

Metrics for Simplifying and Standardizing an Enterprise Architecture: An Experience Report from an Oil and Gas Organization

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ECOPETROL S.A. – Oil and Gas Company

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1st

Colombian
Company

1M

Barrels 2015

4th

Latin American
Oil and Gas Company



Top

40

Top World
Oil and Gas Companies

How can IT contribute?



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- # 24 hours



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[illegible]

Quality Model Development Process

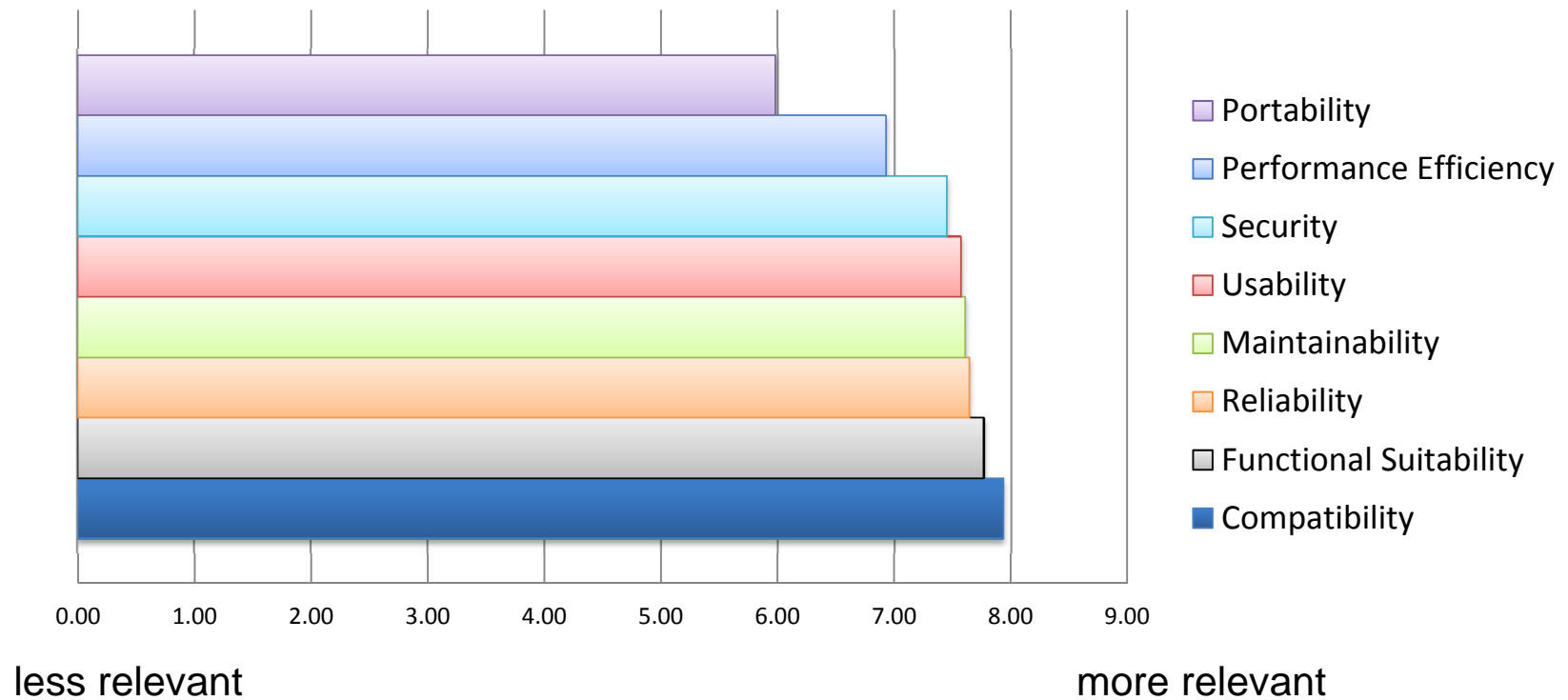
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- Survey
 - ISO25010 quality characteristics
 - Type of software
 - Programming languages
 - Areas addressed
- On-site workshop
 - GQM workshops
- Final comprehensive quality model



Survey Results

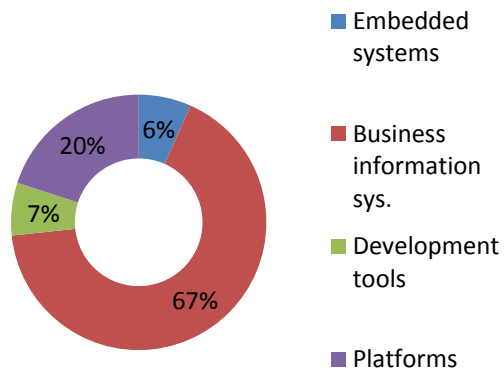
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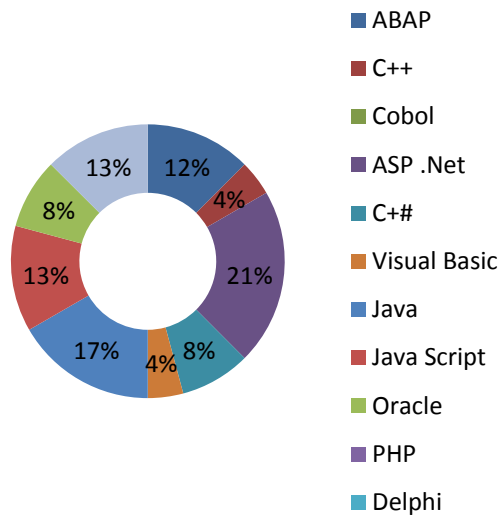
Survey Results

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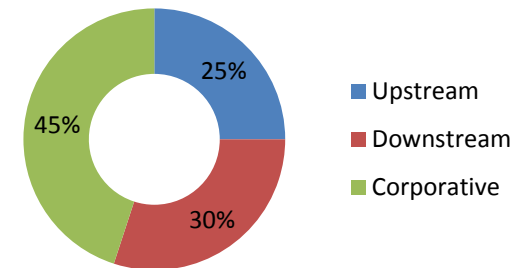
Which type of software do you develop?



What are the primary programming languages?



Which areas are addressed by your products?



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- What do you think it should not happen?**
What causes you the most problem?

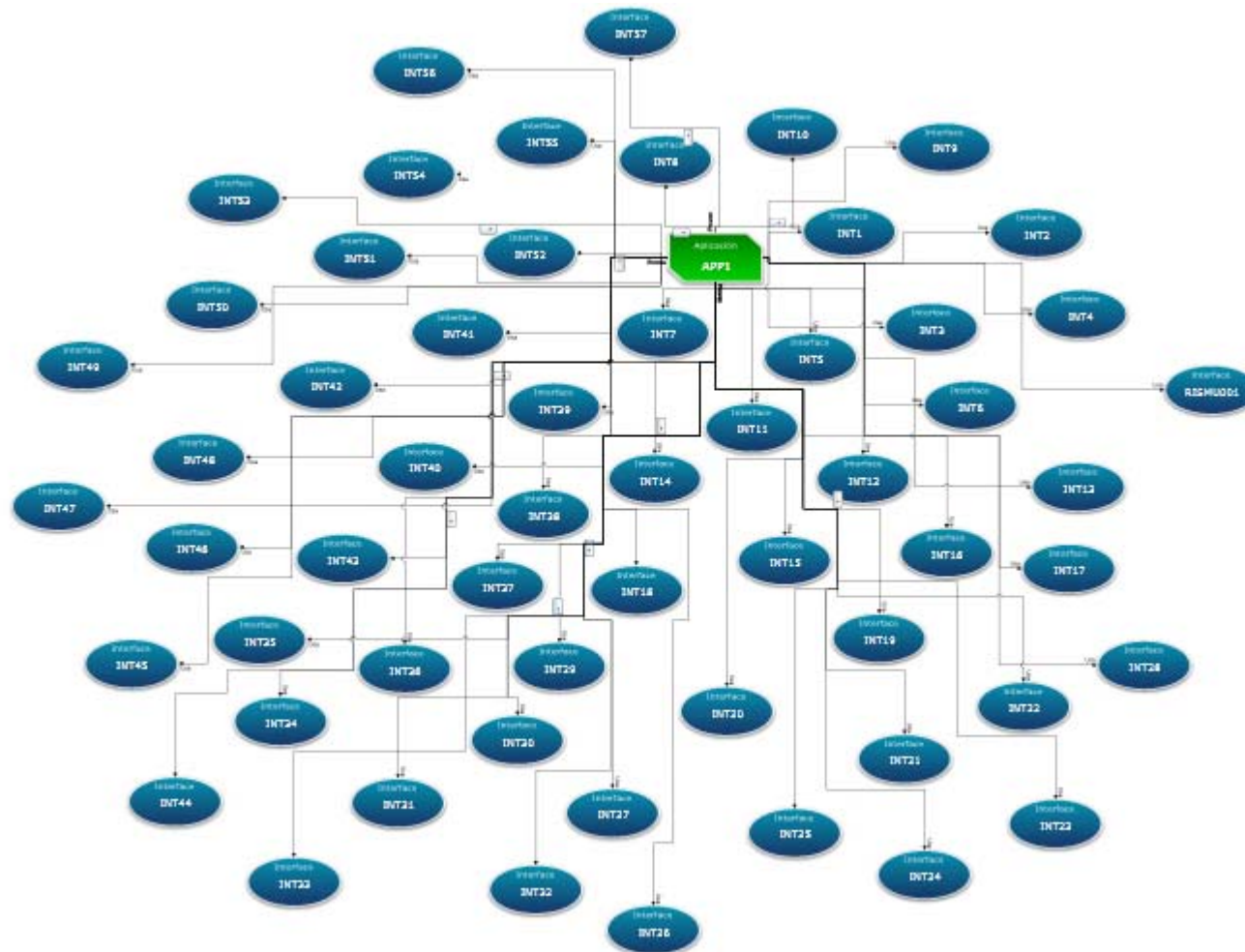
- Result: list of issues that should be mitigated
- From major issues quality goals were derived



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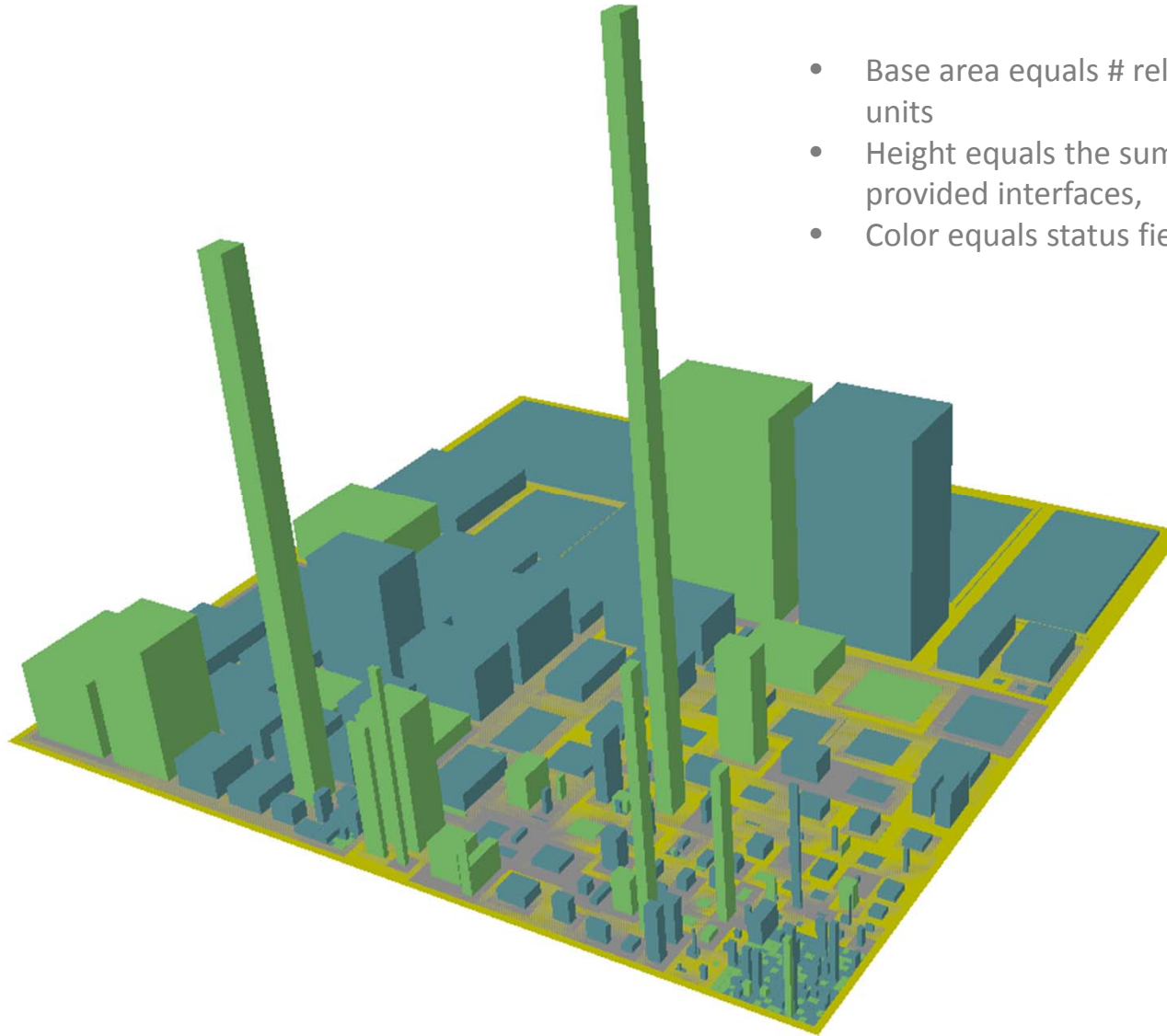
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G7: Enterprise Architecture Coupling

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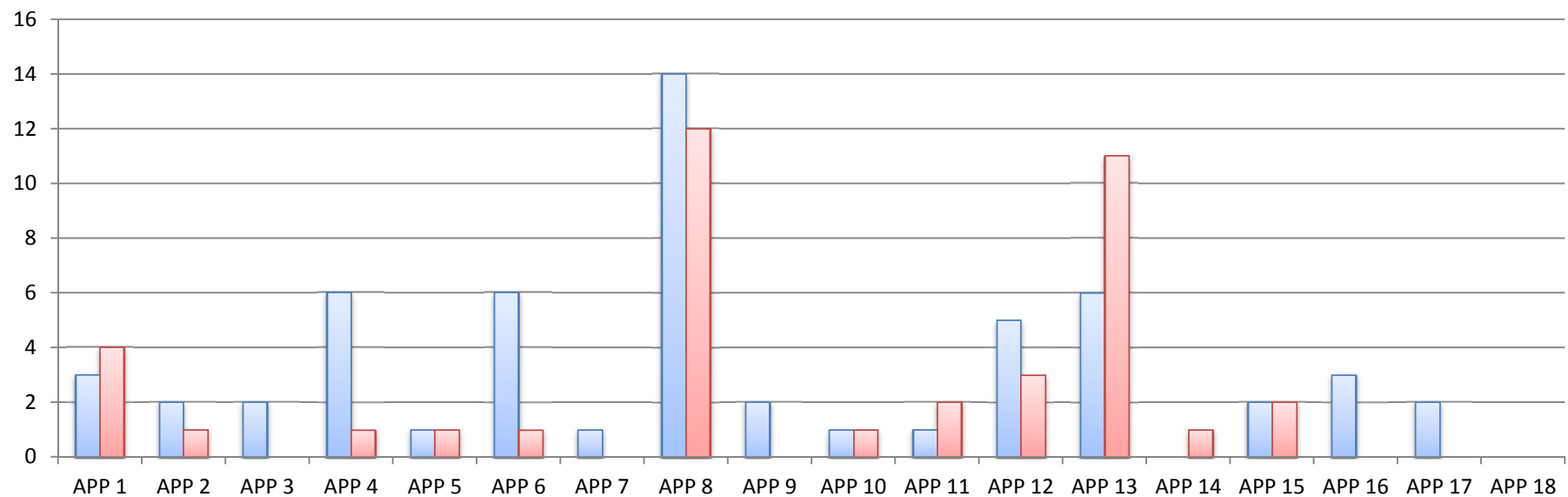
- Base area equals # related information units
- Height equals the sum of used and provided interfaces,
- Color equals status field of application



G4: Design External Dependencies

Application Coupling

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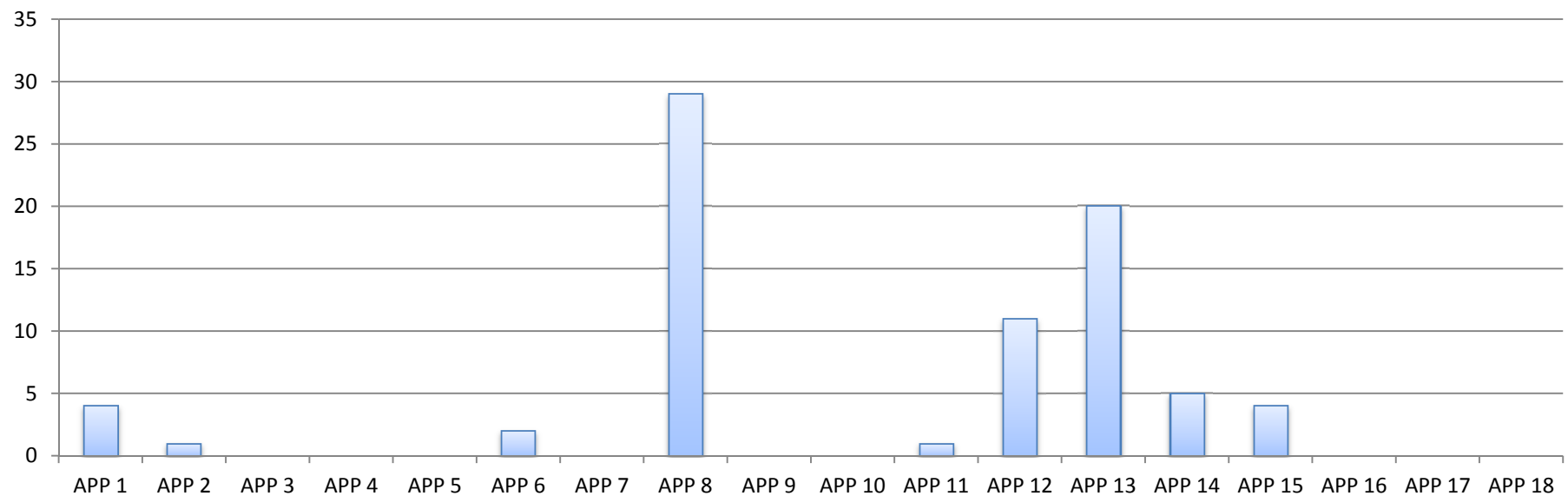
- Number of afferent applications (which deliver input through used interfaces)
- Number of efferent applications (which use output through provided interfaces)



G4: Design External Dependencies

Provided Interfaces not used by other Applications

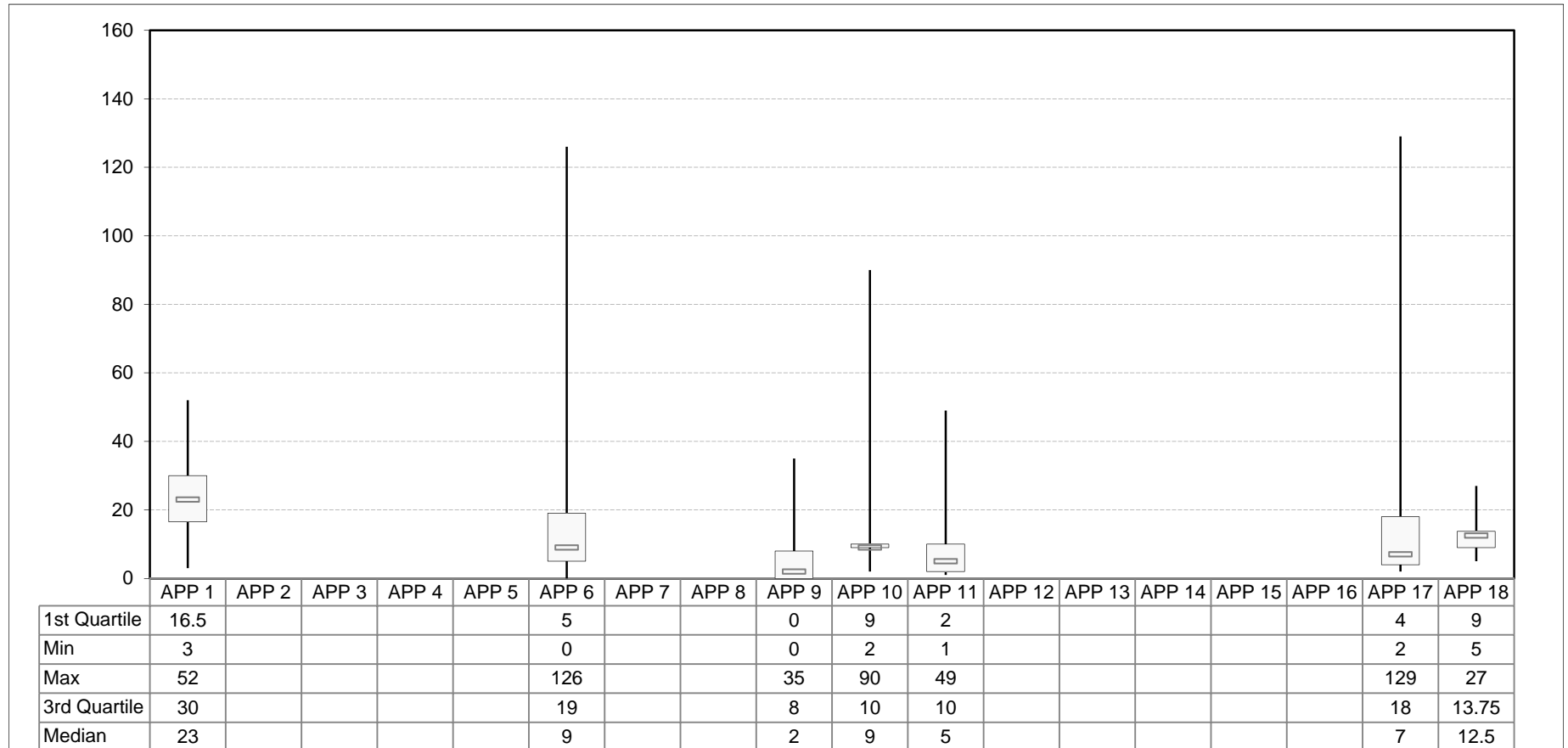
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G3: Design Internal Dependencies

Coupling Between Objects

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The diagram illustrates the components of an oil and gas business, centered around the **Chain**. The **Chain** is represented by a large green box, which contains a smaller blue box labeled **Finance**. The **Chain** box is flanked by **Supply** on the left and **Management** on the right. Surrounding the central **Chain** box are nine other boxes, each representing a different business function:

- Production** (top left)
- Refining** (top center)
- Logistics and Transportation** (top right)
- Exploration** (middle left)
- Marketing** (middle right)
- Human Resources** (bottom left)
- Asset Management** (bottom right)
- Procurement** (bottom left)
- Project Management** (bottom center)
- HSE** (bottom right)

- Integrated Platform
- Industry Platforms
- Mixed Platforms (Third parties/ In-house)
- Applications Redundancy



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Mesuring
Simple
 The
 Provide
 Tradition
 therefore
Pro
 and com

identifying the major platforms and moving towards them
(G7: EA coupling)

Simplification

Provided the baseline for simplification and standardization goals

Providers have to apply the model and comply with the baseline in order to be accepted





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