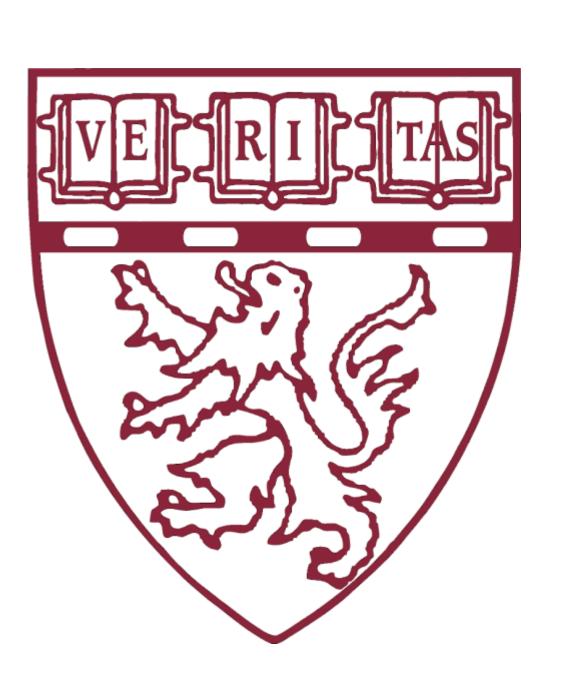
Goal-Directed Design Applied

Research & Design in the Genesis of Collaborative Grant-Writing Software

Jonathan Abbett MA, Evan Pankey MD, William Crawford MBA, Douglas MacFadden MS, Alexa McCray PhD, Isaac Kohane MD PhD Informatics Solutions Group, Children's Hospital Boston · Center for Biomedical Informatics, Harvard Medical School





You are not your user

Junior researcher: "I'm constantly writing the next grant."

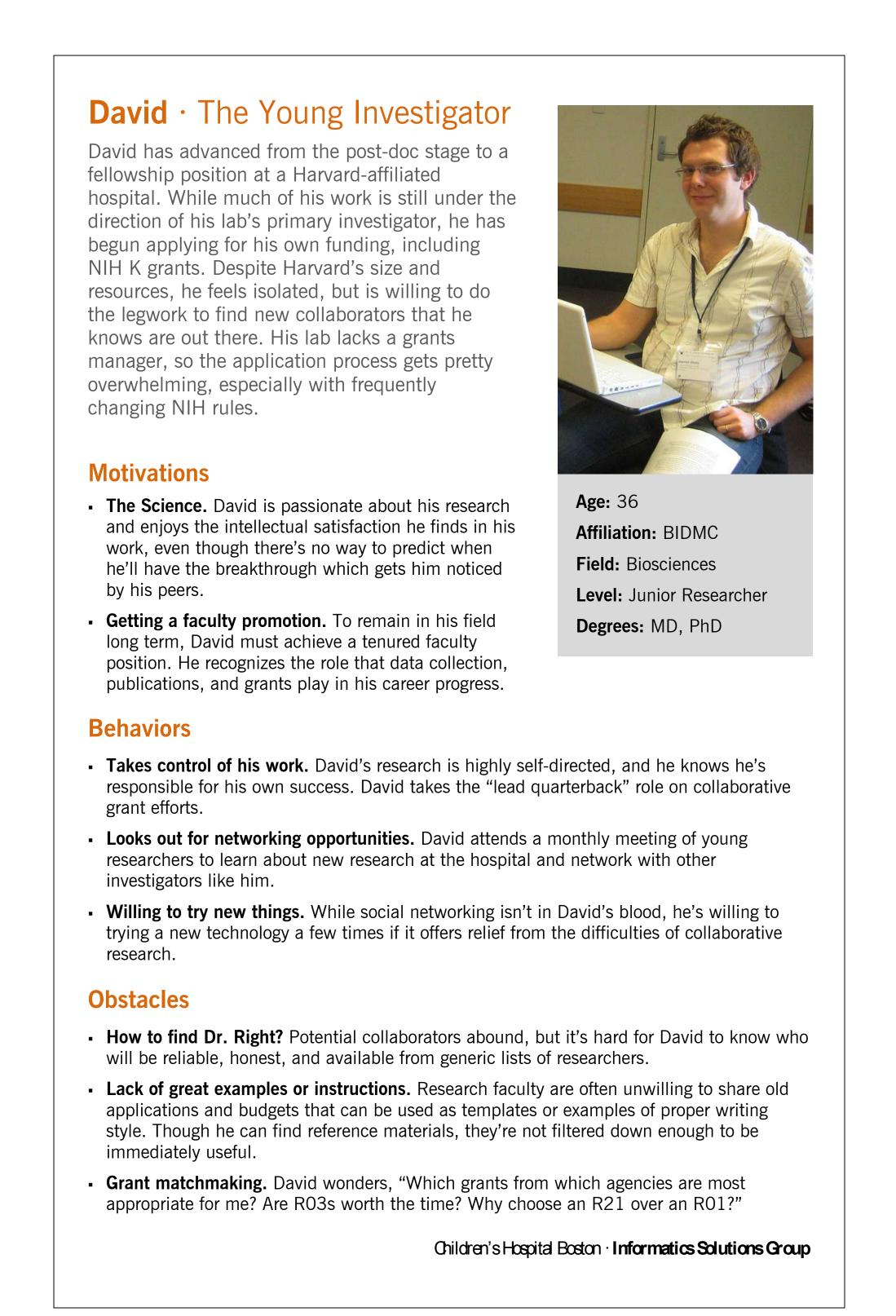
"I just focus on the science."

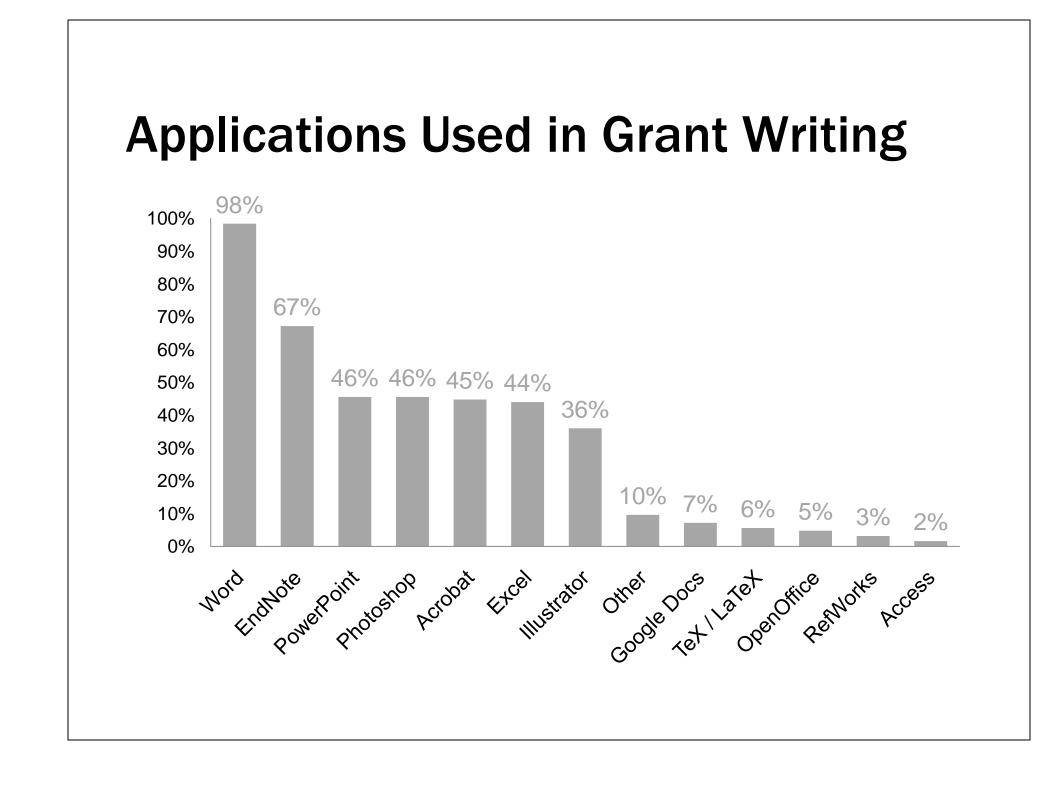
Software development frequently starts with an interesting idea and then jumps to writing code. Without a design process, project sponsors and software developers assume that their understanding of the problem adequately represents the needs of the intended users, and the result is software that fails to address users' needs and jeopardizes project success. A clear design methodology is particularly critical in applications dependent on high levels of collaboration, like Grant Central, the collaborative grant-writing platform we have developed for the Harvard CTSC.

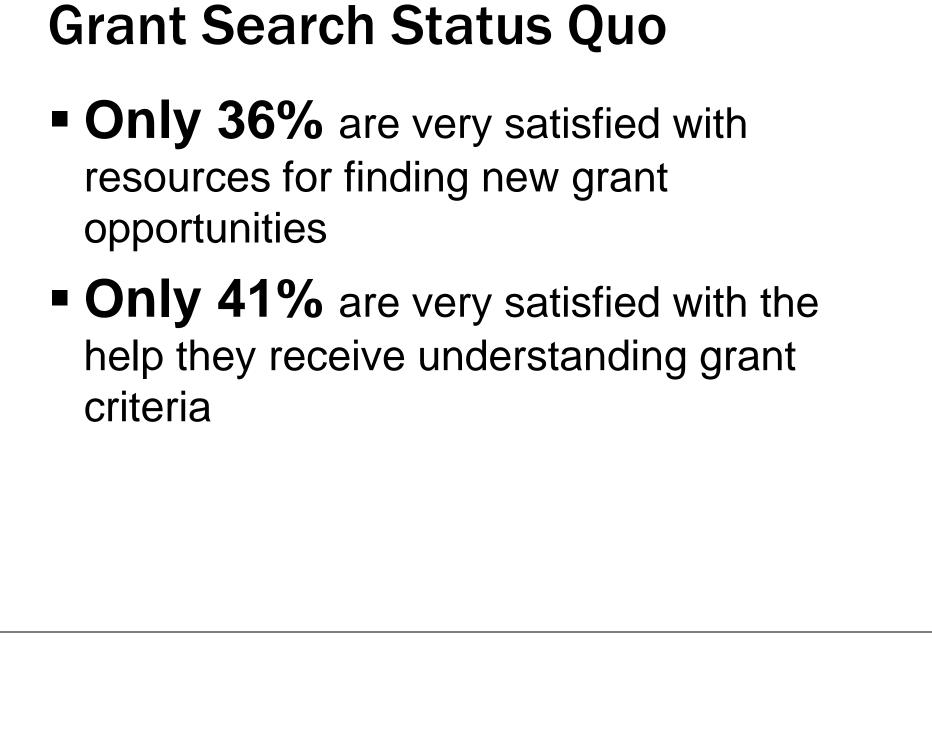
Junior researchers lack resources and experience to build effective research collaborations, find appropriate funding opportunities, and write successful grant applications - tasks that sustain their scientific inquiry and advance their academic careers.

Meet David

David, our primary persona, emerged from several weeks of ethnographic research, during which researchers and designers met with potential users for contextual interviews, a technique that combines open-ended interviewing with observation of the user's natural behavior. Research findings were synthesized into engaging artifacts: alignment diagrams, behavioral dimensions, and competitive analyses. This research drove the creation of personas, composite sketches of likely users based on the patterns which emerge from interviews. With these artifacts, we developed empathy toward users based on a common understanding of their motivations, behaviors, and obstacles.







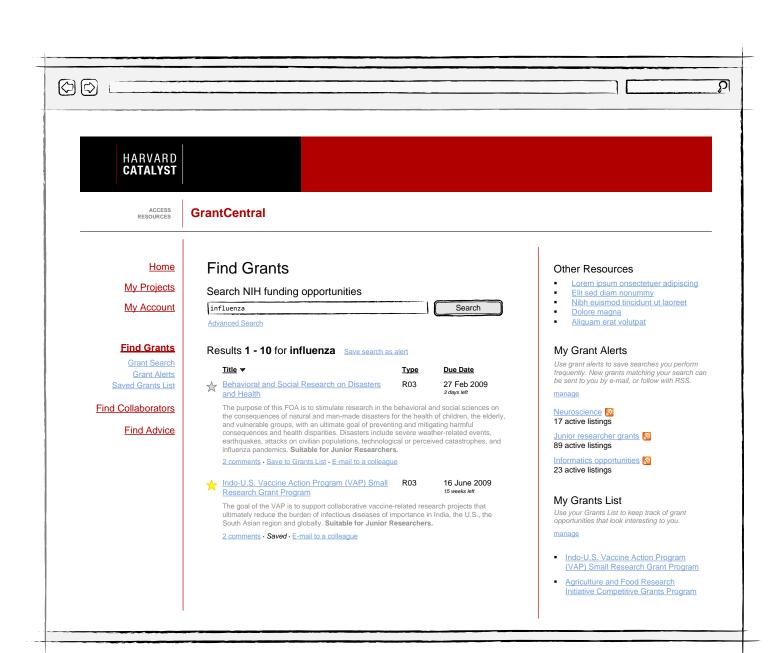
Idea Development	dea Development Team Building		Grant Writing					Post-Submission		
Brainstorm ideas Collect materials Write & Publish	Find grant Define resear opportunities roles	Identify potential collaborators Reach out to collaborators	Comprehend application requirements Write scien portions		Write and collect Other biosketches Support Forms	electronic grant S	Submit to Sponsored resubmit	Receive application score	Revise and resubmit	Request IRB approvals
Varies Waries wide	ely Varies Once	Occasionally	Frequently				Veek before due date Once or twice	Twice	Twice	Annually
Find people review writ	e to ing Hard to search	Don't know enough people No response	140 pages of specs Deadline	Lack of guidance	Chasing people down Chasing people down	Chasing people down	Deadlines			
	Untargetted mailings	Can't find right people Delayed response	Too many kinds of grants	Can't find prices	Very specific formatting Very specific	Slow and complex forms	Obstacle to DIYers			
		Need connections Not enough time								
Meetings	Grants administrator	Personal E-mail	NIH materials Co-collabora	Old grants from colleagues	Old grants from colleagues Old grants from colleagues		Grants dministrator Grants administrator		Grants administrator	Grants administrator
Conferences	Sponsored projects office	Mentors Phone	Sponsored projects office	Core Facilities	NIH templates NIH templates	Sponsored Sprojects office pro	Sponsored Sponsored projects office		Sponsored projects office	
	NIH website	Publications In-person visits	Old grants from colleagues	Budget templates	Grants Grants administrator					
			Grants administrator	Grants administrator						

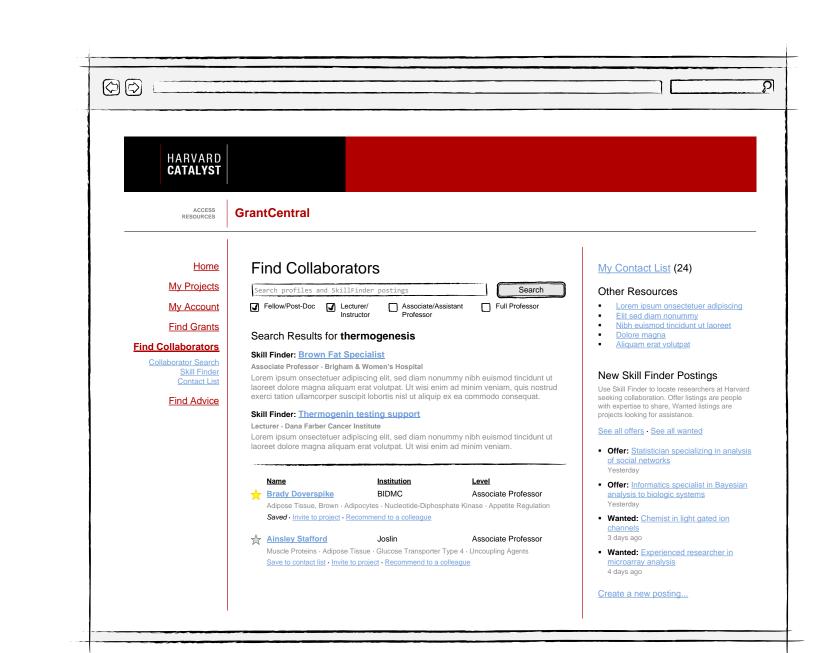
Feature Set

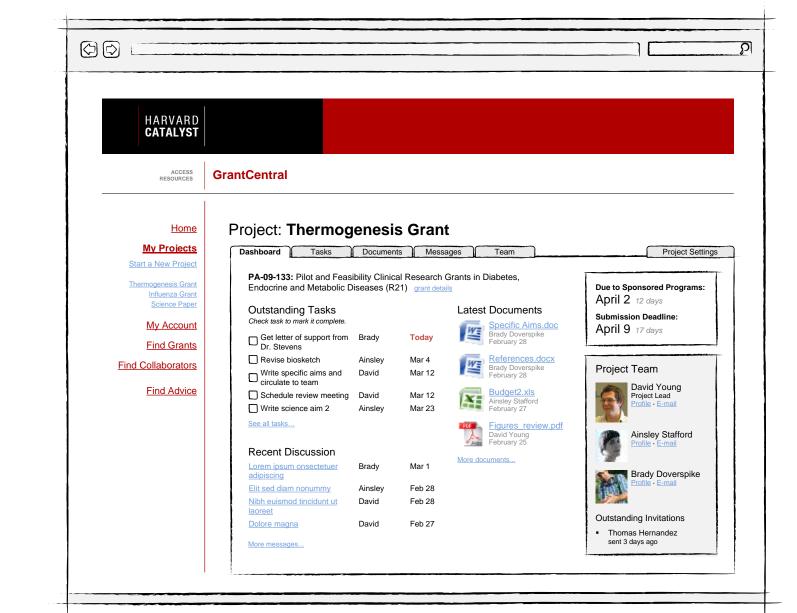
- Grant Search & Management
- Contact Management
- Document Sharing
- Task Management
- Project Discussions
- Biosketch Management
- Grant resource library
- Support forum
- Successful grant repository
- Collaborator Classifieds

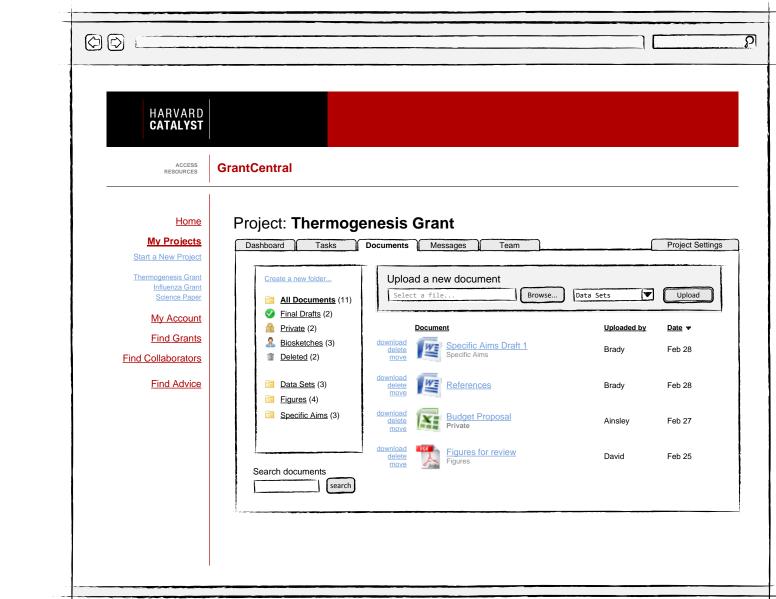
OUR SOLUTION: Grant Central helps junior researchers rapidly progress to the higher levels of collaborative proficiency demonstrated by senior colleagues through highly-tailored groupware and search tools that leverage existing Harvard resources. With Grant Central, researchers avoid the pitfalls associated with "going it alone," eliminate some of the tedium in the grant-writing process, and improve their grant applications' success rates.

Paper Prototyping









Iterative Implementation

