

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

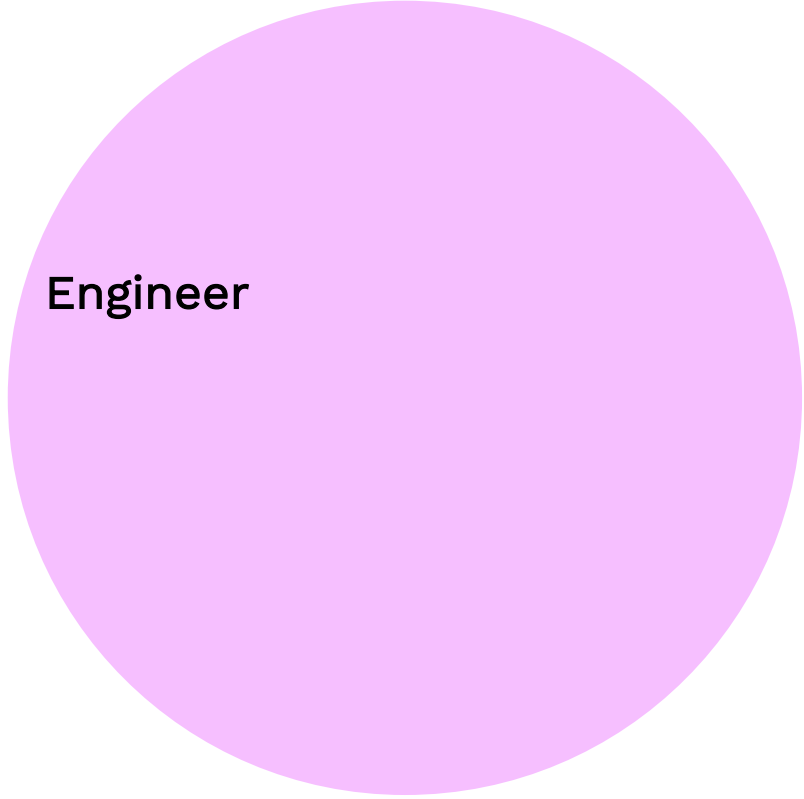
The result ...

Unnecessary communication

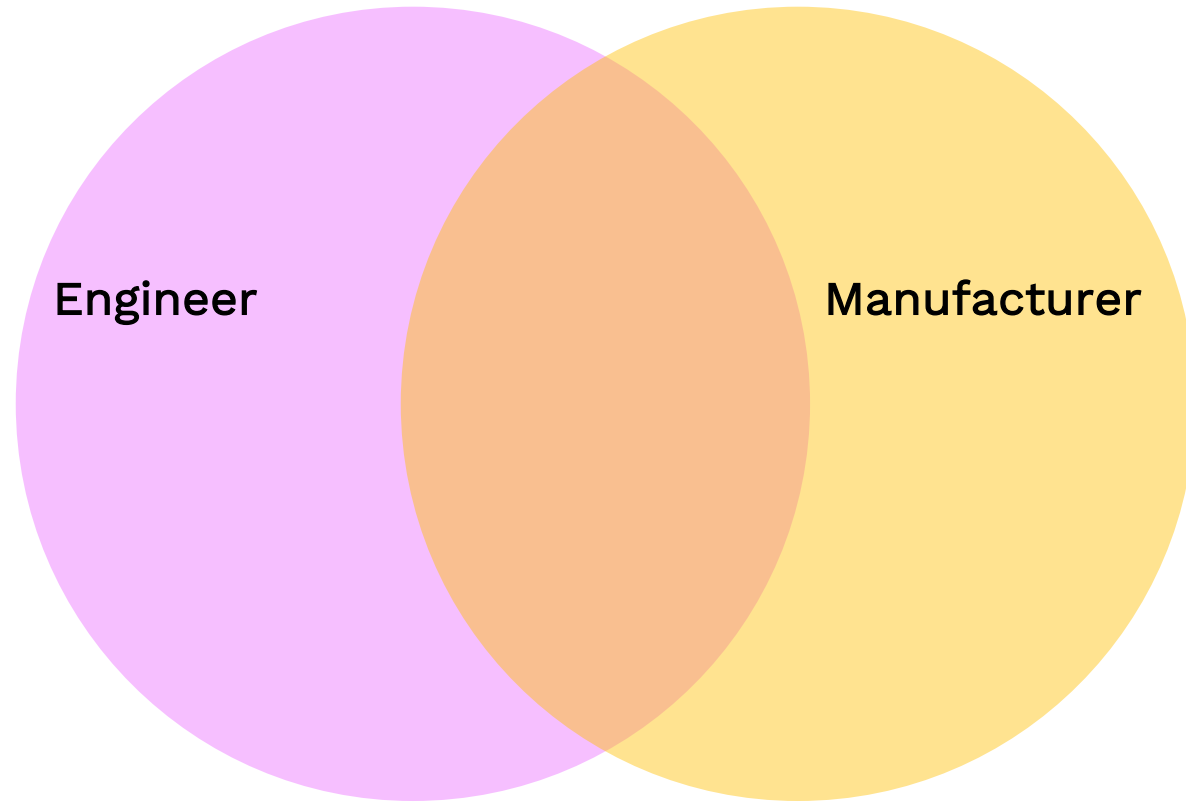
Faulty productions

Costly redesigns

**Let's take step back, and see
who is involved in this process**

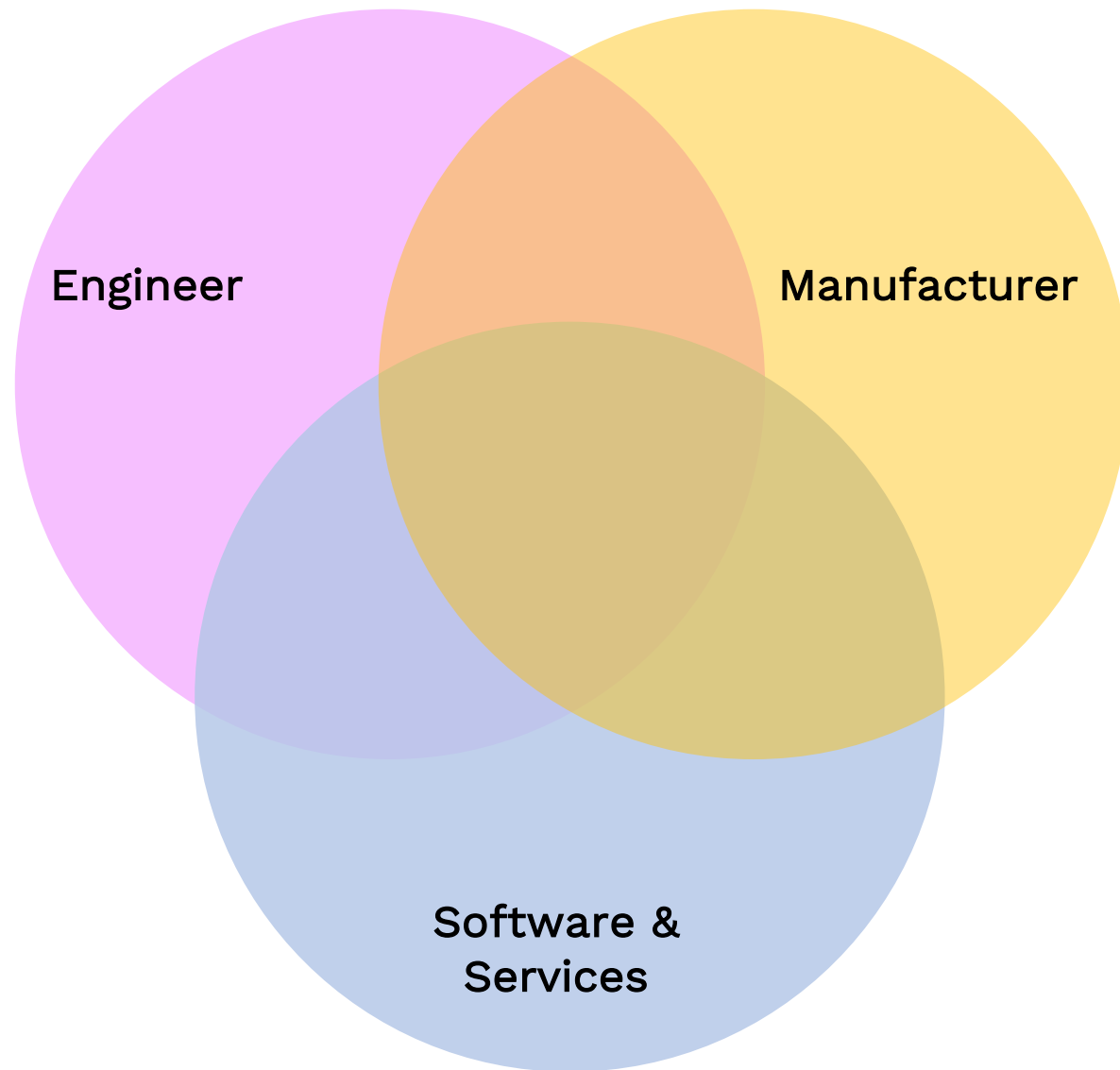


Engineer



Engineer

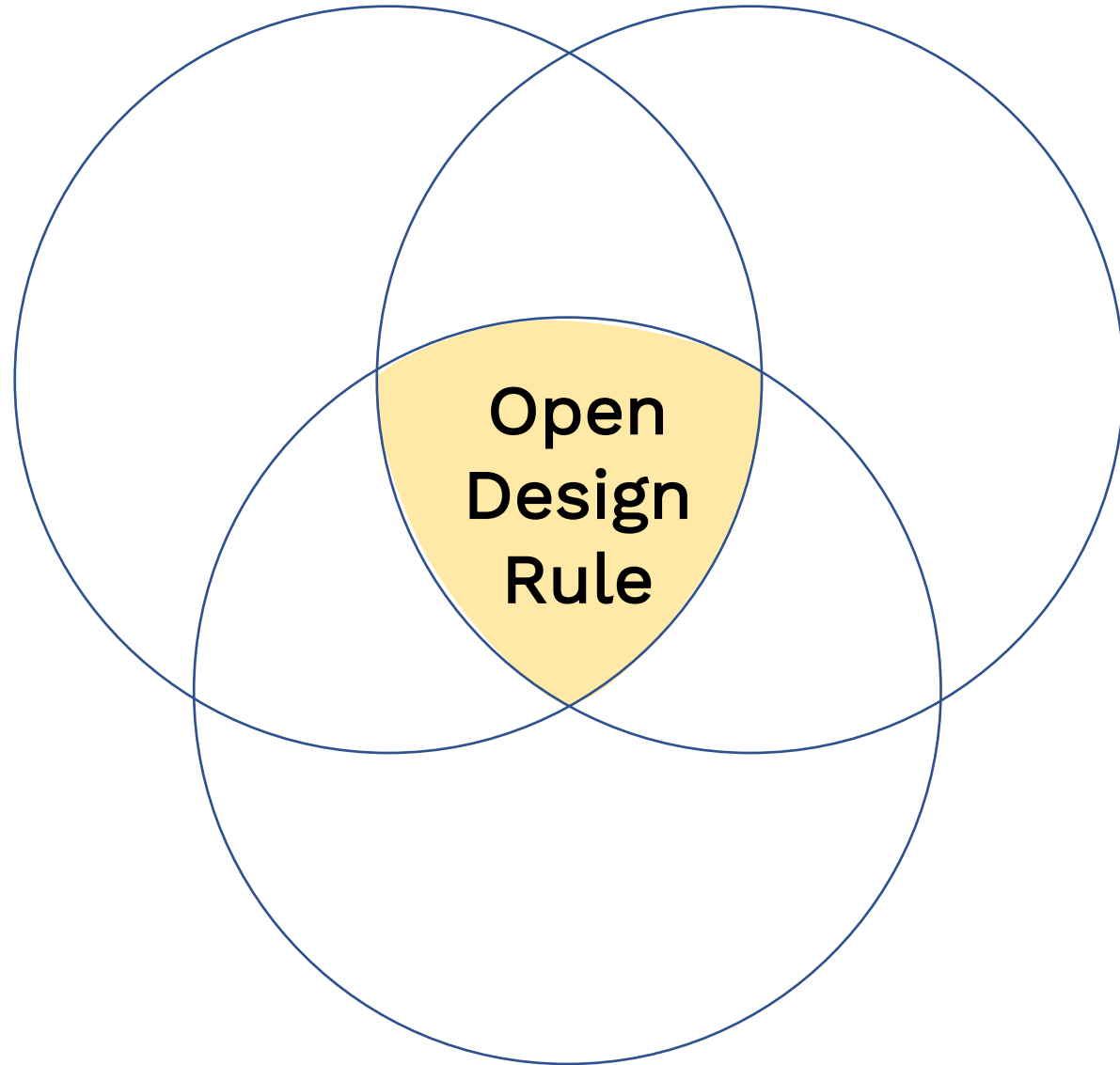
Manufacturer



Engineer

Manufacturer

**Software &
Services**



**Open
Design
Rule**



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

Rulesets 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

