**Senthil - Promotion Optimization - Year-End 2021 – Objectives and Accomplishments**

**Objective 1: Deliver insights to guide optimal promotional budget allocations for 2021 and 2022**

1. **Oncology / Keytruda Budget Allocation, Sales Impact Analysis and Consultations (Informed ~$1.1B budget for 2021 & 2022) :**
   * DOMINO – Guided the allocation of $522MM of current year promotional budget and $565MM of 2022 promotional budget, primarily for Keytruda.
     + Added new brand Weilreg to the model.
     + Developing processes to add Lenvima and Lynparza as additional brands.
     + Allocations are suggested at multiple levels: brand, tumor, HCP vs Consumer, channel, and vendor
     + Involves coordination with multiple Merck teams and getting buy-ins from MLT.
   * CIA – Optimally allocated ~$45MM of HCP digital budget for Keytruda.
   * Multiple adhoc consultations
     + Provided ICE team and Oncology Portfolio team with analytical support and consultation regarding testing designs, interpretation of impactable revenue and ROI and adhoc impact analyses for: NBE beta values for CEI and lift measurement, Crossix HCP promotion measurement, Demandbase program measurement, Test/Control analysis of Contextual Search, etc.
2. **IPF (Optimal allocations and Investments informed for $262MM 2022 budget - Chronic Care BU $77MM and Vaccines BU $185MM):**
   * Lead and coached by Ambika Rana.
   * G9 Adolescents, G9 Adults (approx.), Ped vaccines, Januvia, Steglatro, Belsomra, P23
   * 2022 Budget suggestions through scoring models for Chronic Care BU, Specialty and Hospital BU and Vaccines BU.
3. **DET - Informed HCP DET spend of ~$24MM:**
   * **New:** Dificid, HIV (2X), Belsomra, P23, Bridion.
   * Gardasil Adolescents
   * Detailed analysis by specific campaigns, vendors and segments.

**Objective 2: Consult to deliver insights and strategies to drive significant & meaningful incremental revenue for CONSUMER promotions**

1. **Keytruda Consumer Analytics (Investments informed: ~$140MM):**
   * Developed several consumer impact models (mkt mix) and optimal investment scenarios for 2022
   * Collaborated with stakeholders (brand/media/INI/Crossix team/Finance) on a day-to-day basis to share analytics POV in decision making
   * Pilots:
     + Precision marketing pilot – Designed a multiple test pilot to assess a) impact of increasing consumer promotion on high priority geographies b) impact of removing consumer promotion from low priority geographies
     + Help the team design a pilot for the TNBC SDoH (Social Determinants of Health) campaign
   * Adhoc analysis –
     + TV business case – Created and presented a business case to Keytruda leadership to secure TV funds for 2021 Q4
     + Impact of multi-cultural marketing – Analyzed Keytruda conversion rate differences by ethnicity
   * Close collaboration with Crossix and Brand team – particularly on enhancing Net Impacts, guiding channel allocations on ongoing basis and paid search optimization methodology enhancements.
2. **Vaccines Consumer Analytics Support (Investments informed: ~$112MM)**
   * Developed ongoing optimal investments for various Gardasil promotions.
   * Net Impact analysis (Adult and Adolescent) – Worked with Crossix & INI to calculate cost efficiency at indication, channel, and publisher level
   * Collaborated with stakeholders (brand/media/INI/Crossix team) on a day-to-day basis to share analytics POV in decision making
   * Adhoc analysis –
     + TV business case – Helped the G9 Adult brand team to prepare a business case to retain TV for 2021. Analyzed contribution to public and private sales, and drive TV importance to grow G9 business during COVID
   * Pneumovax - Helped the DET team select test and control geographies for testing more targeted creatives created through a tool
3. **Other Consumer Promotions:**
   * Modeling / ROIs / Crossix / Adhocs
   * Lynparza: ROIs and Optimal mix.
   * Measured sales impacts for P23, Januvia, Steglatro, Belsomra
   * Identified pilot counties for Vaccine Confidence HCC marketing pilot.
   * Point of Care ROI analysis support for multiple brands, vendors, and programs

**Objective 3: Enable and produce HCP Personalization insights**

1. **CTAP / NBE / CHP:** 
   * **CTAP:** Analysis and identification of key tags related attributes that drives higher engagements using several Machine Learning models such as Elastic Net, Random Forest, Neural Nets etc.
   * **NBE:** Continuous support for several products on Max Touch Points, CEI inputs, Method revisions etc.
     + Brands: Verquo, Daibetes, Bridion, Isentress, Pifeltro/Delstrigo, Three Ped Vaccines
   * **CHP:** Ongoing consulting with ZS on methods and in the process of in-depth review of CHP impact to engagement.

**Objective 4: Deliver insights and strategies to inform PATIENT SUPPORT programs**

1. **Coupon / EVouchers (Investment informed ~$100MM+) :**
   * RShiny based Coupon Design & Analysis Tool is in production (highly productive)
   * **New:** Gefapixant Coupon/EVoucher/Denial Conversion analysis & strategy
   * Januvia Coupon / EV analysis done after few years***.*** *Potential* ***$18MM savings in 2022 by stopping EV***
   * Verquo - 2022 Coupon spend forecasts

**Objective 5: Develop and procure customized tools to increase operational efficiencies.**

1. **Coupon Design and Analysis Tool:**
   * Partnered with Datazymes and developed custom RShiny based Coupon Design & Analysis Tool. This is in production and has proved to be highly productive in executing coupon design analysis for multiple brands this year ex: Januvia and Gefapixant coupon and eVoucher designs and scenario evaluations.

1. **DET Campaign Planning Tool:**
   * Partnered with Datazymes and developed custom DET campaign planning tool to inform strategies and possible sales impact related outcomes from various DET campaign planning scenarios.
   * This is an extension and enhancement of old channel allocation tool to accommodate whole DET campaigns.
   * Phase 1 is complete and is currently being used for Gardasil Adults 2022 DET campaign planning. Phase 2 to start in 2022.
2. **Rapid Test and Control Impact Analysis Tool:**
   * Procured from Datazymes the Test and Control comparison and impact measurement RShiny based tool with Merck specific enhancements to be delivered.

**Objective 6: Execute CORE OPERATIONAL and ADHOC SERVICES to enable analytical capabilities for delivering significant & meaningful incremental revenues. Adopt new ways of working in partnership with Global Analytics**

1. **Mkt Mix and Promotional Response Curves (serves as basis to inform *several hundreds* of millions of dollar investments on marketing promotions):**
   * Keytruda **(twice)**, Lynparza, Gardasil Adolescents **(twice)**, G9 Adults **(twice)**, Pneumovax, Januvia, Steglatro, Belsomra, Bridion
   * **New:** Lenvima, Ped vaccines (two)
   * Detailing PRCs for Belsomra, Januvia, Steglatro, Gardasil9, Pneumovax23, Rotateq, Vaqta and Isentress
   * Researching on impact measurement alternatives due to iOS15 changes.
2. **Mkt Mix Data Lake integration initiative:** 
   * Partnership with global data team to automate future mkt mix data collection process. Involves integration of several tens of HCP promotions (personal & non-personal), HCC promotions and sales data.
     + Assisted the team in developing a project plan (data flow, QC checks, system alerts), coordinated discussions on data sourcing (Big Query/APIs/Media agency), had knowledge transfer sessions on data manipulation for marketing mix
3. **Adhocs:**
   * Consumer: Ongoing consultations, Crossix, TV impacts, Digital impacts and Promotion Mixes. Directly informing decisions to invest ***~$100MM to $200MM***.
   * NWOW DTC performance Analysis: Keytruda, Gardasil, Januvia, Pneumovax
   * Januvia LOE related multiple analysis and consultations on “When to stop what”. ***Investment decisions involved is $50MM+.***
   * G9 Adult / DET – 2021 Monthly execution plans, optimal spends to meet forecast
   * Pilot geography selection for Gefapixant DTC campaign
   * Several T/C analysis for vendors of interest (ex: Keytruda contextual search)
   * Consult on measurement options for Gardasil pharmacy HCC/HCP programs, and digital health programs
   * Transitioned to SAS and R in RWDEX platform.
   * Helped to onboard 6 new 3PVs through data reviews, consistent mappings, standardizing and training.
4. **Health Map**
   * Guidance and multiple verifications being provided to Deloitte and Merck’s Health Map team to conduct a net impact analysis and potentially replace Crossix in the future (pilot savings: ~$400K. Future saving potential of few million dollars).
   * Identified gaps in vendor net impact methodology. Collaborated internally to suggest an improved version of the patient test and control matching
5. **COVID specific analysis:**
   * Partnered with ZS to continue from last year and complete COVID period promotional impacts (HCP personal and non-personal programs) for Gardasil, Pneumovax, Januvia, Steglatro, Bridion and Nexplanon.

**Objective 7: Develop team and promotion optimization practice.**

1. **Intern:**
   * One intern. Worked on Keytruda Indication level promo analysis on modeling of specific clusters (CART, K-Means etc.). Objective is to see if any clusters stand out as measurable for certain non-personal promotions.
   * Continuing as consultant with Mike Defazio’s group.
2. **Hiring and Consultants Management:**
   * Hired Alex DaSilva – previous intern and PhD candidate.
   * Hired Mike – another PhD candidate and intern.
   * Contractors – Structured and managed a team of contractors (~10 consultants) to efficiently support the heavy workload and vacancies during this year.
   * **Developed New Team support structure and organization with Datazymes**
     + *Very effective and has* ***been KEY TO COMPLETE MANY OF THE PROJECTS*** *this year.*
3. **People Development:**
   * Promoted Arun Sinhmar to Senior Specialist.
   * Ambika was provided cross functional training with Contract Optimization team.
   * Exposed and expanded responsibilities of all team members to wide varieties of projects and stimulated interest and engagement.
   * Every team member takes on innovation projects to further enhance skills and solve new types of business issues for Merck.
   * Implemented Agile type way of working for multiple projects (MMix, IPF).
4. **Personal Development:**
   * UPenn Digital Marketing Boot Camp – 4 months intensive learning program covering deep dive into designing, implementing, and measuring digital marketing using paid search, website organic search & search engine optimization, display, social media.
   * Executive Communications coaching - one on one coaching.
   * Python, Dataiku trainings.

**Objective 8: Compliance Priorities**

* Ensured all members of my organization carry a meaningful compliance priority, complete all required compliance training on time, and conduct themselves in a manner consistent with the letter and spirit of our policies
* Constructively engaged compliance and legal to gain input on business strategies, plans and initiatives.