

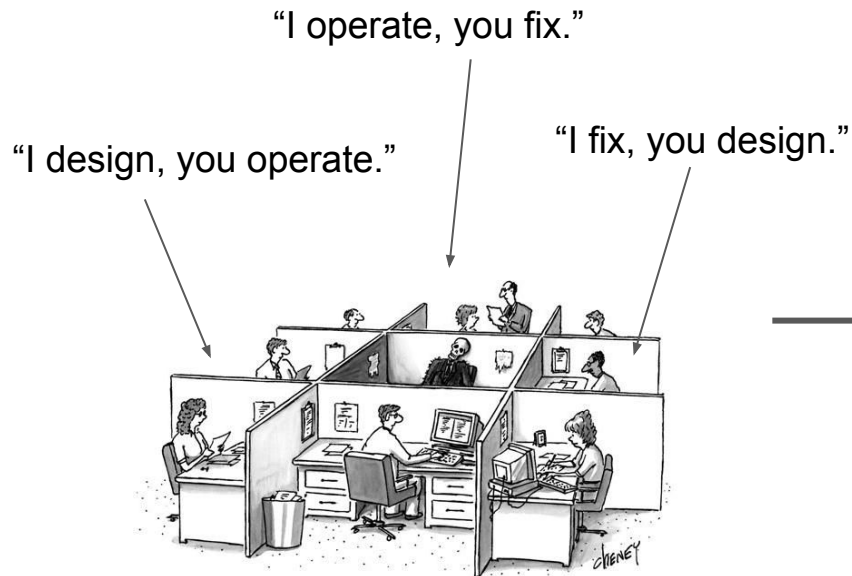


Metoda TPM

Achieving full-self management

r/wallstreetbets

OLD Approach



TPM

"We are all responsible for our equipment."



poszukamy na kolejnych slajdach analogii w informatyce...

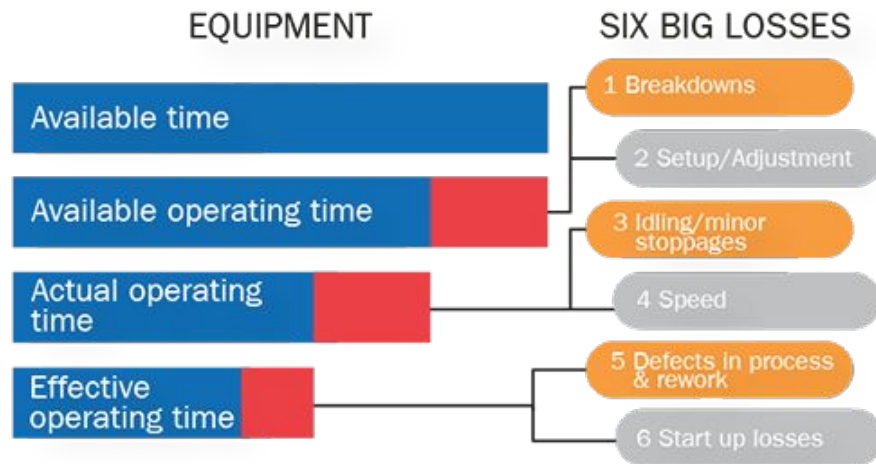
TPM and OEE

jak to się liczy?



in tech startups -> “site reliability engineering”

1. Autonomous Maintenance
2. Focused Improvement
3. Planned Maintenance
4. Quality management
5. Early/equipment management
6. Education and Training
7. Administrative & office TPM
8. Safety Health Environmental condition's



[Products](#)[Solutions](#)[Demo](#)[Pricing](#)

OEE is a Flawed Manufacturing Metric. Why the Same OEE Number Can Mean Very Different Things.

by Lindsey Andrews | Sep 16, 2019 | OEE

ONLINE CALCULATOR:

<https://www.sensrtrx.com/calculate-oeo/>

Shift Start **A**

Shift End

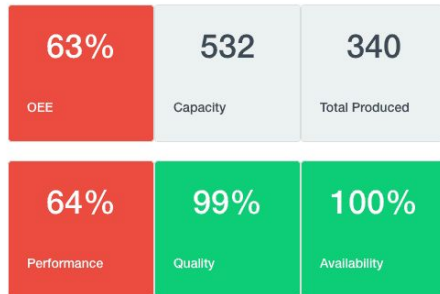
Planned Downtime

Unplanned Downtime

Total Parts Produced

Ideal Cycle Time
(minutes per part)

Total Scrap



Shift Start **C**

Shift End

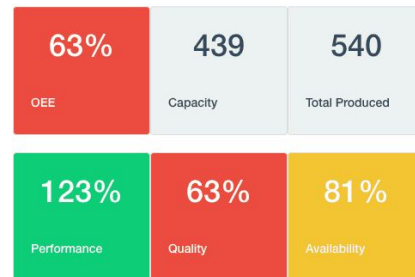
Planned Downtime

Unplanned Downtime

Total Parts Produced

Ideal Cycle Time
(minutes per part)

Total Scrap



Shift Start **B**

Shift End

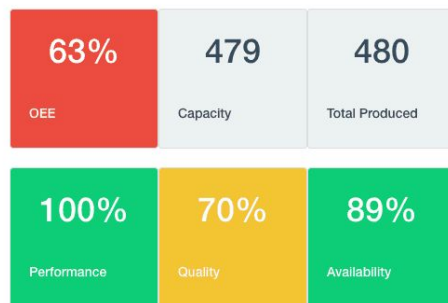
Planned Downtime

Unplanned Downtime

Total Parts Produced

Ideal Cycle Time
(minutes per part)

Total Scrap



Shift Start **D**

Shift End

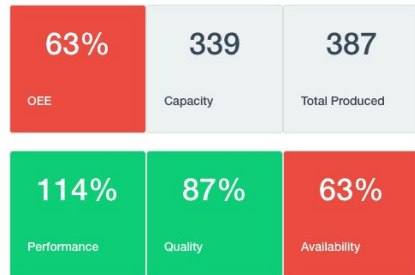
Planned Downtime

Unplanned Downtime

Total Parts Produced

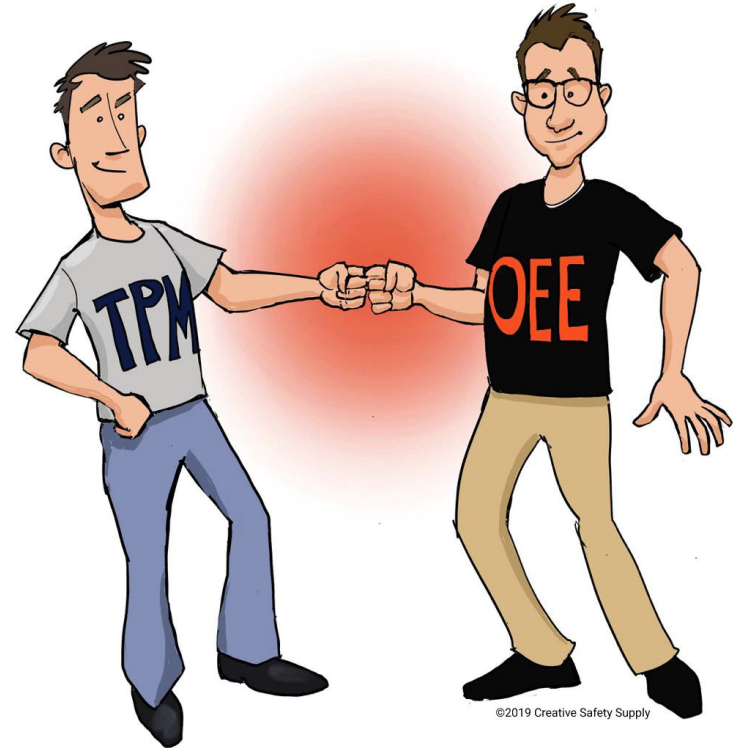
Ideal Cycle Time
(minutes per part)

Total Scrap



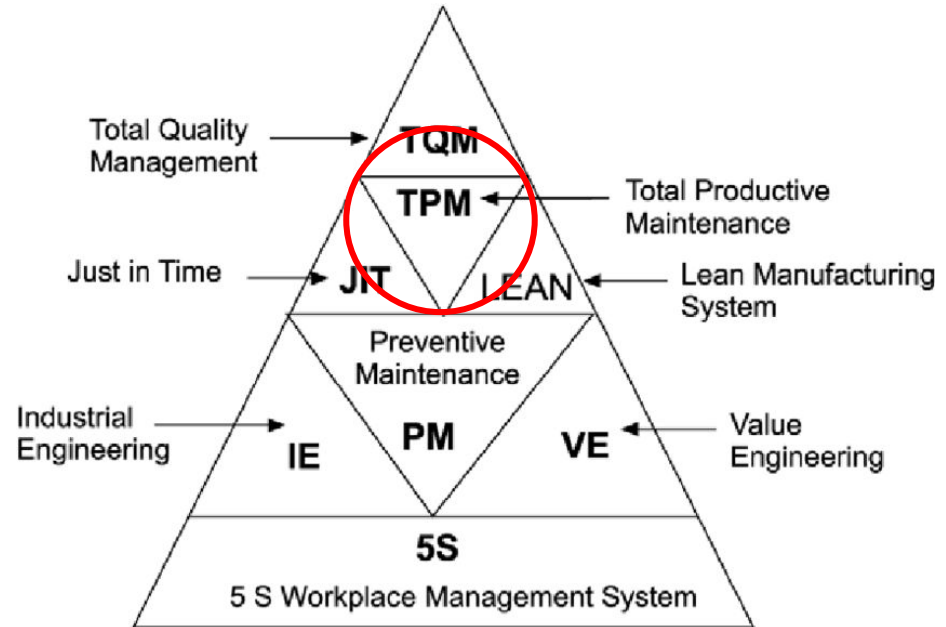
Typical OEE Values

- An OEE score of **100%** is perfect production.
- An OEE score of **85%** is world class for discrete manufacturers.
- An OEE score of **60%** is fairly typical for discrete manufacturers.
- An OEE score of **40%** is not uncommon for manufacturers without TPM and/or lean programs.



The 5s foundation

- **Sort** (eliminate anything that is not truly needed in the work area)
- **Set in Order** (organize the remaining items)
- **Shine** (clean and inspect the work area)
- **Standardize** (create standards for performing the above three activities)
- **Sustain** (ensure the standards are regularly applied)



12cm w TPM / co ono oznacza?

KLASYCZNY MODEL

zależy od typu biznesu

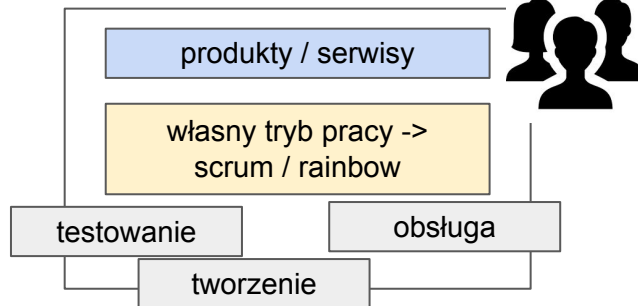


Zespół do **testowania**

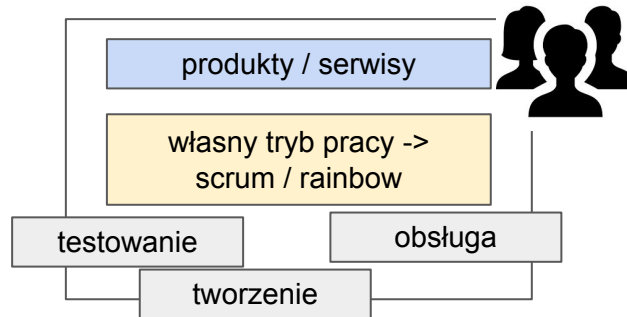
Zespół do **tworzenia**

Zespół do **obsługi**

ZESPÓŁ DO FRONTEND-U



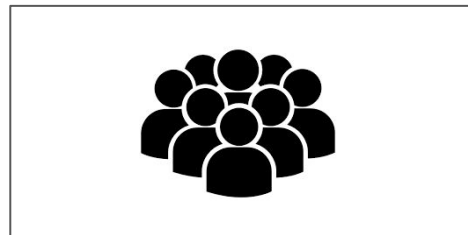
ZESPÓŁ DO BACKEND-U



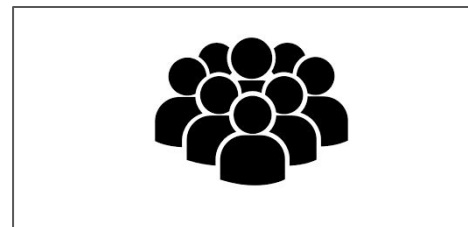
+ micro-services per team

Ale gdy poważny problem?

ZESPÓŁ DO TESTOWANIA



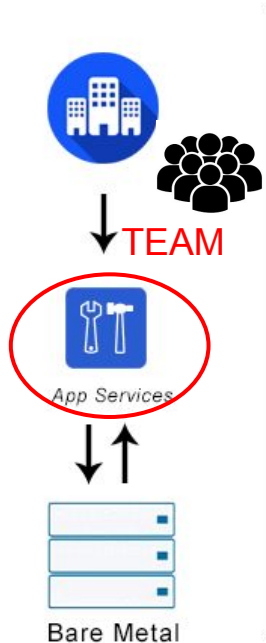
ZESPÓŁ DO BAZ DANYCH



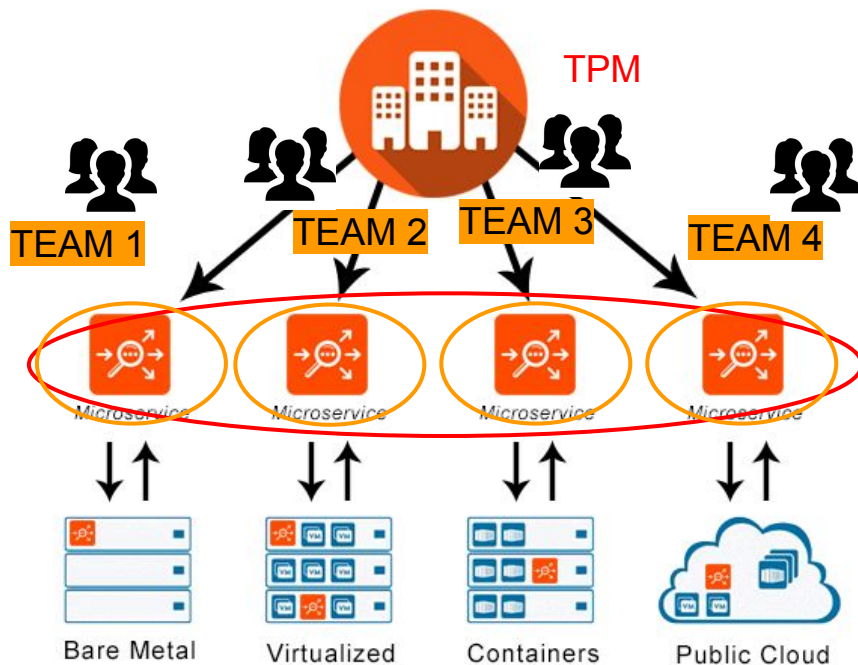
**chcemy jak największej
"samodzielności"...**

Management vs Product (czyli rozbijamy monolit)

Monolithic Architecture



Microservices Architecture

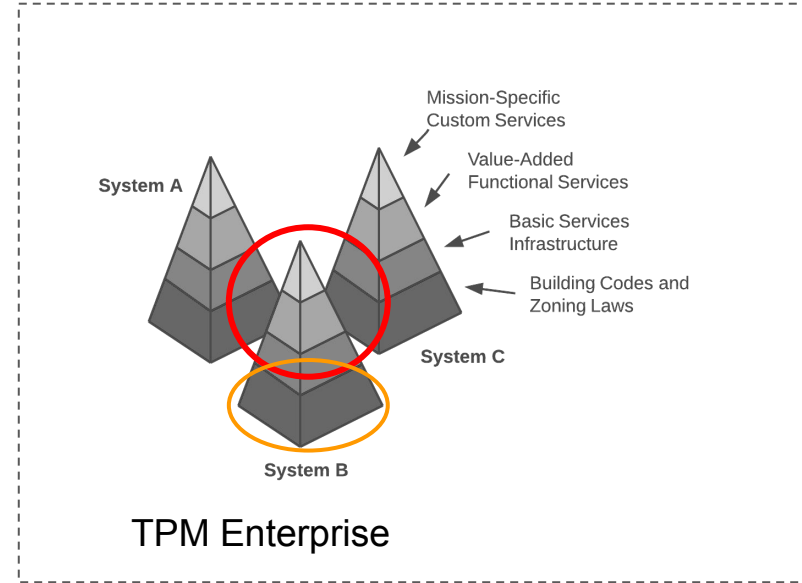
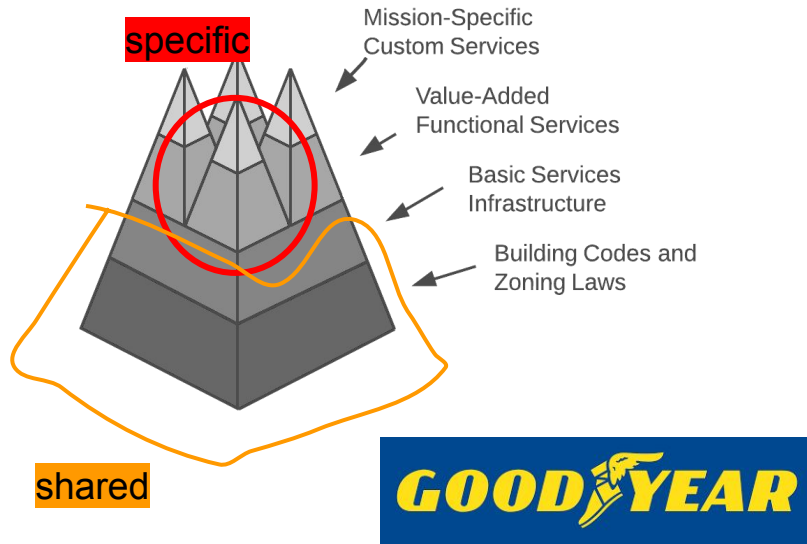


Applications



można rozbić produkt <->
zamiast rozbijać
odpowiedzialność

Stovepipe Enterprise ~= near TPM



Etymology [\[edit \]](#)

The term **functional silo syndrome** was coined in 1988 by Phil S. Ensor (1931–2018) who worked in organizational development and employee relations for [Goodyear Tire and Rubber Company](#) and [Eaton Corporation](#), and as a consultant. "Silo" and "stovepipe" (as in "stovepipe organization" and "stovepipe system") are now used interchangeably and applied broadly. Phil Ensor's use of the term "silo" reflects his rural Illinois origins and the many grain silos he would pass on return visits as he contemplated the challenges of the modern organizations with which he worked.^{[4][5][6][7]}

TPM - Zalety i wady

Pozytywy

- 1) Szybsza komunikacja/działanie -> bo wewnątrz zespołu
- 2) Redukcja mniejszych problemów (takich które pracownik sam potrafi rozwiązać)
- 3) Potencjalna redukcja kosztów przez wyłapanie defektów wcześniej -> *zapobieganie spektakularnym porażkom*



Negatywy

- 1) "skomplikowane problemy" wymagają i tak większej uwagi - innego np. zespołu
- 2) Nowi pracownicy / stażyści - ciężiej się odnajdują (bo od razu muszą być dobrzy we wszystkich rejonach działania zespołu)
- 3) Spada poziom umiejętności w firmie - "wszyscy" potrafią "wszystko" (jack of all trades, master of none) -> *co może prowadzić do spektakularnych porażek*



Przykład #1



team odpowiedzialny
za prowadzenie
pojazdów - nie
testował mechaniki w
“**Night City**” (grze na
produkcji) tylko na
torze testowym

500 people

The game was **developed** using the REDengine 4 by a team of around 500 **people**, exceeding the number that worked on the studio's previous game The Witcher 3: Wild Hunt (2015).

Number of employees: 1,111 (2019)

dużo małych zespołów



150 people

The company developed The Witcher 3: Wild Hunt with a self-funded budget of US\$**81 million** over three-and-a-half years. The project began with 150 employees, eventually growing to over **250** in-house staff. **1,500 people** were involved in the production globally.

bardziej “zwarte” zespoły pokrywające
wiedza cała gre

Przykład #2



Typical Job Planned On-the-Run (Time)



Planning Activity

Same job if Professionally Planned (Time)



Work Activity

mały zespół i TPM daje radę ->
automatyzacji / dobremu planowaniu (wsparcia
OpenAI)



Artificial intelligence company



*no boards!
app tells you what
to do...*

Thank you for your attention :)

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