

March 30, 2016

Subject Matter Eligibility Guidance from the Federal Circuit: *Thales Visionix v. United States* Kelvin L. Varghese

Both the courts and the Patent and Trademark Office (PTO) have struggled to define the metes and bounds of the subject matter eligibility analysis under 35 U.S.C. § 101. The Court of Appeals for the Federal Circuit's recent decision on March 8, 2017 in *Thales Visionix Inc. v. United States*¹ further clarifies the first step of the eligibility analysis, while confirming the significance of that step.

Under § 101, patent protection is available to “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” Patent claims directed to laws of nature, natural phenomena, and abstract ideas, however, are not patent-eligible subject matter.² Courts and the PTO evaluate the subject matter eligibility of claims under a two-step framework set forth by the Supreme Court in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*³ and *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*. Step one asks “whether the claims at issue are directed to a patent-ineligible concept.”⁴ If the claims are not directed to an ineligible concept, then the inquiry ends and the claims are subject matter eligible.⁵ If the claims are directed to an ineligible concept, step two of analysis determines if the claims “contain[] an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.”⁶

In *Thales*, the Federal Circuit determined the claims at issue were not directed to patent-ineligible subject matter at step one in the *Mayo/Alice* framework.⁷ The claims involved an inertial tracking system that could be used in aircraft navigation.⁸ The patent at issue, U.S. Patent No. 6,474,159, includes two independent claims—an apparatus claim and a method claim—reproduced below:

Independent Claim 1

A system for tracking the motion of an object relative to a moving reference frame, comprising:

- a first inertial sensor mounted on the tracked object;
- a second inertial sensor mounted on the moving reference frame; and
- an element adapted to receive signals from said first and second inertial sensors and configured to determine an orientation of the object relative to the moving reference frame based on the signals received from the first and second inertial sensors.

Independent Claim 22

A method comprising determining an orientation of an object relative to a moving reference frame based on signals from two inertial sensors mounted respectively on the object and on the moving reference frame.

¹ No. 2015-5150 (Fed. Cir. Mar. 8, 2017).

² *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014).

³ 132 S. Ct. 1289 (2012).

⁴ *Alice*, 134 S. Ct. at 2355.

⁵ *Enfish, LLC v. Microsoft Corp.*, 822 F. 3d 1327, 1339 (Fed. Cir. 2016).

⁶ *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 132 S. Ct. at 1294.)

⁷ Slip op. at 11.

⁸ *Id.* at 2.

Prior inertial tracking systems determined the orientation of an object in a moving platform relative to the earth.⁹ This prior approach suffered from inaccuracies and required another type of sensor to correct for these errors.¹⁰ The invention claimed in the '159 patent solved these problems by determining the orientation of the object within the reference frame of the moving platform, not the earth.¹¹ This approach improves the accuracy of the inertial tracking system, allows the system to operate without an additional sensor to account for errors, and involves simpler installation.¹²

The Federal Circuit's analysis began by recognizing that the "Supreme Court's formulation makes clear that the first-stage filter is a meaningful one, sometimes ending the § 101 inquiry."¹³ Accordingly, the court committed to "articulate what the claims are directed to with enough specificity to ensure the step one inquiry is meaningful."¹⁴

The court next reviewed two other Federal Circuit cases that previously determined that certain claims were not directed to ineligible subject matter under step one. The claims at issue in the first case, *Rapid Litig. Mgmt. Ltd. v. CellzDirect, Inc.*,¹⁵ were found to be directed to a laboratory technique for preserving liver cells, rather than the natural law that cells could survive multiple freeze-thaw cycles, because a particular application of the natural law was claimed rather than the natural law itself.¹⁶ The court also recognized that the claims in the second case, *Enfish LLC v. Microsoft Corp.*, were not directed to simply any form of storing tabular data (characterized as an abstract idea), but rather to a specific improvement to the way computers operate in the form of a self-referential table that functions differently than conventional databases.¹⁷

The Federal Circuit then looked to the Supreme Court's decision in *Diamond v. Diehr*¹⁸ for guidance. While the claims in *Diehr* included a mathematical formula, the Supreme Court held the formula was implemented or applied "in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect."¹⁹ The Federal Circuit observed that "the *Diehr* claims were directed to an improvement in the rubber curing process, not a mathematical formula."²⁰

Based on its evaluation of *Rapid Litig.*, *Enfish*, and *Diehr*, the Federal Circuit concluded that the claims of the '159 patent in *Thales* were not directed to patent-ineligible subject matter.²¹ The court found that the claims were directed to a system and a method including a particular configuration of inertial sensors used to more accurately determine the orientation of an object on a moving platform.²² The court further clarified that the claims were not directed to any mathematical equation because any equations utilized with the claimed system would "serve only to tabulate the position and orientation information" in the claimed configuration of two inertial

⁹ *Id.* at 2-3.

¹⁰ *Id.*

¹¹ *Id.* at 3.

¹² *Id.* at 3-4.

¹³ *Id.* at 6 (quoting *Elec. Power Grp. LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)).

¹⁴ *Id.* at 6-7.

¹⁵ 827 F.3d 1042 (Fed. Cir. 2016).

¹⁶ *Id.* at 7.

¹⁷ *Id.* at 7.

¹⁸ 450 U.S. 175, 177 (1981).

¹⁹ *Thales*, slip op. at 8 (quoting *Diehr*, 450 U.S. at 192).

²⁰ *Id.* at 8.

²¹ *Id.* at 10-11. While the claims of the '159 patent survived scrutiny at the Federal Circuit, they did not fare so well before the Patent Trial and Appeal Board (PTAB) during *inter partes* review. See *Elbit Sys. of Am. v. Thales Visionix, Inc.*, IPR2015-01095 (PTAB Oct. 14, 2016). Prior to the *Thales* decision by the Federal Circuit, the PTAB invalidated the independent claims and several dependent claims as being obvious under § 103, while confirming the validity of other dependent claims. *Id.* The Federal Circuit's decision in *Thales* is nevertheless instructive for how courts and the PTO should apply subject matter eligibility analysis under § 101.

²² *Thales*, slip op. at 9-11.

sensors.²³ The court supported its conclusion by explaining that the inertial sensors were configured in an unconventional manner that resulted in a reduction of errors, could be installed with any type of moving platform, could be installed more simply, and required no external information from another sensor.²⁴

The Federal Circuit's robust step one analysis in *Thales* demonstrates that the first-stage of the subject matter eligibility filter is indeed a meaningful one.²⁵ As such, Applicants at the PTO facing a § 101 rejection may benefit in spending more time with an examiner at step one. Furthermore, a focus on articulating alleged ineligible subject matter with specificity should help prevent generalized characterization of the claims that avoids meaningful analysis. The Federal Circuit's treatment of mathematical relationships in *Thales* is instructive in distinguishing between claims directed to an ineligible abstract idea, as compared to claims directed to an eligible and particular application of that abstract idea. What effect, if any, *Thales* will have on PTO policy remains an open question.

²³ *Id.* at 9.

²⁴ *Id.* at 9-10.

²⁵ *See id.* at 6.