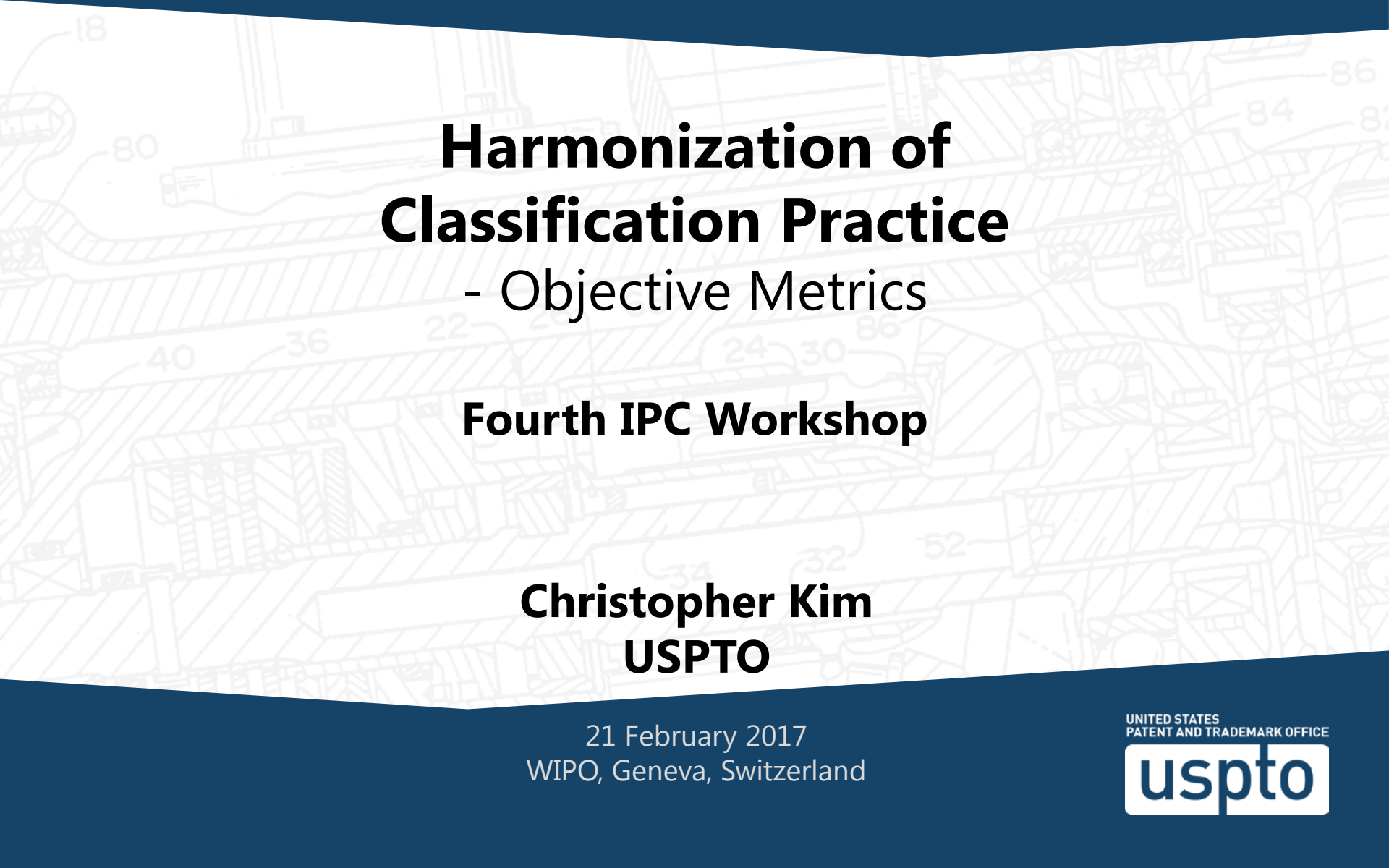


**UNITED STATES  
PATENT AND TRADEMARK OFFICE**





# **Harmonization of Classification Practice**

- Objective Metrics

**Fourth IPC Workshop**

**Christopher Kim  
USPTO**

21 February 2017  
WIPO, Geneva, Switzerland

UNITED STATES  
PATENT AND TRADEMARK OFFICE



# Agenda

- Harmonized Patent Classification
- Data Driven Approach
- USPTO Tool
- USPTO's IPC Tool under development

# International Patent Classification

More than 100 countries use the International Patent Classification.

Available in 14 languages.

All working towards a common goal of consistent, harmonized patent classification.



# What is Harmonized Patent Classification ?

- Uniform Classification
- ***Clear*** classification rules and guidance

# Harmonized Patent Classification

## ***Increases search efficiency***

- Uniform classification practice improves chances of finding best prior art in one area
- Diverging classification practices require searching in **multiple areas** for same concept,  
→ increasing the time required for a complete search

## ***Increases International Cooperation and Work Sharing***

- Worksharing benefits (e.g. CPC)
  - Each office does not have to classify the same disclosure

# Harmonized Patent Classification

***Decreases*** *classification resources* needed for classifying

- Less maintenance of the scheme and definitions
  - Less revision
  - Less reclassification
- Reduce number of frontfile documents to classify

# Harmonized Patent Classification in IPC benefits national classification systems

- Classification (CPC) and File Index (FI) systems are based on IPC
  - Identifying classification trends in emerging technologies in IPC allows all classification systems to move closer to a harmonious system



# Relying on only intellectual review is insufficient

- Requires large amount of resources, time and labor, to analyze the full IPC scheme
  - Significant resources in both IT and examiner/classifier labor is required to identify areas of divergence
- Individual cases or anecdotal assessment is unreliable for overall assessment.
  - Individual cases cannot provide a full picture and may skew results based on individual reporting and subjective interpretation
- Unguided intellectual review can overlook more subtle developments of divergence

# Data-driven approach offers the best solution

- Allows for early identification of diverging classification practices
- Allows for continuously monitoring classification areas
  - Early identification and remediation will decrease costs and resources by catching divergences before they grow too substantially
  - Allows for tracking changes in classification practices after revision/reclassification projects are complete
- Can be used to prioritize revision and/or reclassification projects based on largest impact
- Provides more transparency and support for business decisions

# Benefits of Data-driven approach for IPC

- Efficiently prioritize revision and reclassification projects that will have the largest impact on multiple offices
- Encourage cooperation and shared resources between offices
- Improve IPC scheme clarity by identifying areas of diverging interpretations
- Proactively identify areas for potential revision based on emerging technology

# Cell Phone Slide/Rotation Mechanism example

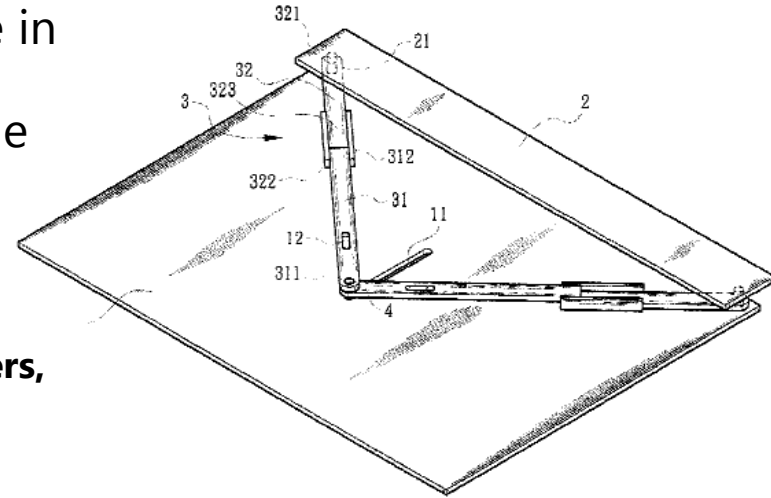
- Objective Metrics identified divergence practice in classifying mechanical devices for use of sliding level and spring system typically found in mobile phones, notebooks, and electronic devices.

One office was classifying in

**F16H21/44: gears comprising primarily only links or levers, with or without slides for conveying or interconverting oscillating or reciprocating motions.**

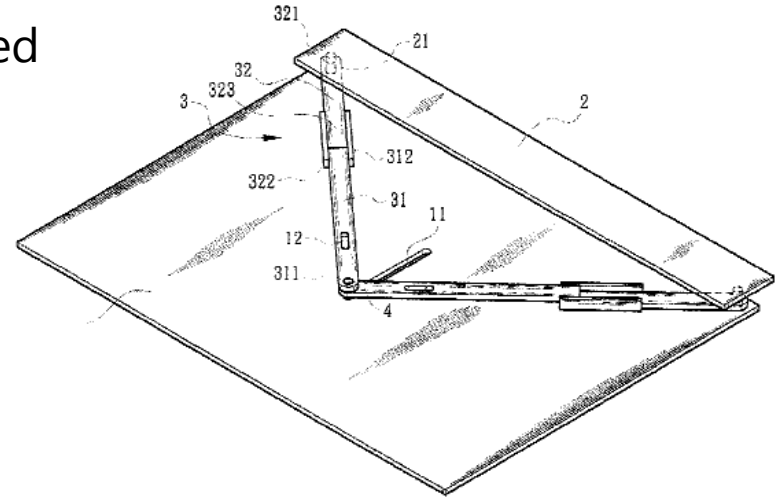
Another office was classifying in several subclasses under

**H04M 1/ related to telephonic communication related to substation equipment.**



# Cell Phone Slide/Rotation Mechanism Cases

- Divergent practice was identified and discussed by experts.
- Agreement was reached on how to classify similar devices.
- Dialogue improved relationship between different offices, searching, and classification practice.

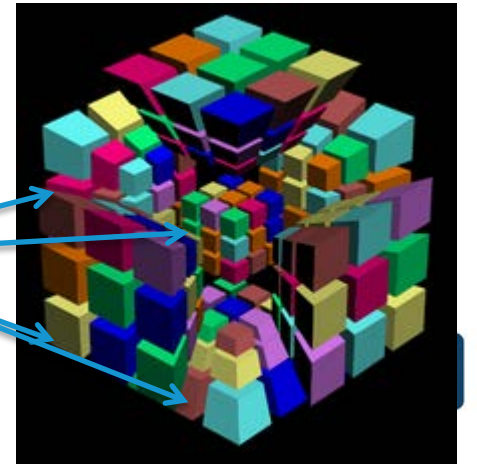
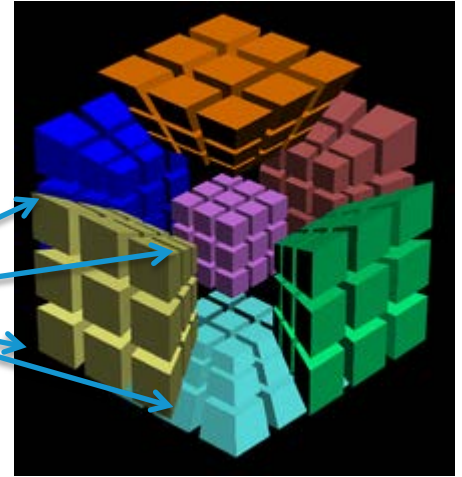


# Early Prototype by USPTO

Composite score to analyze classification data between two offices.

Identifying:

- Convergence
- Divergence
- Under-classification
- Over-Classification



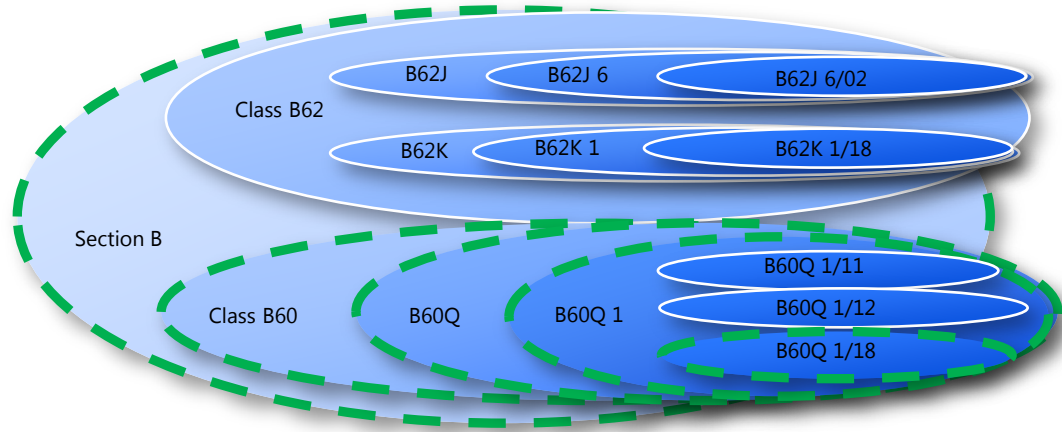
# Early Prototype by USPTO

## Composite score

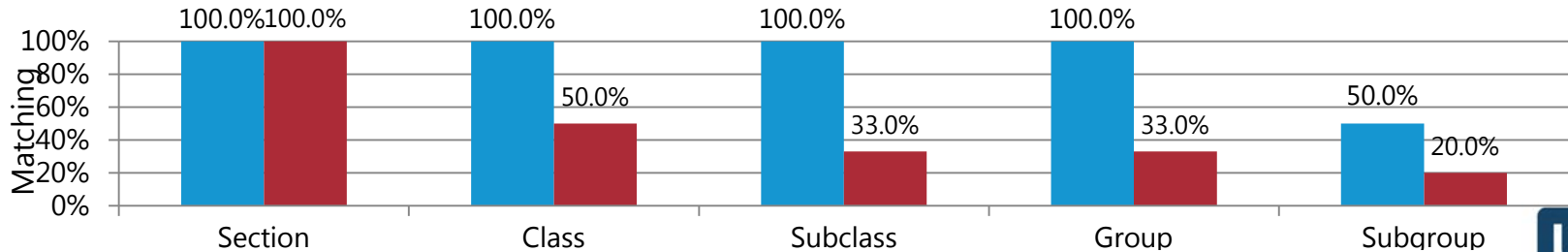
- Used cross-classified patent families
  - Inventions filed in multiple related by common priorities
- based on matching allocations at all scheme depths
- Analyzed based on the number of allocations from each office

# Matching Inventive Symbols for a Family

Entity 1	Entity 2
B60Q 1/11	B60Q 1/12
B60Q 1/18	B60Q 1/18
	B62J 6/02
	B62K 1/18



$$\text{Matching} = \frac{\text{Common classification at a depth of scheme}}{\text{Total classification given by an entity at said depth of scheme}}$$



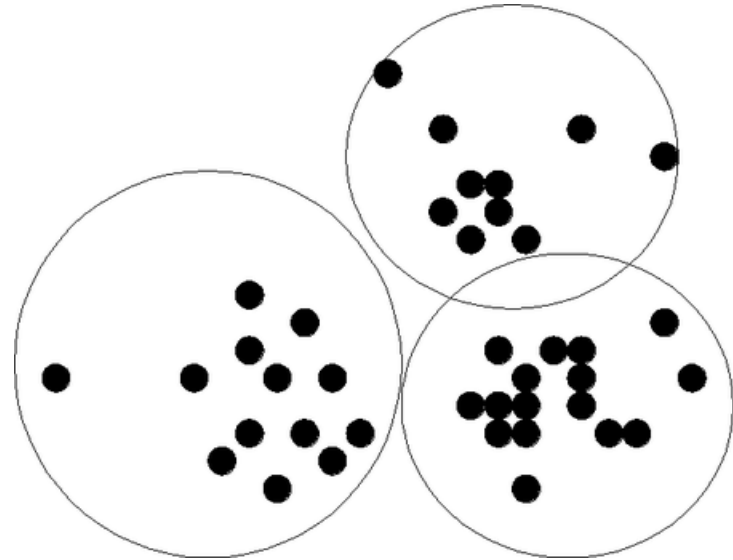




# Under current development

## Factor Analysis:

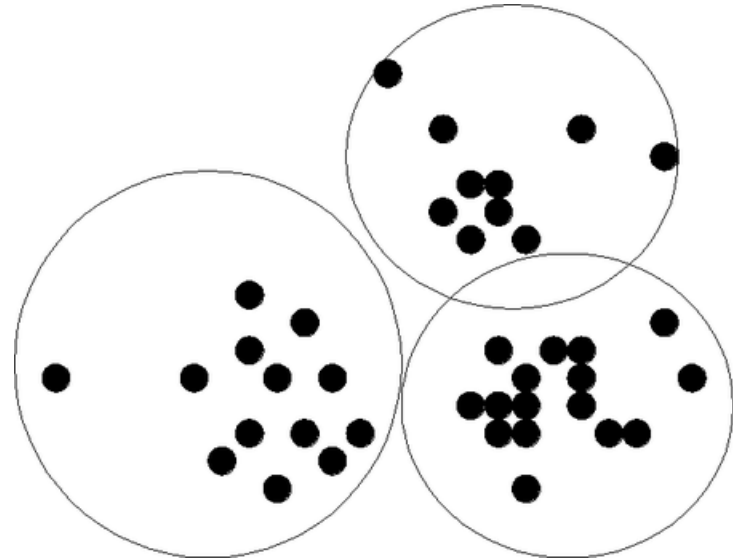
- Determining patterns due to latent variables that cause overall variance
- Investigating between documents within a family:
  - Classification variation between groups
  - Distance between classifications in hierarchy



# Under current development

## Cluster Analysis:

- Detect similar characteristics and groups
- Investigating between documents within a family:
  - Determining grouping patterns of classifying emerging technology



# Benefits to IPC

- Increase accuracy and efficiency of prior art searches of national collections
- Identify potential areas for IPC revision/maintenance
  - Improve clarity of scheme
  - Improve clarity of definitions
  - Improve granularity of growing subgroups
- Promote cooperation and worksharing
  - Opportunities for communication about interpretation

*USPTO is willing to work with WIPO to develop tools for IPC*

# Thank you

Christopher Kim  
Classification Quality and  
International Coordination Division

[cpc@uspto.gov](mailto:cpc@uspto.gov)



**UNITED STATES  
PATENT AND TRADEMARK OFFICE**

