CWI

Probability, Networks and Algorithms (PNA)

Self evaluation CWI 2005-2010

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<u>Overview</u>:

1. Dynamics in composition

2. Position, cohesion, viability and ambition

Composition of PNA

Probability, Networks and Algorithms (PNA)

1. **Algorithms, Combinatorics and Optimization (PNA1)**

2. **Probability and Stochastic Networks (PNA2)**
   - merger in 2006

3. **Signals and Images (PNA4)**
   - moved to the SEN cluster in 2010

4. **Cryptography (PNA5)**
   - started as a pilot in 2004

5. **Algorithms and Complexity (PNA6)**
   - joined PNA in 2010

Flexibility: dynamic group structure in response to new challenges and opportunities

Position of PNA

Probability, Networks and Algorithms (PNA)

Algorithms, Combinatorics and Optimization	Probability and Stochastic Networks	Cryptography	Algorithms and Complexity
PNA1	**PNA2**	**PNA5**	**PNA6**
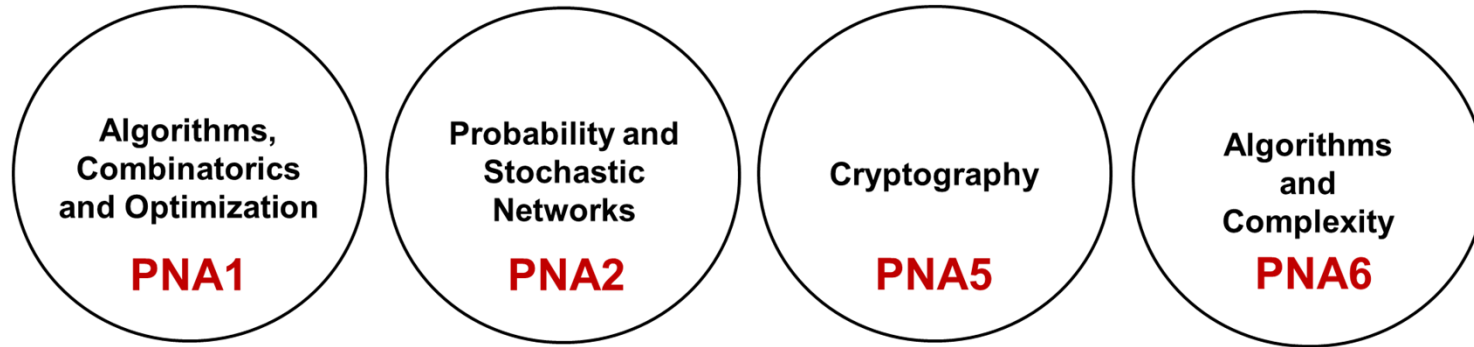
<u>**Mixture**</u> **of fundamental / curiosity-driven research and research motivated by applications**
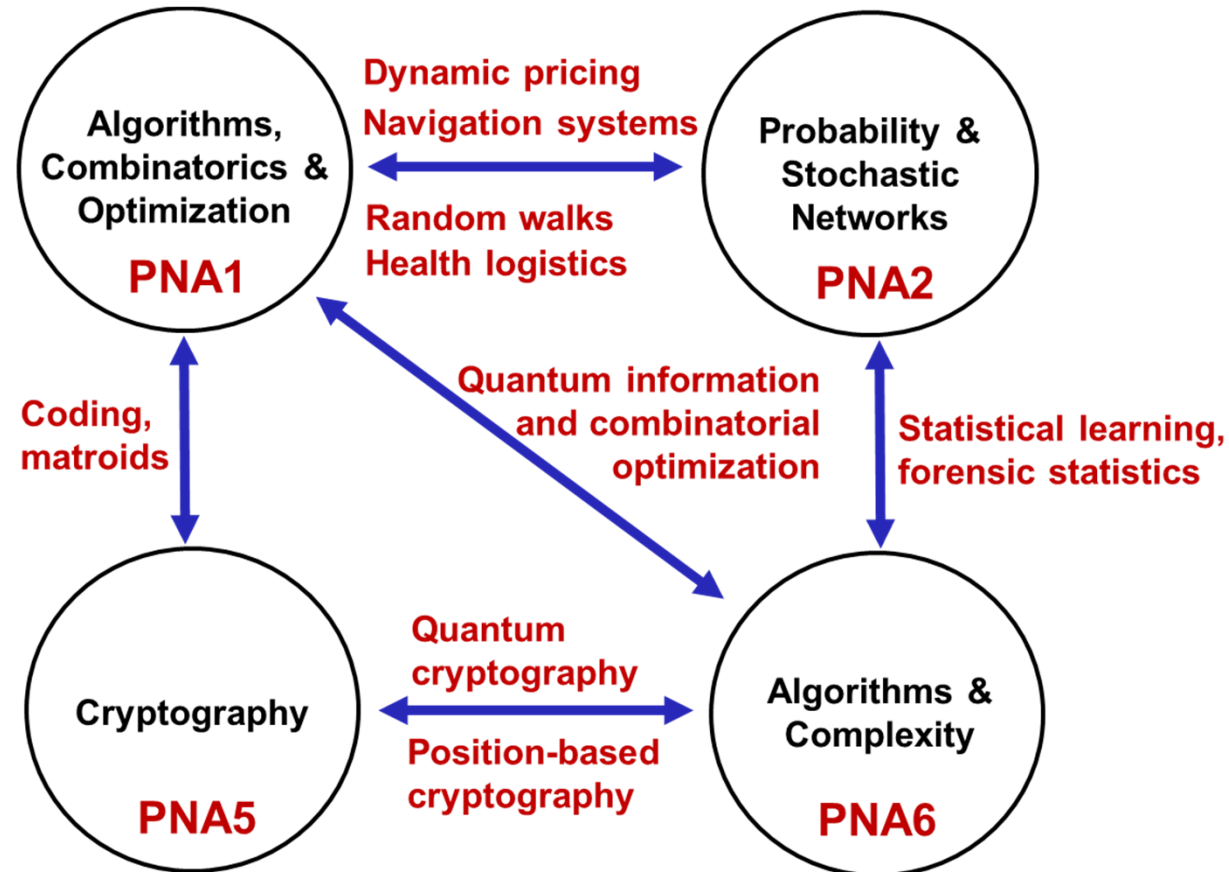
Strong contribution to <u>**all four research themes**</u>
- societal logistics
- data explosion and learning
- life sciences
- software as service

Broad international network of contacts, both in academia and industry

Cohesion within PNA

Probability, Networks and Algorithms (PNA)

Cluster structure facilitates <u>new</u> and <u>multi-disciplinary</u> research lines

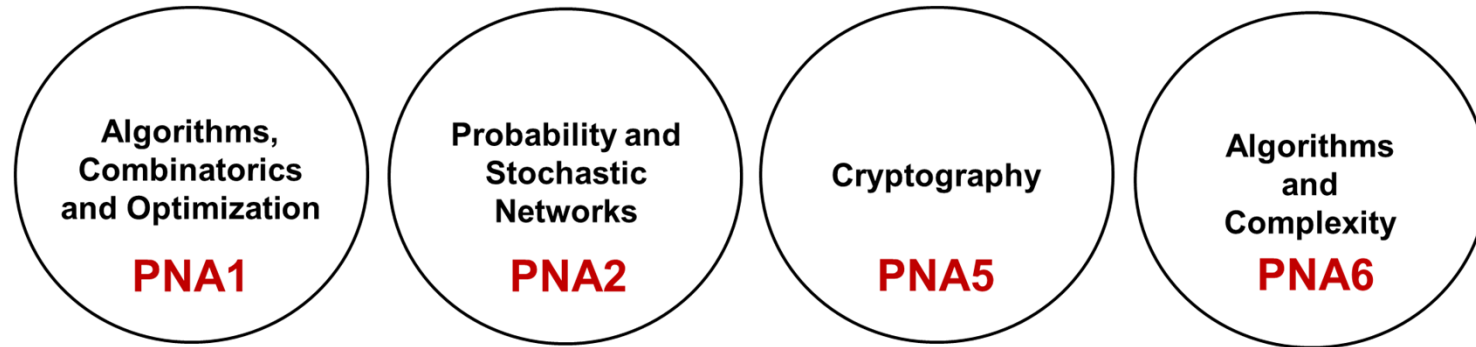Collaborations with CWI-groups outside of PNA: SEN1, SEN3, SEN4, MAC4

Viability of PNA

Probability, Networks and Algorithms (PNA)

- All groups are internationally <u>leading</u> and <u>visible</u>

- All groups obtain <u>prestigious research grants</u>
    - e.g., Spinoza, ERC, VICI 3x, VIDI 4x, VENI 6x, Sofya Kovalevskaya grant, NWO Free Competition 12x, NSF, ESF

- All groups are <u>financially sound</u>

- Senior staff is talented and relatively <u>young</u>

- All groups are well-imbedded in internal and external communities and contact networks

- <u>Flexibility</u>: fast turn-over of group and cluster leaders

- Ample possibilities for <u>multi-disciplinary</u> research, many collaborations within and outside of CWI

Ambition

Probability, Networks and Algorithms (PNA)

Algorithms, Combinatorics and Optimization **PNA1**	Probability and Stochastic Networks **PNA2**	Cryptography **PNA5**	Algorithms and Complexity **PNA6**

- **<u>Secure</u> and <u>expand</u> internationally leading positions of the individual groups**

- **Expand activities in the context of the <u>research themes</u> societal logistics, life sciences, data explosion and software as service**

- **Increased focus on <u>cross-fertilizing</u> our shared knowledge on fundamental mathematics**