Proposal for an open and democratic Design Rule format

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Design rules today are very limited
What design rules were made for ...

Simplify communication
Lower risks of faulty productions
Make manufacturing more efficient
What design rules are today...

Are not consistent across EDA apps
Do not check dependent constraints
Exclude assembly & sourcing rules
The result ...

Unnecessary communication
Faulty productions
Costly redesigns
Let’s take step back, and see who is involved in this process
Engineer
A design format that is ...

open and commonly accepted
extensible and flexible
backwards-compatible
Basic implementation

**YAML based file** – human editable

Rules have a severity level & a name

Rule sets chain rules with logical “AND”

List of rules is managed in central repo
What if...

Octopart would support ODR?
- name: "All parts should be available at my favorite distributor"
  desc: "Because of the discount"
  severity: info
  ruleset:
    - name: part_distributor
      value: "No-Place-for-Ads"

- name: "Parts shouldn't hit EOL for the next 2 years"
  desc: "It should be possible to source parts for this project for at least the next 2 years"
  severity: warning
  ruleset:
    - name: part_eol
      type: duration_years
      value: 2
    - name: part_type
      type: 'U'
What if...

KiCad would support ODR?
- name: "Check clearance of signals, minimum"
  desc: ""
  severity: warning
  ruleset:
  - name: clearance_track_to_track
    desc: "Clearance between tracks"
    type: um
    value: 70
  - name: clearance_track_to_pad
    desc: "Clearance between tracks and pads"
    type: um
    value: 70
  - name: clearance_track_to_via
    desc: "Clearance between tracks and vias"
    type: um
    value: 70

- name: "Check clearance of signals, recommendation"
  desc: ""
  severity: warning
  ruleset:
  - name: clearance_track_to_track
    type: um
    value: 200
  - name: clearance_track_to_pad
    type: um
    value: 200
  - name: clearance_track_to_via
    type: um
    value: 200
What if...

OSHPark or AISLER would support ODR?
- **name**: "Check copper thickness for multilayer stackup"
  **desc**: ""
  **severity**: warning
  **ruleset**:
  - **name**: pcb_copper_thickness_outer_layer
    **desc**: "Copper thickness on the outer layers of the PCB"
    **type**: um
    **value**: 35
  - **name**: pcb_copper_thickness_internal_layer
    **desc**: "Copper thickness on the internal layers of the PCB"
    **type**: um
    **value**: 18
What if...

My-Assembly Inc. would support ODR?
- name: "Check panelizing parameters"
  desc: "For proper handling on the SMT line"
  severity: warning
  ruleset:
    - name: spacing_to_pcb_edge
      type: mm
      value: 2
    - name: smt_rail_width
      type: mm
      value: 250
    - name: smt_rail_frame_width
      type: mm
      value: 5

- name: "Check for assembly capabilities"
  - name: technology_smt
    type: boolean
    value: true
  - name: technology_tht
    type: boolean
    value: false
  - name: parts_on_top
    type: boolean
    value: false
  - name: parts_on_bottom
    type: boolean
    value: true
The current state of this project ...

*initial support from manufacturers*

*planned integrations into Joseph & Gerbv*
The obvious Todo list ...

- Building converters for existing formats
- Developing integrations for EDA Apps
- Finding more manufacturing partners
https://odr.group

github.com/odrgroup