

## **Session 1B: Introduction to Predictive Analytics**

### **Moderator:**

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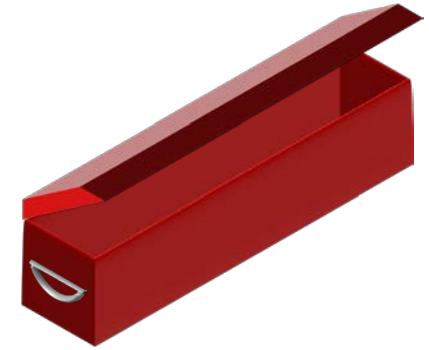


# Introduction to Predictive Analytics: Project Team Perspective

**Matthew F. Gabriel, FSA, MAAA**  
AVP, Innovation  
John Hancock Insurance

# New Toys!

<p><i>Productivity Tools</i></p>	 User Portals	 Web Scraping	 Middleware			
<p><i>Accelerators</i></p>	 Rules Engine	 Scoring Engine	 Visualization	 OCR Engine		
<p><i>Data Infrastructure</i></p>						
<p><i>Software Infrastructure</i></p>						
<p><i>Systems Infrastructure</i></p>	 SQL Server	 SAS Server	 R Server	 RDP Server	 App Server	 Hadoop

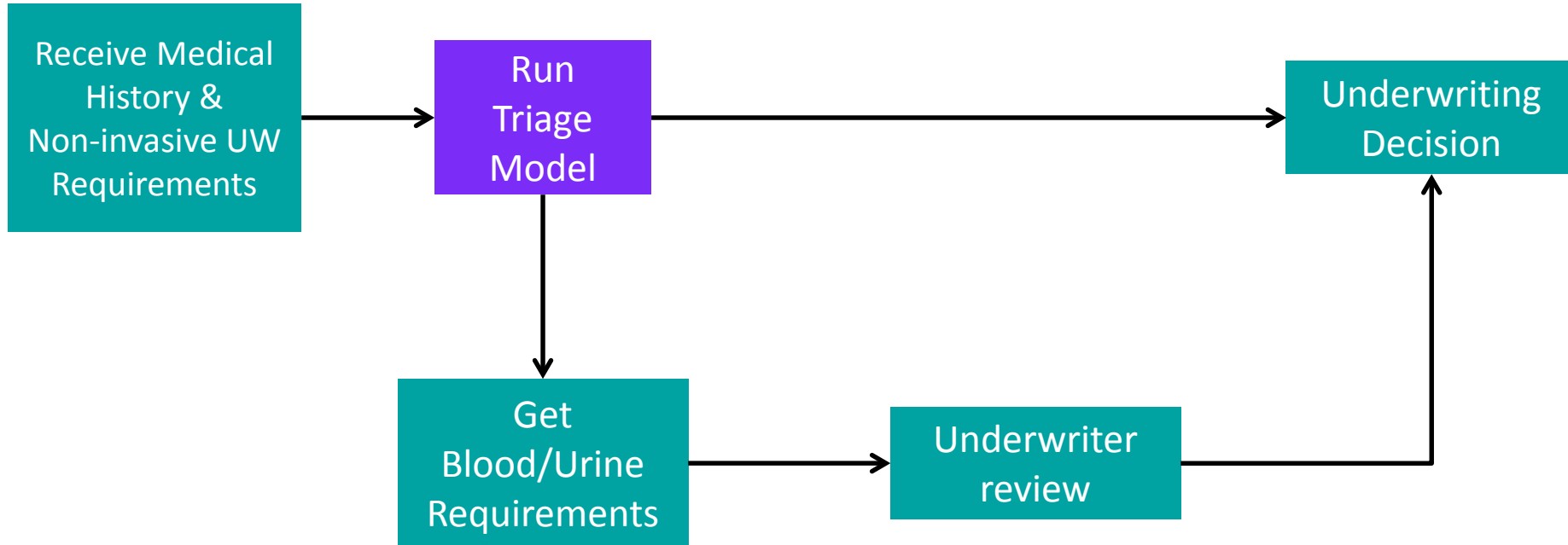


Expand your toolbox

# Agenda

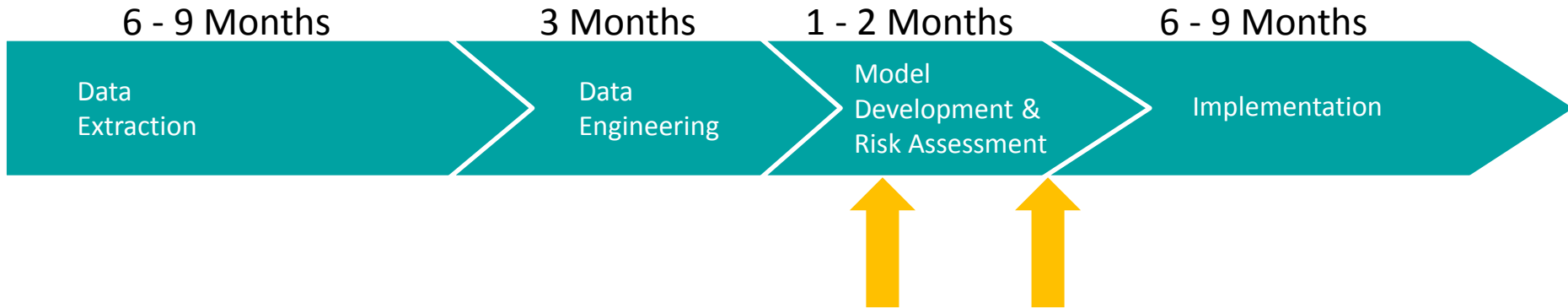
- Support the project team
- Get creative when assessing the financial risks
- Stay ahead of the non-financial risks

# Case Study: Underwriting Triage Model



# Project Timeline

- Project timelines can be long, especially if the data needs to be unlocked from image files



- The project team will not have much relevant information to share with the risk management review teams until deep into the timeline

# Support the project team

Pricing  
Actuary

Research  
Underwriter

Medical  
Director

Data Scientist

IT Lead

Core Project Team

- Creating the right project team is very important
- Actuaries can play a key role translating between areas
- Individual team members need to be unified
- Don't forget to involve your IT team early on

# Support the project team



- Is your second line team prepared to review predictive analytics solutions?
- Are your board approved policies relevant?
- Are roles and responsibilities well defined?



# Get creative when assessing the financial risks

- What's really changing? And by how much?
  - Advanced Analytics does not render traditional risk management techniques irrelevant
  - Advanced Analytics compliments traditional actuarial techniques extremely well
- What is the core risk being quantified?
- How can these new tools and increased access to data improve traditional financial modelling?
- Are your systems able to support any post-issue analysis and key risk indicator monitoring?

# Traditional Protective Value Study

Impairment	Prevalence	X	Loss of Sentinel Effect	X	UW Slippage	X	Excess Mortality	=	Mortality Impact
Cancer	4%		120%		10%		1500%		7.2%
Diabetes	6%		150%		15%		400%		5.4%
Drug Abuse	2%		500%		5%		1000%		5.0%
Asthma	1%		150%		15%		200%		4.5%

**Total Mortality Impact 122%**

# Predictive Analytics Protective Value Study

Traditional	Predictive Analytics
Prevalence Assumption	Entire Modeling Population
Loss of Sentinel Effect	Weight each member in the population according to known impairments
UW Slippage Assumption	Back-test underwriting model
Excess Mortality Assumption for each impairment	Relative Mortality assumption for each applicant

Then just compare the risk class mix and average relative mortality of the population before and after applying the new model to understand the impact on your business!

# Stay ahead of the non-financial risks

- IT/Data Security
  - Are you prepared to deal with start-ups and smaller support firms?
  - Can your risk assessment process be adapted or will your project team be delayed waiting for approvals?

***Create a problem solving culture to enable success***

- Legal/ Reputational Risk
  - Review of data elements and planned usage

***Don't wait too long to intervene or you risk significantly disrupting the project team***

# Conclusion

- Support the project team

***Build the right team and get involved early on in the project***

- Get creative when assessing the financial risks

***Look to new tools to help improve upon traditional techniques***

- Stay ahead of the non-financial risks

***Remove Barriers***

