customer and shareholder value. Oracle's comprehensive industry solutions include clinical trial management and analysis, electronic data capture, adverse event reporting and pharmacovigilance, health information exchange, enterprise healthcare analytics and personalized medicine. Oracle partners with health sciences industry leaders – including 20 of the top 20 life sciences companies and 14 of the top 14 Fortune Global 500 healthcare organizations – to prevent and cure disease, enhance quality of life, and accelerate insights for better health.

Oracle Health Sciences Translational Research Center: A Translational Medicine Platform to Address the Big Data Challenge

As organizations move to advance translational research to achieve personalized medicine, researchers and clinicians must manage informatics, however, there is a shortage of fully integrated informatics solutions that integrate, store, and analyze clinical and omics data from diverse sources – generated in-house as well as public consortiums. Many researchers and clinicians must rely on bioinformaticians to perform mundane data management tasks in order to validate a simple hypothesis. Oracle Health Sciences Translational Research Center provides a complete and scalable informatics solution, with centralized data storage and analysis across genetic information areas (genomics, transcriptomics, and proteomics), vendor platforms, biological data types, and clinical data sources. It also offers flexible deployment options – on-premise, HIPAA-certified Software as a Service (SaaS), and a hybrid of these two. Through an intuitive user interface, Oracle Health Sciences Translational Research Center enables researchers to stratify patients and allows clinicians to evaluate treatment responses for similar patients in a self-sufficient manner, ultimately shortening the biomarker development cycle and accelerating the adoption of personalized medicine.

www.oracle.com/healthsciences

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Mike Connaughton is Director for Oracle's Big Data business in Europe, Middle East and Africa. His focus is on business development and helping drive competitive advantage for Customers, Partners and Oracle. Before moving to Big Data he was the Lead for Business Process Management and prior to that he was a Director for Oracle's Security business in EMEA. He has seventeen years' experience working in the IT industry.

Prior to joining Oracle, Mike was the EMEA General Manager at Sun Microsystems responsible for Governance, Risk and Compliance solutions. Mike has also worked for EDS, Computacenter and Fujitsu Services. He is a graduate of Oxford Brookes University where he was awarded a 1st Class Honours degree in Technology Management.

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Joel leads the overall healthcare strategy and business development in EMEA working across the Oracle Health Sciences Global Business Unit strategy, alliance, sales, consulting and solution consulting teams, as well as the extended technology, applications and Industry Business Unit groups. Leveraging his 25 years of consulting and IT experience, of which 14 have been exclusively focused on healthcare, Joel works closely with the Oracle Health Sciences Network, Enterprise Health Analytics, Translational Research Center and Health Information Exchange product strategy team.

Prior to joining Oracle in 2011 he served as CEO of Sentient Health, an innovative supply chain and analytics software provider. The company was acquired in 2011. He also spent 10 years with Deloitte Consulting delivering technology enabled business solutions in the United States, Australia and Asia where Joel was instrumental in the development of Deloitte Consulting methodologies and international expansion. Joel has had numerous speaking engagements around the world.

THOMSON REUTERS

Tim Miller
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Tim Miller has worked within the Thomson organization for over 30 years. After 5 years in editorial for Derwent World Patents Index, he moved to Product Development where he was responsible for a number of new products including GENESEQ, Patents Preview, Patents Citation Index, Derwent Chemistry Resource and Derwent Discovery. In 2000 Tim transferred to IT where he architected and programme-managed a number of major infrastructure projects and led the IT integration of several acquisitions.

In his current role as Vice President, Research, Tim is responsible for developing new ways for our customers to derive additional value from our content, including Web Services APIs, customer content hosting, informatics and visualisation technologies. Tim holds a bachelor's degree in Chemistry from the University of York and a bachelor's degree in Law from the University of London. He is a Chartered Chemist (Member of the Royal Society of Chemistry) and a Chartered Information Technology Professional (Member of the British Computer Society).

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Armelle has over 15 years of experience working the Life science industry where she has held a series of senior commercial roles. Working currently as a Strategic Account Manager at Thomson Reuters, she is involved in a number of high profile informatics related projects. During her career Armelle has worked with most of the large European pharma companies (Sanofi, Roche, Novartis, Bayer, Astra Zeneca).

She started her career at IDRAC (Regulatory Intelligence Solution) which was acquired by Thomson Reuters in 2004. Prior to joining TR, Armelle worked for 6 years as an Account Executive for Liquent, the global leader of Regulatory information management software.

NOTES

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