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# PROCESS MODELING IN HUMANITARIAN SETTINGS: A CASE STUDY AND LESSONS LEARNED

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# Key Take-away\*



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To make process modeling 'work' in humanitarian settings, we need to address new concerns that reflect the unique nature of work in these settings.

\* This work is part of a larger effort for the study of homelessness that includes data analytics and predictive modeling among others.

Purao, S., M. Garfield, X. Gu, and P. Bhetwal. 2019. Predicting the Slide to Long-Term Homelessness. *IEEE Conference on Business Informatics*. Moscow, Russia.

# Domain: Homelessness



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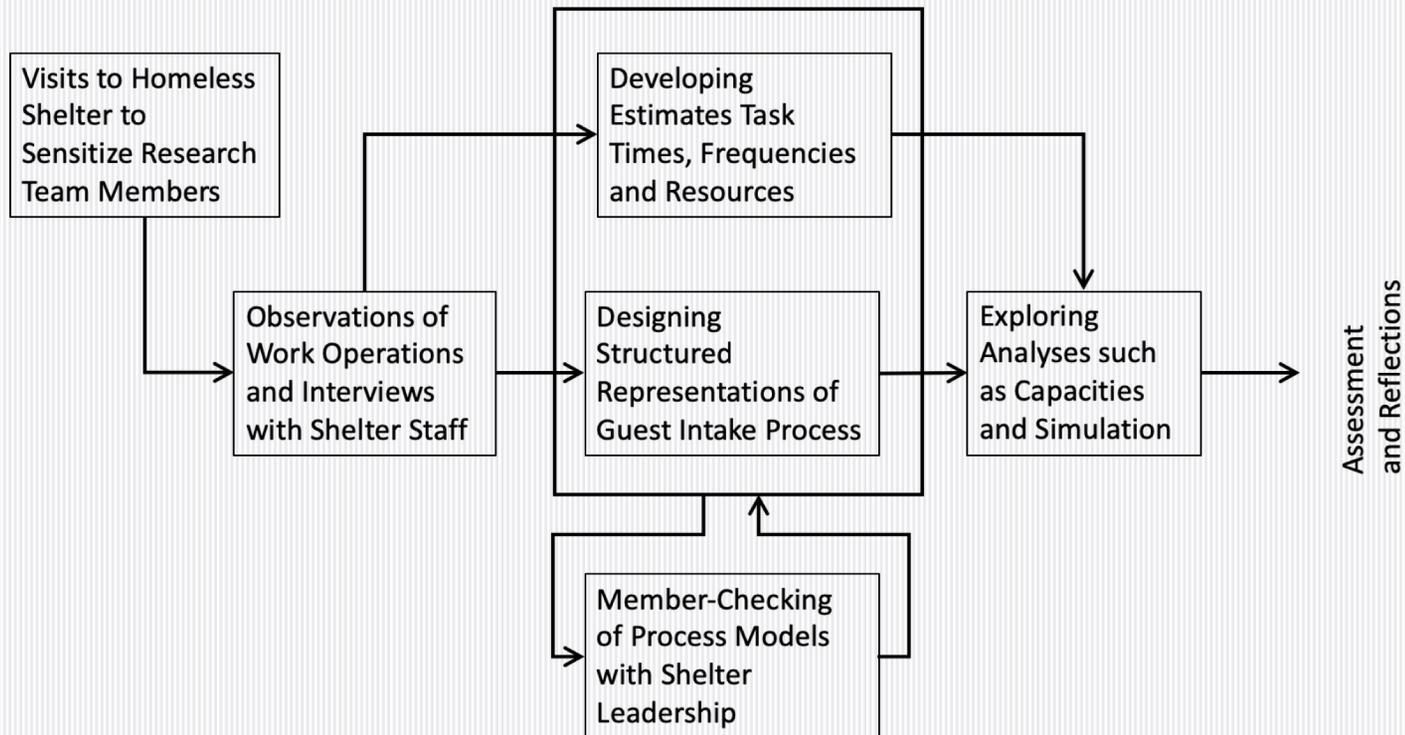
- Defining Homeless: “a person who lacks a fixed, regular, and an adequate nighttime residence” (HUD 2015)
- In the US, on a single night, more than half a million people were experiencing homelessness (Henry et al., 2018)
- An ecosystem of agencies, also called continuum of care or CoC (shelters, hospitals, correctional facilities) responds to the concerns of the homeless (Poole & Zugazaga, 2003).



# Research Approach



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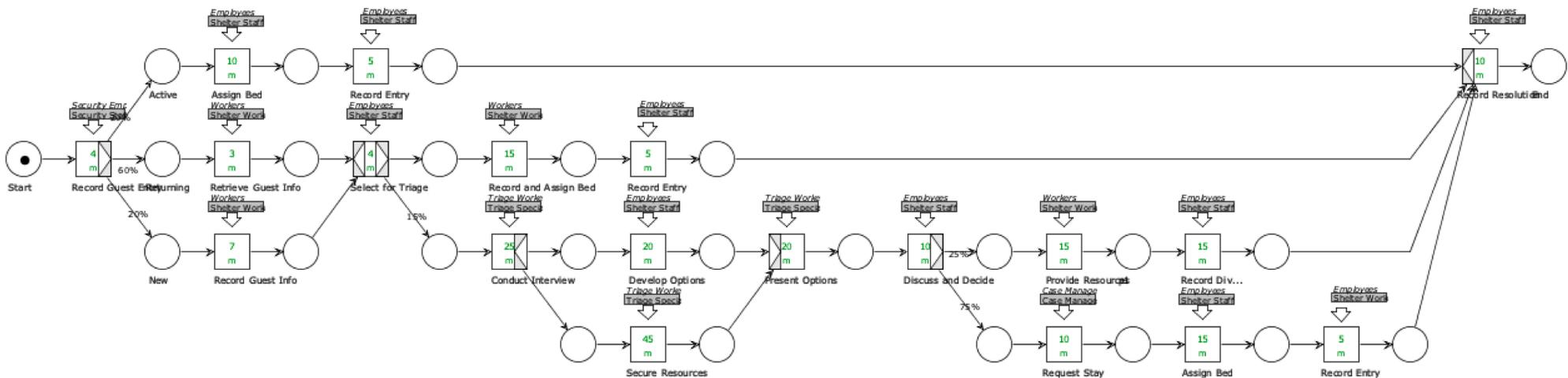
\* Acknowledgement: We acknowledge the partnership with Pine Street Inn, the largest homeless shelter in New England.

# An Exemplar Process



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## Guest Intake at a Homeless Shelter (part of the CoC)



A workflow-net  $N = (T, P, A)$ , where  $T$  is the set of tasks,  $P$  is the set of places and  $A$  is the set of arcs, and two special places,  $p_1$  and  $p_2$ , where  $\bullet p_1$  (pre-set) = null and  $p_2 \bullet$  (post-set) = null.

### Perspectives from Prior Work:

- Knowledge-Intensive Processes (Di Ciccio et al. 2015; Boissier et al. 2019)
- Case Management (Marin & Hauder 2015)

# New Challenges



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Challenge	Description (Unlike traditional processes ... )
Discretionary Tasks	Some tasks may be ignored / may not be completed because of incomplete knowledge, or reliance on external knowledge sources. Process execution would continue ...
Task Groups	Task sequence can be flexible due to incomplete knowledge, reliance on external knowledge sources, and limited resources. Process execution will reflect this ...
Knowledge Intensity	Some tasks need knowledge extraction to minimize limited visibility; and making tasks knowledge-driven to overcome limited prediction. Process execution must reflect this ...
Case Management	Process and case perspectives will need to be balanced because of limited visibility and limited prediction. Process execution will require attention to both ...

Our work continues with more data analytics, modeling and more.

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