



## *NGS Process Analysis – Market Trends, Unmet Needs & Challenges, and Ecosystem Analysis*

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Sequencing reagents & instruments  
(NGS Literature & end-user interviews)

NGS analysis & interpretation ecosystem analysis

Concluding notes with learnings

Company profiles - funding, # of employees, product details, company vision, and more

## NGS Process Report – June 2016

The NGS process space is a very busy with many commercial players that provide sequencing reagents, instruments, and analysis solutions. An extensive analysis of this space highlights that as the sequencing technology has matured, the challenges have shifted toward data explosion and computing, data interpretation to gather and report actionable information, and information management.

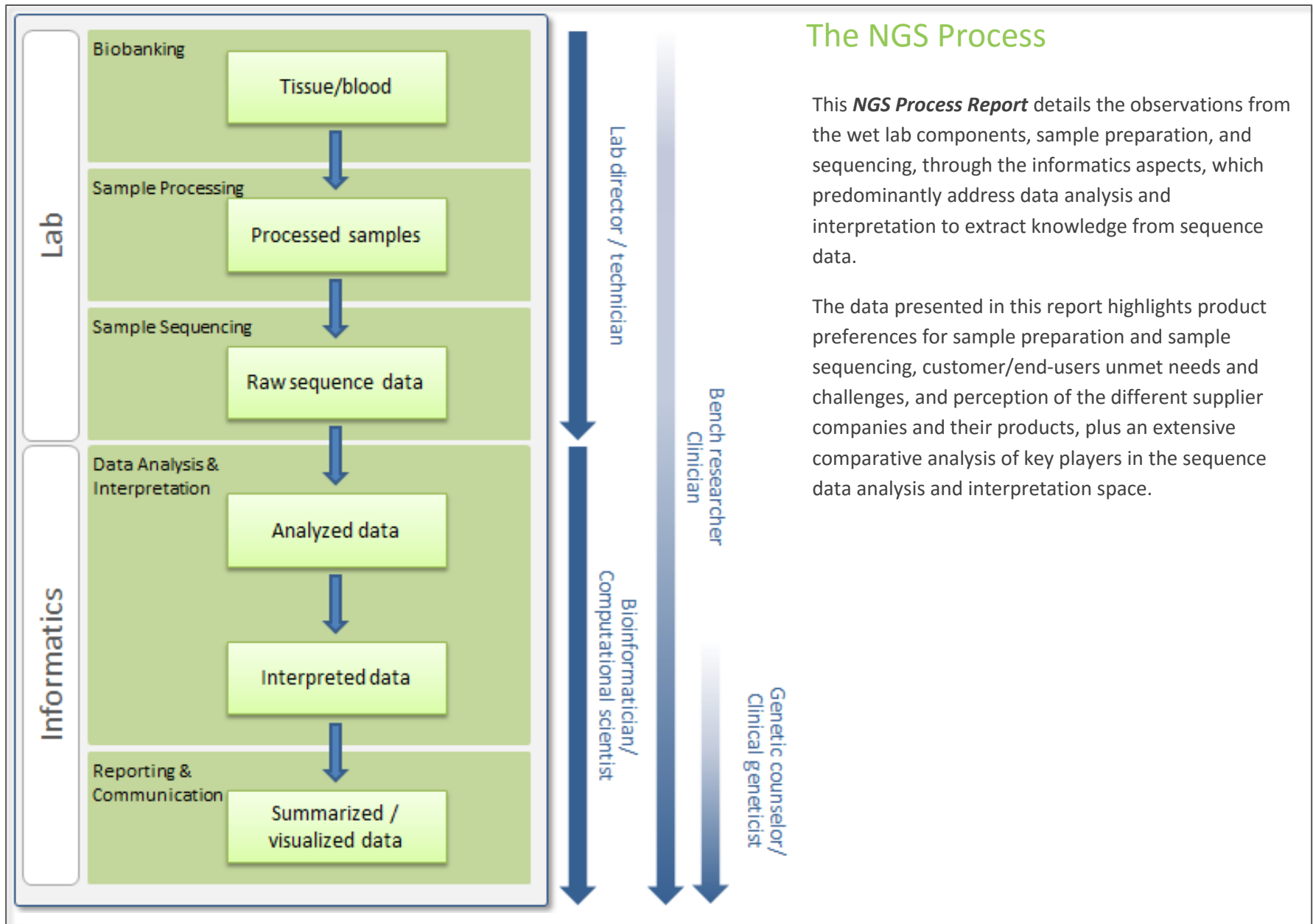
Our specific analysis identified the obvious top players which includes Illumina on the instruments side (and to some extent on the reagents side), Thermo Fisher Scientific, and Pacific Biosciences; Illumina also offers a data analysis and interpretation solution via BaseSpace. Agilent technologies, Qiagen, and Thermo Fisher Scientific are the main actors on the reagents side, while on the analysis side we observe several providers that are strong in different areas of data analysis and interpretation. DNAnexus and Seven Bridges Genomics have emerged as open and flexible platforms for data analysis, Bluebee, Genalice, and Edico Genome as alternatives enabling fast DNA processing. On the data interpretation side we have several noteworthy companies such as Congenica, Ingenuity (Qiagen), Omicia, Station X, or WuXi NextCODE offering elegant analysis solutions, with Congenica, Ingenuity, Omicia, and WuXi NextCODE also being strong on the clinical data interpretation side. Alongside these established companies, we should not overlook the significant impact of open source tools that command a sizable share of the data analysis volume (~68% of all users still use in-house or open source tools for their analyses – some as standalone solutions and some in combination with commercially available offerings), such as the Broad Institute Scientific Community Software and Sanger Institute Tools and Software made available to the entire community.

Our data is substantiated with an analysis of the published NGS/sequencing literature, 28 interviews (19 end-users and nine industry representative interviews) highlighting product preferences for sample preparation and sample sequencing, customer/end-users unmet needs and challenges, and the brand perception users have for the different supplier companies and their products, plus an extensive comparative analysis of key players in the sequence data analysis and interpretation space.

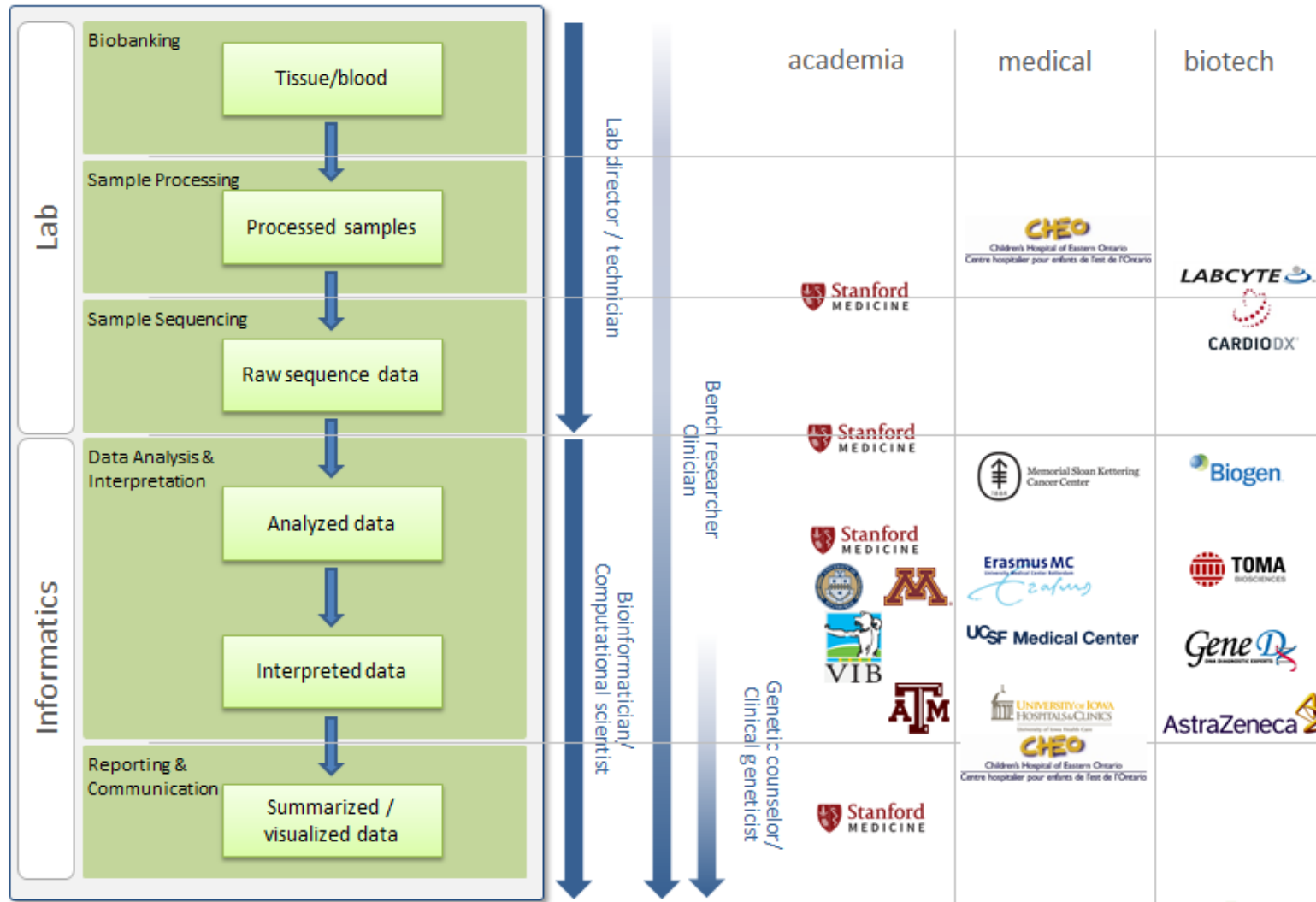
The approach taken to decipher the NGS process and its components, as summarized within this report, was rooted in the following questions: who are the key commercial companies in this process, who are the end-users and what are their unmet needs and challenges, and when researching the analysis and interpretation side of the equation, what challenges need the commercial life science product providers address, and who addresses them how?

This 111 page NGS Process Report consists of 23 Figures, 39 Tables, and 17 company profiles (Agilent Technologies, Bina Technologies, Bluebee, CLC Bio (Qiagen), Congenica, DNAnexus, Edico Genome, Genalice, BaseSpace (Illumina), Ingenuity Systems (Qiagen), New England Biolabs, Omicia, Qiagen, Seven Bridges Genomics, Station X, Thermo Fisher Scientific, and WuXi NextCODE).

For more information contact [info@enlightenbio.com](mailto:info@enlightenbio.com) or visit our website, [enlightenbio.com](http://enlightenbio.com).

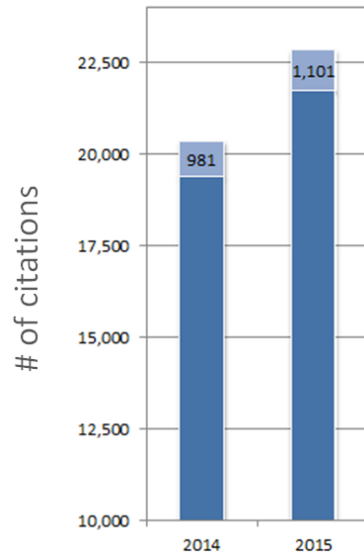


# End-User Interviews



19 end-user interviews conducted to elucidate processing needs and challenges, and research product preferences.

## Published NGS Literature Analysis

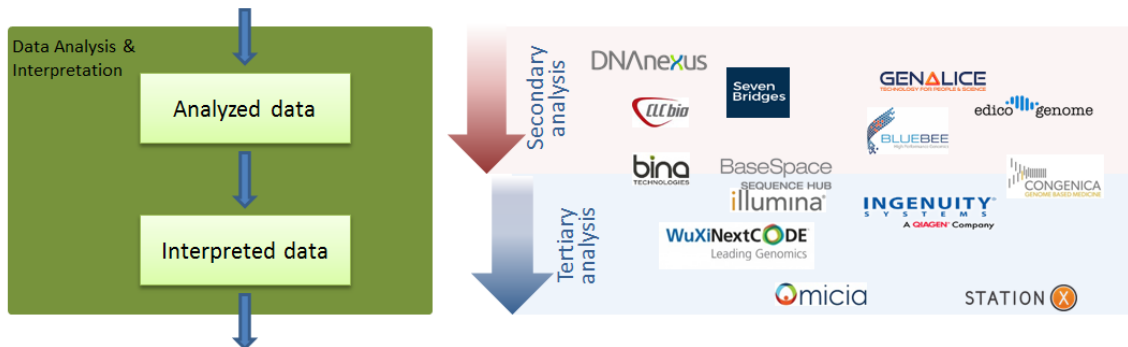


### An *analysis of published literature data*

Contributed by our partner company [SeekQuence](#) this section aims at understanding NGS trends, commercial product supplier market share trends, and top performing NGS products and applications, among different countries, institutions, and researchers.

- Term "Sanger sequencing"
- Term "sequencing"

## Ecosystem Analysis



A *deep ecosystem level Informatics analysis* with key players in the secondary and tertiary analysis space to provide an understanding of product focus, how end-user needs are being addressed, and status of specific providers (company momentum, funding, number of employees, and more).

*Input from key representatives of established commercial research product suppliers* provide learnings about their vision for product solutions in the current - and future - space.

## 17 Company/Product Profiles

- Agilent Technologies
- Bina Technologies (Roche)
- Bluebee
- CLC Bio (Qiagen)
- Congenica
- DNAnexus
- Edico Genome
- Genalice
- BaseSpace (Illumina)
- Ingenuity Systems - IPA & IVA (Qiagen)
- New England Biolabs
- Omicia
- Qiagen
- Seven Bridges Genomics
- Station X
- Thermo Fisher Scientific
- WuXi NextCODE

*Company/product profiles* of life science product and solution providers that supply relevant reagents or instruments in the sequencing sector, or provide data analysis and interpretation software (and hardware) included in the deep dive ecosystem analysis.

Company profiles highlight company metrics (funding, number of employees, etc.), product details, founder/executive and board information, additional notes, and the respective company vision.

## About enlightenbio LLC

Enlightenbio was founded in 2013 in the San Francisco Bay Area to provide a conduit between research and related technical and analytical resources. Our company consists of PhD level research scientists who bring decades of industry experience and expertise in the biotechnology, molecular diagnostics, pharma, and life science research markets to the table. We are dedicated to communicating in the researcher's language, identifying unmet needs, and understanding product development. Our goals are aligned with researcher's needs to increase experiment productivity and to make sense of the resulting biological data.

In addition to our varied industry experiences - Applied Biosystems (now Thermo Fisher Scientific), Iconix Biosciences, Ingenuity Systems (now a Qiagen company), and DNAnexus – we have built and maintained content curation services, defined product strategy, managed tactical product projects, performed extensive ecosystem analyses, and defined go-to-market plans.

Building on our initial success and previous experiences - microarray and next-generation sequence data analysis, toxicogenomics, solutions for sequence data management, analysis, and interpretation, drug discovery, and biochemistry - we continuously monitor worldwide market trends in healthcare information technology, life sciences, genomics, clinical diagnostics, and in the medical devices space to expand our critical service offerings. Combined with our extensive global network, we can identify target market pain points and unmet needs, perform detailed market and product research, perform horizontal and vertical ecosystem or competitive analyses, and more.

This background with our future-focused outlook makes us a resourceful and exciting alternative to traditional market research companies. Our comprehensive knowledge of the market we live and breathe is invaluable to our partnerships and to the potential for our customers.

enlightenbio and associated market research reports are managed by Brigitte Ganter, PhD, Founder & Managing Director of enlightenbio LLC.