

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

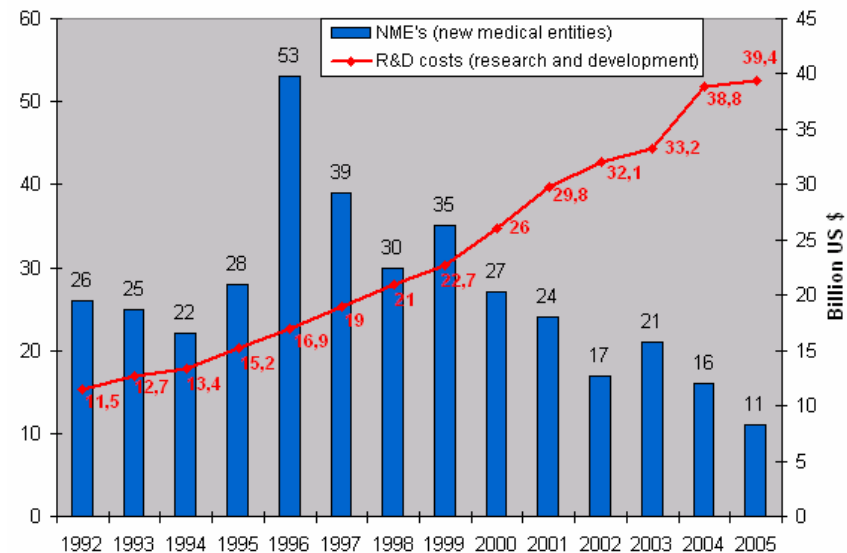
Business Opportunity



 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**

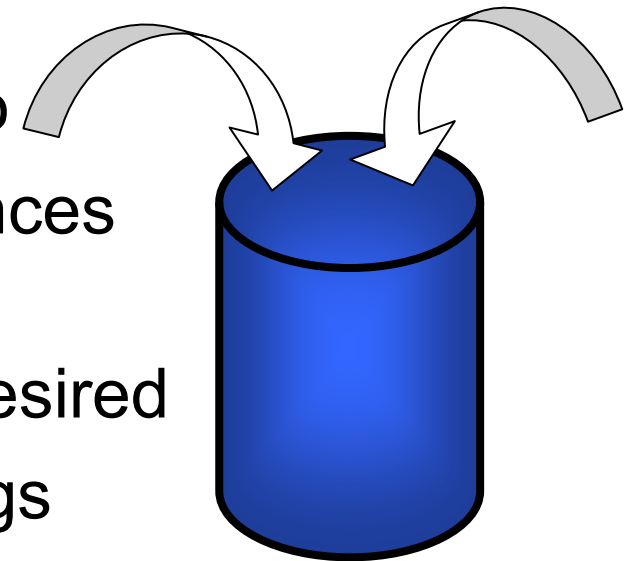
	<i>Sub. 1</i>	<i>Sub. 2</i>	<i>Sub. 3</i>	<i>Sub. 4</i>	<i>Sub. 5</i>	<i>Sub. 6</i>	<i>Sub. 7</i>	<i>Sub. 8</i>	<i>Sub. 9</i>	<i>Sub. 10</i>	<i>Sub. 11</i>	<i>Sub. 12</i>	<i>Sub. 13</i>	<i>Sub. 14</i>	<i>Sub. 15</i>
Effect 0	0	1		1			0	0		1				0	1
Effect 1			1			0	0					1			
Effect 2		0			1	1					0	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

