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| Fiscal Year: | FY 2018 | Task Last Updated: | FY 04/11/2018 |
| PI Name: | Carter, Dorothy Ph.D. | | |
| Project Title: | Project FUSION: Facilitating Unified Systems of Interdependent Organizational Networks | | |
| Division Name: | Human Research | | |
| Program/Discipline: | | | |
| Program/Discipline-- Element/Subdiscipline: | | | |
| Joint Agency Name: | | TechPort: | Yes |
| Human Research Program Elements: | (1) HFBP :Human Factors & Behavioral Performance (IRP Rev H) | | |
| Human Research Program Risks: | (1) HSIA :Risk of Adverse Outcomes Due to Inadequate Human Systems Integration Architecture (2) Team :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team | | |
| Space Biology Element: | None | | |
| Space Biology Cross-Element Discipline: | None | | |
| Space Biology Special Category: | None | | |
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| Comments: | The Principal Investigator (PI) was previously at the University of Georgia. | | |
| Project Type: | GROUND | Solicitation / Funding Source: | 2016-2017 HERO NNJ16ZSA001N-Crew Health (FLAGSHIP, OMNIBUS). Appendix A-Omnibus, Appendix B-Flagship |
| Start Date: | 02/12/2018 | End Date: | 02/11/2021 |
| No. of Post Docs: | | No. of PhD Degrees: | |
| No. of PhD Candidates: | | No. of Master' Degrees: | |
| No. of Master's Candidates: | | No. of Bachelor's Degrees: | |
| No. of Bachelor's Candidates: | | Monitoring Center: | NASA JSC |
| Contact Monitor: | Williams, Thomas | Contact Phone: | 281-483-8773 |
| Contact Email: | thomas.j.will1@nasa.gov | | |
| Flight Program: | | | |
| Flight Assignment: | | | |
| Key Personnel Changes/Previous PI: | | | |
| COI Name (Institution): | Contractor, Noshir Ph.D. (Northwestern University) Schecter, Aaron Ph.D. (University of Georgia) DeChurch, Leslie Ph.D. (Northwestern University) Shuffler, Marissa Ph.D. (Clemson University) | | |
| Grant/Contract No.: | 80NSSC18K0511 | | |
| Performance Goal No.: | | | |
| Performance Goal Text: | | | |

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| Task Description: | <p>As we set our sights on Mars, and other destinations beyond lower Earth orbit, we must enable extreme forms of teamwork across Spaceflight Multiteam Systems (MTSs) composed of teams that are separated by unprecedented degrees of space and time. In “Project FUSION: Facilitating Unified Systems of Interdependent Organizational Networks,” we propose a transformative research program rooted in the past decade of theory and research on MTSs, but breaking new ground in how MTSs are conceptualized and studied. Our programmatic research will illuminate the underlying forces that give rise to the psycho-social relational states (e.g., influence, trust, shared cognition) within and between teams that underpin mission success. These crucial relationships, and the drivers of their emergence, will need to be understood, monitored, and at times, circumvented using countermeasures in order to enable coordinated efforts across the Spaceflight MTSs involved in Long-duration Exploration Mission (LDEMs). This project constitutes a three-year, multi-pronged, multi-method, interdisciplinary project with three main research foci: (1) field investigations using NASA personnel; (2) development of an agent-based computational model capturing the drivers of relational states; and (3) controlled laboratory experiments and analog studies. Our research design is intended to be iterative. Findings within each foci will continually infuse the refinement and design of research in other foci. We will provide the following deliverables: (1) report explaining the most important MTS factors affecting the performance of the LDEM MTSs, (2) detailed countermeasure toolkit including a validated training countermeasure ready for operational implementation with astronauts and mission controllers, and a validated debriefing protocol, (3) report that includes specific recommendations for tools and technologies to support inter-team coordination in space MTSs, (4) composition recommendations based on the results of our simulation and analog studies, and (5) report including code and documentation needed to utilize our agent-based model (ABM).</p> |
| Rationale for HRP Directed Research: | |
| Research Impact/Earth Benefits: | |
| Task Progress: | New project for FY2018. |
| Bibliography Type: | Description: (Last Updated: 01/24/2024) |