1. **TOP LEVEL SUMMARY**
   * Purpose
     1. Summarize market risk profile in a single page
        + VaR
        + ETL
     2. Show trends in risk statistics
     3. Identify change-points in volatility profile
     4. Compare range of returns vs benchmarks
     5. Show best available forecast of subadvisor risk-weights
        + Forecast uses EWMA volatility model (λ = 0.93) and current subadvisor weights
   * Development Status: ready & automated
2. **FORECASTED RISK WEIGHTS FOR SUBADVISORS**
   * Purpose
     1. Give best estimate of risk weightings on a forward looking basis
        + Forecasted using EWMA volatility model (λ = 0.93) and current subadvisor weights
     2. Identify risk-sensitivity to allocation changes
     3. Show how this has changed over time
   * Development Status – ready and automated
3. **ACTUAL RISK WEIGHTS FOR ASSET GROUPS**
   * Purpose
     1. Summarize contribution to risk on a backwards looking basis for various asset groups
        + E.g. Sector, Market Cap, Rating, Sub-Advisor, etc..
   * Development Status
     1. Ready and automated for UFTS and Sub-Advisors
     2. Not yet automated for funds, but available on an ad-hoc basis
4. **RELATIVE VOLATILITY VS BENCHMARK**
   * Purpose
     1. Show how beta is changing over time and identify why by…
     2. Decompose beta into (relative volatility) \* (correlation)
   * Development Status – ready and automated
5. **MANDATE MONITORING**
   * Purpose
     1. Monitor Mandates
   * Development Status –
     1. Automated in excel only, not completely ready yet in R
     2. Mandate Tracking ready, but counting mandates not
6. **VaR OUTLIERS**
   * Purpose
     1. Monitor market risks in portfolio
   * Development Status –
     1. available on an adhoc basis
     2. Semi-Automated
        + Automated in R but not programmed for export to Excel
7. **DECOMPOSE VOLATILITY OF ACTIVE RETURN VS BENCHMARK**
   * Purpose
     1. Show how risks differ from the benchmark
     2. Align risk reporting with Contribution reporting
   * Notes
     1. Active Weight = Weight in Portfolio – Weight in Benchmark
     2. Active Return = Return of Portfolio – Return of Benchmark
     3. Active Return
   * Development Status – not ready
8. **PORTFOLIO OPTIMIZATION**
   * Purpose
     1. Identify the minimum-risk portfolio over various time periods (assuming certain weight constraints) on a backwards-looking basis
     2. When combined with an outlook and factor sensitivities, will help estimate the best portfolio for different market conditions
   * Development Status – available on an ad-hoc basis. Not yet automated.
9. **STRESS/SENSITIVITY ANALYSIS**
   * Purpose
     1. Identify and quantify factor risk sensitivities
        + E.g. Yield curve, Benchmark Indices, Economic Data (GDP etc..)
     2. Produce more realistic and forward-looking estimates of risk
     3. Combine with ….
        + Outlook
        + Optimization

… In order to estimate the best portfolio given the outlook for market environment

* + Development Status –
    1. not ready but have worked on pieces (e.g. factor models)
    2. Requires
       - Identification of factor set
       - Development of simulation method (e.g. Monte Carlo)

1. **STABILITY ANALYSIS**
   * Purpose
     1. Provide an “early warning system” for changes in risk-levels
   * Difficulties
     1. Highly theoretical
   * Development Status –
     1. Have done a lot of research on this
     2. Currently using changepoint analysis to identify likely points where volatility has changed