

Drug Design Recommendation

commendo research & consulting GmbH



Project Idea / Main Targets



 Recommender technology to optimize the drug design process

 Speeding up development

 Highly customized drugs

 Minimization of adverse reactions

 Increasing probability to pass clinical tests



 Discover harmful drug combinations to minimize side effects

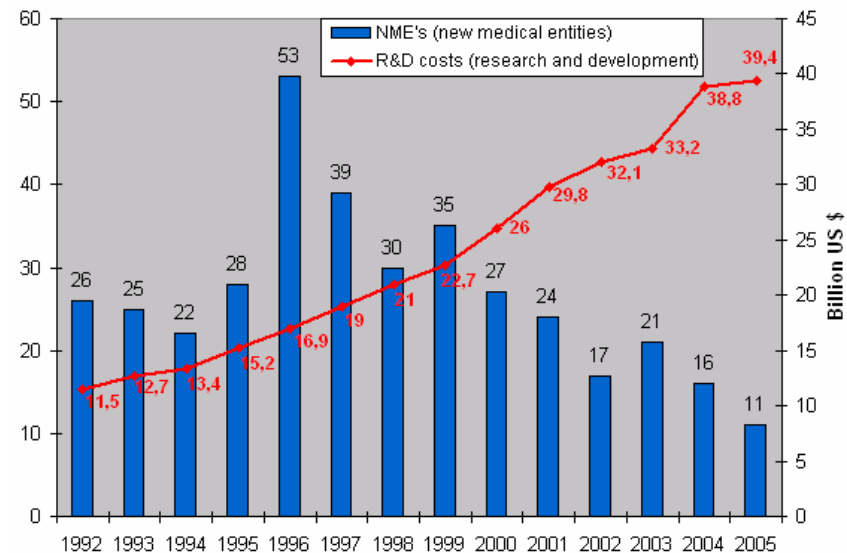
Business Opportunity



 Market: Pharmaceutical Industry

 Long term success by accelerating research in drug design

 Reduce pharmaceutical development costs



Source: Burrill & Company

>800 mio. \$ for bringing one drug on the market

95% rejection rate

Data Relationship



Recommender analogy: \swarrow **User \leftrightarrow Item**
 \searrow **Effect \leftrightarrow Substance**

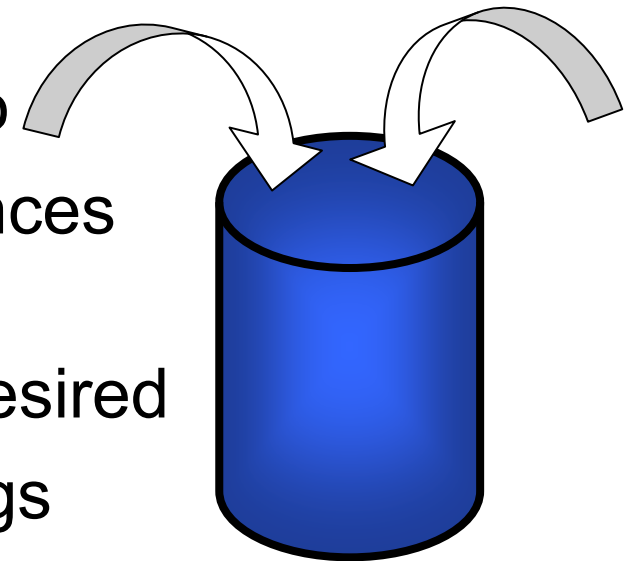
	<i>Sub. 1</i>	<i>Sub. 2</i>	<i>Sub. 3</i>	<i>Sub. 4</i>	<i>Sub. 5</i>	<i>Sub. 6</i>	<i>Sub. 7</i>	<i>Sub. 8</i>	<i>Sub. 9</i>	<i>Sub. 10</i>	<i>Sub. 11</i>	<i>Sub. 12</i>	<i>Sub. 13</i>	<i>Sub. 14</i>	<i>Sub. 15</i>
Effect 0	0	1		1			0	0		1				0	1
Effect 1			1			0	0					1			
Effect 2		0			1	1					0		0		
Effect 3			0	1				1	1	0					0

Accurate, customized recommender models can be applied

Holistic Model



- Integration of all data
 - Considering: substances & effects
 - From all drug development stages
- Use of recommender algorithms to predict unknown effects of substances
- Identification of substances with desired effects to develop customized drugs



The Team & the Netflix Prize



Georg Preßler, Andreas Töscher, Michael Jahrer, Michael Schrotter

Leading single team at Netflix Prize competition

Thank you for your attention

commendo research & consulting GmbH

