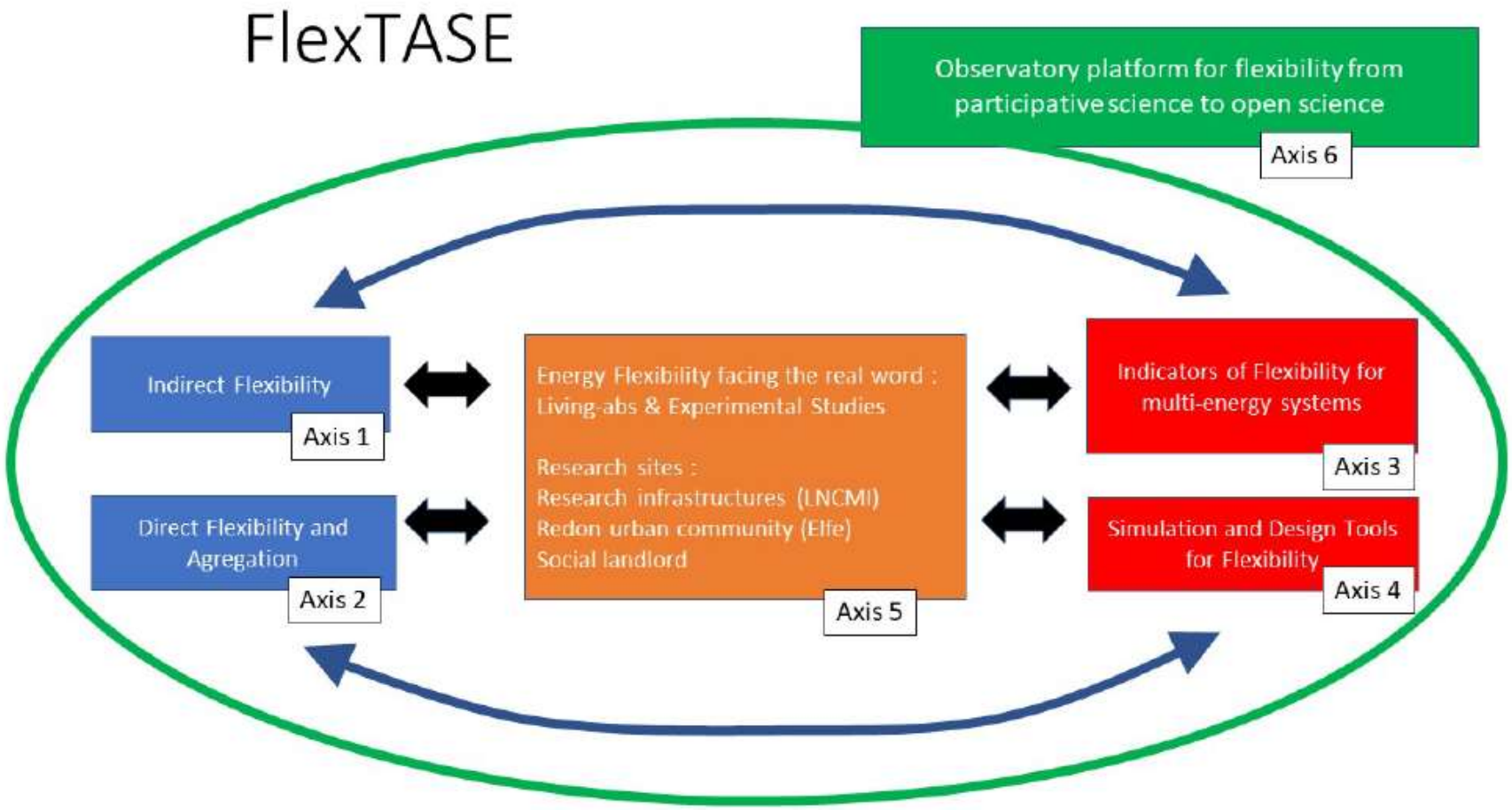
FlexTASE

Axe n°4 : Simulateurs et outils de la conception pour la flexibilité

Jérôme Le Dréau (La Rochelle Université), Benoît Delinchant (UGA)

[Axe 4] Simulateurs et outils de la conception pour la flexib



[Axe 4] Rappel de la proposition

Objectifs :

- Axe orienté outils modélisation
- Faciliter les échanges sur les méthodes de modélisation
- Capitaliser, valoriser, partager des outils (en cours ou en fin de thèse)

Contributions de l'axe 4 :

- Organisation de groupes thématiques
- Contributions individuelles aux livrables

Axis 4	T0+6	Review of literature of simluation and design tools for flexibility with dynamic simulation, and and optimisation approaches	Commun
	T0+12	Review of literature of simulation and design tools for flexibility in agent based approach	LRU-CEA?
	T0+24	Identification and evaluation of intra- and extra-urban energy flows and interdependencies (resources AND needs), recommendation of evolutionary trajectories to be promoted, characterization of local disparities/variabilities (spatial and temporal) and their influences on the global scale of the city	USMB?
	T0+48	Tools for dynamic simulation, optimization and for object approach, benchmark for simulation	Common?
	T0+48	An explicit modeling of the adaptive behaviour of occupants, and their strategies to balance thermal comfort and energy expenditure.	LRU?
	T0+60	An open-source tool to explicitly model occupants and the interactions with their environment	LRU-IETR?

[Axe 4] Rappel de la proposition

Livrables :

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KPIs :

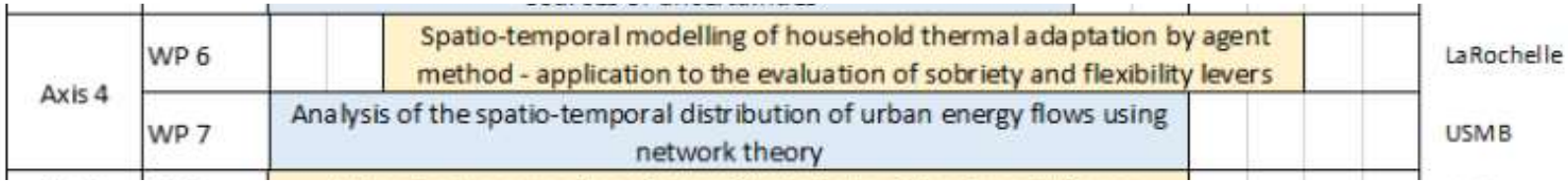
For the project, the main Key Performance Indicators are :

- Scientific publications and communications
- Articles for the general public and/or professional actors
- Number of funded PhD and post-doctoral positions
- Number of data sets integrated in the OTE observatory platform axis 6
- Number of households panels (cohorts) in the OTE observatory platform axis 6
- Number of benchmark produced by Flex-TASE
- Number of conferences / workshops organized by Flex-TASE (and their audiences)
- Number of open-source products
- Open source datasets produced
- Open-source code/library produced
- Open-source use and benchmarks produced
- Number/percentage of co-supervised theses
- Number/percentage of co-authored publications between laboratories/signatories
- Exchange visits by doctoral students

[Axe 4] Rappel de la proposition

WP identifiés dans la proposition :

- WP4, **WP7** : deployment of indicators in simulation tools (=> lien avec Axe 3)
- **WP6**: validation of the existing agent-based model (desire-driven) with data and field measurements (from WP1), a explicit modelling of the flexible and adaptive behaviour of occupants for different archetypes
- WP5: pre-design tools for flexiblity



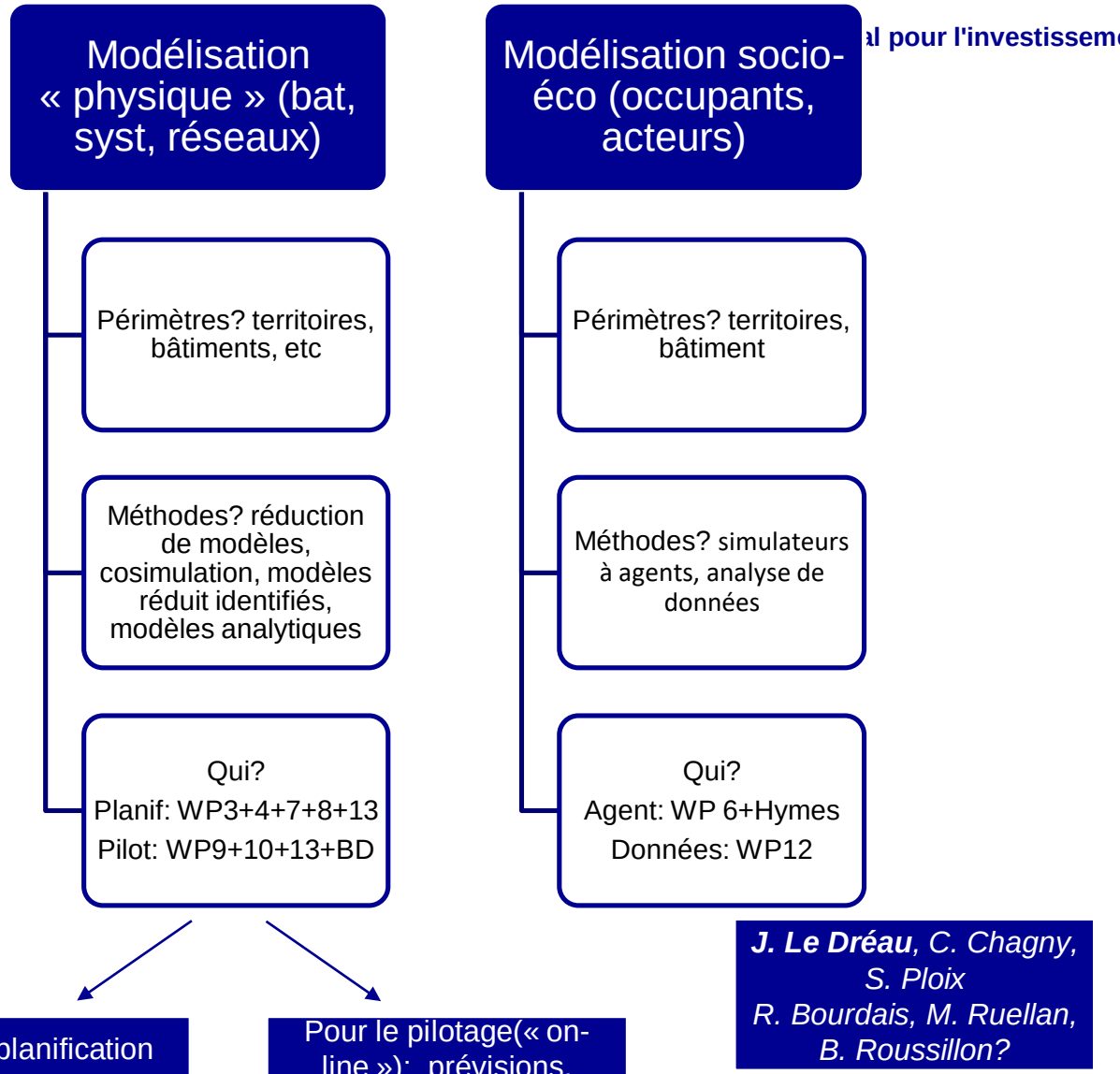
… mais plus de WP à intégrer ?

	Qui ?	Usages flex	Echelle			Type de modèle			Commentaire
			Territoire	Bâtiment(s)	Occupants	Techno	Energétique	Socio	
[WP3] Adaptation des modes de production et de consommation…	Dorothée Charlier (USMB)	Clim & PV	x	x		x			modélisation économiques
[WP4] Adaptabilité de la production énergétique solaire et de la demande	Christophe Ménézo (USMB)	PV	x	x		x	x		Optimal sizing over space and time
[WP6] spatio-temporal modelling of household thermal adaptation…	Jérôme LE DREAU (LRUniv)	Chauffage résidentiel		x	x		x	x	Modalisation agent, multi-zones
[WP7] Analysis of spatio-temporal distribution of urban energy flow…	Laurent VUILLON (USMB)	Sources d'énergie	x				x		Interdépendances intra- et extra-urbaines
[WP8] Decision-making of flexibility provision…	Simon CAMAL (Mines)	Adéquation prod/conso	x				x	x	Uncertainties, forecasting/optim, decision-aid
[WP9] Modélisation robuste des bâtiments et leurs systèmes thermiques	Antoine LECONTE (CEA)	Chauffage		x			x		MPC bât/quartier, optim robuste
[WP10] Modèle dynamique et hiérarchisé de flexibilités directes	Hervé GUEGUEN (IETR)	Général		x			x		VPP, modèle dyn, arch hiérarchisée de pilotage anticipatif
[WP12] Modèles dynamiques des Nudges énergétiques	Romain BOURDAIS (IETR)	Nudges			x			x	Rationalité, Clustering – Définition d'archétype
[WP13] Optimisation du design et de la gestion	François AUGER (IREENA)	ACC		x		x	x		Optim, incertitude, Dimensionnement, répartition
PEPR HyMes, PEPR Fine4Cast, H2020 Flex-RICAN	Benoit DELINCHANT (UGA)	Multiples, quartier Grenoble	x				x		Optim: COFEE with OMEGALPS (MILP) & noload (non-linear optimization)
HyMES (PEPR TASE PC1)	Clotilde CHAGNY (CEA I-TESE)	VE						x	agent
A définir	Stéphane								

[Axe 4] Groupes thématiques ?

Au sein de ces groupes, plusieurs manières de collaborer:

- Echanges d'état de l'art, de méthodologies
- Travaux en commun sur un outil (open-source ou non) ?
- Travaux en commun sur un cas d'étude ? sur l'analyse des résultats (indicateurs, cf. Axe 3) ?
- Forme de contribution à l'Axe 4: Outil ? Contribution à un livrable ?



[Axe 4] Actions en cours et à venir

Actions en cours :

- Echanges/ questionnaires/ entretiens pour discuter de la pertinence de l'organisation (et des objectifs)
- Synchronisation avec PEPR Hymes:
  - échange: communauté agent & énergie
  - besoin similaire en données
  - différents territoires et récolte de données, valider une méthode

WP initiés:

- thèse commencée le 9 octobre, le WP7 (Theorie des graphes Thèse entre Locie et Lama), Martin Rialhe Badet
- 1 stage sur le développement d'indicateurs de flexibilité (G2ELAB LOCIE): Yolan Blanchon, Axe 4

Livrable à T0+6 :

Annexe 2: Liste des livrables à T0+6

- Axe 1:
  - Description of experimental design and protocols, raw data sets
- Axe 2:
  - State of art of approach for direct flexibility
- Axe 3:
  - Review on the state of the art on indicators, development of new indicators and dashboards, implementation on case studies, benchmarking to evaluate the indicators, deployment plan for solar energy on different scales
- Axe 4:
  - Review of literature of simulation and design tools for flexibility with dynamic simulation, and optimisation approaches
- Axe 5:
  - RAS
- Axe 6:
  - Observation methodology from participative science to open science for flexibility (open data, open source)